The Ethno-politics of Water Security:

Contestations of ethnicity and gender in strategies to control water in the Andes of Peru

Juana Rosa Vera Delgado

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To the memory of my mother Casilda Delgado Ibargüen and my father Amadeo Vera Neyra. You planted in me the seed of work, perseverance and commitment to justice

To all those women and men displaced and dispossessed from their land and water, your struggles might be lost, but your spirit for justice remains alive through countless works like this thesis, with the intent to some day change the course of history.

Acknowledgments

The first thoughts that come to my mind when I take a seat behind my computer to write these pages, is the persistent questions of my children 'Mommy, do you still need a lot of time to finish your book?', 'how many pages do you still need to write?'… If only I could explain the meaning enclosed in these words, so familiar to every mother who launches herself on a mission to research and writes a PhD thesis, whose children are still small and largely dependent on their parents. Love, a smile, patience and the bright attention of my son Inti and my daughter Ch'aska were my source of inspiration and energy and fed my perseverance to write this thesis, actually just the beginning of a new quest in my life. I am conscious that finishing this work represents at the same time a new start for me and my children. However, on the same path, we will continue our steps to "make the road by walking" for a different society, more human, with more justice and sensitivity to the language of Nature. There are so many colleagues, friends, family members and institutions who collaborated, gave inspiration and help, friendship and professional assistance, not only enabling this study but also putting on paper all these years of intense learning, of encounters and confrontations with the daily reality of rural Peru and my commitment to contribute to rural development in the Andes.

In the first place I would like to thank the men and women of Coporaque and the Colca Valley in general. They have offered me shelter with love and much needed good spirits and made me feel at home. My reencounter with my Andean identity, after finishing my university studies in the 1990s, I owe partly to them. The experiences I could share during their daily work, cultural celebrations, daily struggles to confront the scarcity of water and even personal or family problems, sowed the seeds which later blossomed in this research project. I express my special thanks to Sixto Huerta, Zenobia Taco, Beatriz Choque, Honorato Suyco, Josefina Bernal, Jury Huaypuna, Hugo Bernal, and Marcial Sullca for their valuable help, advice and solace in difficult moments.

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Developing my field work, at times being absent for several days or staying up until wee hours (often until 1 o clock in the morning) participating in meetings of the *Comisión de Regantes de Coporaque*, would not have been possible without the valuable and dedicated help of Hilda Mamani, my former university batch mate. She took the bold decision to leave her work and family in Lima in order to join me in Chivay, helping me with the care of my children who at that time were only 1 and 4 years old with my son Inti not even walking yet. At that moment I had just moved from the Netherlands to Chivay to do my

field research. I found myself alone, trying to build a home where I could live with my children, far from any family help in Peru (who live in Lima and Apurímac) and the Netherlands (the father of my children stayed in the Netherlands). Combining my roles of researcher and mother was an enormous challenge for me and Hilda, as my children fell constantly ill (as foreigners used to Holland) with diarrhoea and bronchitis, and helping their adaptation to to rural life at the high altitude of Chivay (3,700 m.a.s.l.) was a great feat. Hilda has been a mother, a sister and friend in these dear moments of my life and work in the Colca Valley. My children and I will be eternally grateful to her.

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I would like to thank and recognize the valuable and permanent help of Rutgerd Boelens, from the moment I initiated my MSc-studies (1997-1999) in the Netherlands (as supervisor of my thesis), until the moment I finished this work. He gave me the opportunity to be part of the research group on WALIR (Water Law and Indigenous Rights), developing a study about 'gender and water' in three Andean countries (Bolivia, Peru and Ecuador). Fortunately my entrance in WALIR also opened the prospect to learn from the experience and studies of my colleagues about ethnicity/ethnic concerns in water rights and the analysis of water control. This experience fitted like a ring on my finger, not only because it allowed me to learn more about gender, but also because it located me in the centre of my Andean cultural background. Although I was learning a lot in WALIR, it also confronted me with dilemmas regarding identity, while I was reading and analyzing the Andean water world. To some extent I was educated (at the university) to read this reality from the perspective of a technical scientist, with the 'lens' of 'westernized' education. At the same time I have also lived and experienced the Andean water culture, and I frequently felt tempted to 'romanticize' it; something which even occurred during the writing of this book. To be honest, I feel I belong to both worlds and sometimes of neither. I am just a woman and a mother who, although being a scientist, living and being part of a Dutch family, still feels strongly linked to my community and its communalities, to my sentient rivers and water springs, and to my sacred mountains (*Apus*). I am simply different, although not unique among those feeling plural identities. In remarking on this cultural dilemma and fusion, I also want to thank the people of my community, where I have learned somehow to be a *comunera.* My parents (both passed away) for the insights and support they have given me. My parents were *comuneros* of the

'*Comunidad Campesina de Silco*', located in the Southern Andes of Antabamba (3100 m.o.s.l), in Apurímac. My father was considered to be one of the leaders of the community. Every year he used to have different positions of authority (water judge or water mayor, community president or treasurer, secretary, magistrate, governor, etc). He fulfilled these obligations until the age of 77 years. He also led the community's land struggles against local *hacendados* (alpaca owners) during the Land Reform (1972-1975). My mother, in contrast, dedicated herself entirely to the household and activities in the field. When I was teenager, I used to join my father in communal meetings, or helped him with economic reports (when he served as a treasurer). When I was a child, like other children of my community, I participated in family and communal tasks like *aynis*, *mink'as* (or *mingas*), *faenas*. I learned how to irrigate, to cultivate, to harvest, or to herd cattle in the mountains. All of these tasks were full of cultural meaning and rituals. Thus, from very young I learned the Andean communities' ways of living, and alongside it I learnt dealing with uncertainty, marginalization, and insecurity. For this bigger experience and socialisation that helped my thesis research, I also thank my past communities.

Returning to the Netherlands and the present time, another friend and colleague I would like to thank and show appreciation is to Rob de Windt, who not only helped me to correct the English throughout. His patience and life experience, together with his great knowledge of Latin American reality, as well as his interest in my work, enabled me to ask and find assistance in times of need. I also express my special recognition and gratitude to María Pierce and Enid Tomkinson for their valuable work on correcting the English mistakes in the last draft of the thesis. To Deepa Joshi for her input and ideas.

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Abbreviations

AIDESEP	Asociación Interétnica de Desarrollo de la Selva Peruana
ALA	Autoridad Local del Agua (Local water authority)
ANA	Autoridad Nacional del Agua (National water authority)
APRA	Alianza Popular Revolucionaria Americana, or Partido Aprista
ATDR	Administración Técnica de Distritos de Riego
AUTOCOLCA	Autoridad Autónoma del Colca
AUTODEMA	Autoridad Autónoma de Majes (Autonomous authority of Majes)
CAOI	Coordinadora Andina de Organizaciones Indígenas
CAPRODA	Centro De Promoción y Desarrollo Agropecuario
CCP	Confederación Campesina del Perú
CMC	Catchment Colca-Majes-Camaná
CNA	Confederación Nacional Agrícola
COFOPRI	Comisión de la Formalización de la Propiedad Informal
CONACAMI	Confederación Nacional de Comunidades del Perú afectadas por la
CONAIE	confederación Nacional de Indígenas del Ecuador
CONAP	Confederación de Nacionalidades Amazónicas del Perú
CCP	Confedereción de las comunidades Campesinas
COPASA	Cooperación Peruano Alemana de Seguridad Alimentaria
CRP	Congreso de la República del Perú
C. Regantes	Comisión de Regantes
DESCO	Centro de Estudios y Promoción del Desarrollo
DL	Decreto Legislativo
DNI	national identification (in Peru)
ECLAC	Economic Commission of Latin American and Caribbean
FREDIVEC	Frente de Defensa de los Intereses del Valle del Colca
GO	Governmental organization
ICC	Irrigation control card
IDB	Inter-American Development Bank
INEI	Instituto National de Estadística e Informática
INRENA	Instituto Nacional de Recursos Nacionales??
IPC	Indigenous peasant community
IPROGA	Instituto de Promoción para la Gestión del Agua
IRR	Internal rate of return
IWE	Irrigation and Water Engineering
IMA	*Instituto de Agua y MedioAmbiente'*
JNUDRP	Junta Nacional de Usuarios de Distritos de Riego del Perú
J. Usuarios	Junta de usuarios de riego (water use association)
JVD	Juana Vera Delgado
LRH	Ley de Recursos Hídricos
MACON	Majes Consortium
MCM	Millions cubic meter
MIP	Majes Irrigation Project
NGO	Non governmental organization
PAN	Pacto Agrario Nacional
PETT	Proyecto Especial de Titulación de Tierras y Catastro Rural
PROFODUA	Programa de Formalización de Derechos de Agua
PRODERM	*Proyecto de Desarrollo Micro-regional*
SAIS	Sociedad Agrícola de Interés Social
SINAMOS	*Sistema Nacional de Apoyo a la Movilización Social)*
SENAMI	Servicio Nacional de meteorología e información
TLC	Tratado de Libre Comercio (
TPA	Tecnologías productivas apropiadas
UNESCO	United Nations Educational, Scientific and Cultural Organization
WALIR	Water Law and Indigenous Rights
WUA	Water user association
WUO	Water user organization
ZEE	Zonificación ecológica y económica

Glossary

(Meanings of *Runa Simi and Aymara* Words)

Apu	*(Runa Simi)* Sacred mountain. It also refers to the name of a Deity and former sovereign, the one who came third after the Inka.
Alpaquero	*(Runa Simi)* A peasant who is dedicated to breeding Alpacas.
Amaru	*(Runa Simi) Amaru* is the incarnation of two snakes that live underground. One has a single head and represents *Yakumama* (mother water), and the other has two heads and represents *Sach'amama* (mother of the trees).
Akapana	*(Runa Simi)* Hurricane, colour of the sky at sunrise or sunset.
Apurimaq	*(Runa Simi)* Ancient female water deity, related with the River of Apurímac. Literally, the speaking deity or goddess.
Mt. *Apu Kiku*	*(Runa Simi)* The name of a sacred mountain in Pasma-Chivay, Arequipa.
Auquisqocha	*(Runa Simi)* The lake of the ancestors.
Ayllu	*(Runa Simi)* The term *Ayllu* has many definitions. Most authors agree that it refers to a corporate ethnic group, linked by some degree of kinship, which 'owned' or managed communal resources, like land and water.
Ccapac, Capa, or Qapaq Capyama	*(Runa Simi, and Aymara)* Rich or powerful. Sovereign, emperor, king Ancient water goddess of Yampilla Ayllu, Huarochiri – Lima. *(*from the tale of 'Gods of Huarochiri').
Caciques	*(Runa Simi)* Name ascribed by the Spaniards to former governors during the pre-Columbian period.
Cavillaca	The semi-goddess in the myth of *Pachakamaq (*from the tale of 'Gods of Huarochiri').
Ceques	*(Runa Simi)* Imaginary lines.
Chakana	*(Aymara)* Mast or rungs of the ladder.
Checa	*(Aymara)* Comes from *Cheqaq* (the trustful person). According to the narratives of Ávila (1966), the term refers to a sort of high priest in the pre-Inka period.
Chicha	*(Runa Simi)* Andean beverage of (most of the times) fermented maize (drunk as beer). In some regions, like in the Colca Valley, chicha is prepared by mixing different grains, like quinua, barley, beans, etc.
Choqechicha	*(Aymara)* Female water deity in the highlands of the Colca Valley. In the local myths the deity is related to the living spirit of the Andean *paramos* and springs. *Choqe* means in *Aymara* the most precious (like gold).
Choquesuso	*(Aymara)*Ancient female water deity of the population of San Lorenzo de Quinti, located in Huarochiri, Lima *(*from the tale of 'Gods of Huarochiri')

Colla	*(Runa Simi)* Queen.
Collquiri	*(Runa Simi)* A water male deity, who fell in love with *Capyama (*from the tale of 'Gods of Huarochiri').
Copacabana	*(Aymara)* Comes from the word *copa* referring to turquoise blue, the colour relating it to the colour of the water of the Lake. It was an idol of stone, in the form of a fish with a human face, representing the lake Titicaca.
Copacati	*(Aymara)* An idol of turquoise blue stone, in the form of human face with 'hair' of snakes.
Coporaque	*(Aymara)* This name comes from two Aymara words*: Copo*, which means circle (or a group of people talking), and *raqui*, which means to divide. Place where people are gathered and separated, probably for specific missions.
Coriccacca	*(Runa Simi)* The rock of gold, or the most beautiful rock.
Cunirraya-Wiraqocha	Aquatic deity in Huarochirí. *(*from the tale of 'Gods of Huarochiri').
Faena	*(Spanish)* Collective work, for instance for repairing a canal.
Hanan	*(Runa Simi)* The other (upper) place.
Hanansaya	*(Runa Simi)* The other upper half partiality or moiety.
Hatum	*(Runa Simi)* Great.
Hatun Mayu	*(Runa Simi)* The big river. It was the former name of the Colca River.
Hualqa-Hualqa or Hualca-Hualca or Wallqa Wallqa	*(Runa Simi) Wallqa* = chain, bond, or string. The sacred snow-mountain of the Cabanas culture, which developed in the Colca Valley before the Inka era. Actually, it refers to the *Apu* mountain of the communities of Pinchollo and Cabanaconde.
Huaca or GUACA	*(Runa Simi and Aymara)* Local and regional sacred places / mummies of ancestors.
Huaqaypata	*(Runa Simi)* Place of mourning.
Huarochirí	(*Runa Simi*) It probably comes from two words: *huaru* = the highest and the deepest (in Aymara), and *chiri:* cold (temperature).
Humahuaca, or Umahuaca	*(Aymara)* The sacred place or worship centre of water (*Uma*). Canyon along the Río Grande Valley in Argentina.
Hunu or Unu	*(Runa Simi)* Water. An *Unu* was also a chief who commanded 10,000 families in the Inka era.
Illapa or Libiac	*(Runa Simi)* Deity of lightening.
Inka	*(Runa Simi)* It means almost sun, or the son of the sun.
Inti	*(Runa Simi)* Sun.
Iranta, or pagachi, or despacho	*(Aymara)* Presents or offerings prepared by the Andean priest to give to the (water, mountain, earth) deities.
Jornalero	*(Spanish)* Wage labourer.

K'ayao or Kayao	Common folk.
Kamayoq	*(Aymara)* A person who is in charge to fulfil some duty.
Kollaguata	*(Aymara?)* The name of a volcano- mountain in the up-lands of the Colca Valley.
Kon-Ticci (or tiqsi)-Wiraqocha	(*Runa Simi*) Aquatic deity in Inka times. *Kon* = the highest, *Tiqsi* = the founder, *Wiraqocha* = lord.
Kuraka	(*Runa Simi*) The top governor of a region. In the Inka era, a *Kuraka* was a native leader of conquered areas who was rewarded for his/her compliance with the Inka. The Spaniards called them *Caciques*.
Lari Collaguas	*(Aymara)* One of the partialities (moiety) of the Collaguas kindomship. *Lari* = uncle or family from the maternal line, *Kollagua* = from Aymara region.
Macahuisa	*(Runa Simi?)* Son of the deity *Pariaca* (from the tale of 'Gods of Huarochiri').
Mallku	(*Runa Simi, and Aymara*) Lira (Diccionario Khechuwa-Español, 1941) translates *Mallku* as: 'name of a great [water] deity, and the name for a group of people during the Incan era'; and Ludovico Bertonio (Diccionario Aymara, 1612) as 'chief or lord of vassals'.
Mallku Kamayoq	*(Aymara)* The server of the *Mallku*.
Mallku Qocha	*(Runa Simi)* The dam (or lake) of the *Mallku*.
Mallkuchaskiy	*(Runa Simi)* Literally this means the 'reception of *Mallku*.
Mama Chira	The mother of the small seeds (nuggets).
Mama Choquesuso	(*Runa Simi*) The mother of the precious (golden) fountain, source.
Mama Huacu	*(Aymara)* The strongest mother, *Huacu* = brave woman.
Mama Ocllo	*(Runa Simi)* The nurturing mother, *Ocllo* = to take care or embrace warmly.
Mama Qocha	*(Runa Simi)* The name of the sea. Literally this means 'the mother lake'.
Mama Michay or Mishka	*(Runa Simi)* The mother of the early variety crops cultivated with irrigation. *Mishka* = young woman.
Mink'a	*(Runa Simi and Aymara)* Work done by reciprocity.
Mistis	*(Runa Simi)* Creoles and white mestizos, or *señor* in Spanish.
Mita	*(Aymara and Runa Simi)* Refers to time, turn, or period. In this study it refers to the irrigation turn from the head- to tail-end of the canal. *Mita* also refers to personal services, like the old Indian bondage of being assigned to forced labour on the estates of the respective owner
Mitimaes or *mitmaqs*	*(Aymara y Runa Simi)* People who were moved (by Inka governors) from their original places to other regions, as part of a strategy of colonisation.
Oma Raymi or Uma	*(Aymara)* The calendar month to celebrate festivals and rituals in

Raymi	honour of the 'mother' water in pre-Inka and Inka times. It coincides with the period between mid- September and mid- October.
Omasuyu or umusuyu	*(Aymara)* Humid regions or the lowlands (valleys).
Orcusuyu	*(Aymara)* Mountain regions, or highlands.
Pachakamaq	*(Runa Simi)* Ancient and sacred name of the Sea (*Omapacha)*. The Sea was considered, by pre-Inka cultures, as the creator goddess of the universe and all living beings. Literally *Pachaqamaq* means the creator of the universe.
Pahana or Payana	*(Aymara)* Noblewomen.
Pakarina or paqarina	*(Runa Simi and Aymara)* Place of dawning, where the ancestors come from. Usually a *Pakarina* is a spring or water source. Place of genesis.
Paqo or Rikuq, or Kamachikuq	*(Aymara, and Runa Simi)* People who understand and communicate with the supernatural world. Usually they are knowledgeable in natural medicine.
Pariaca	*(Runa Simi?)* Ancient male water deity (from the tale of 'Gods of Huarochiri').
Pariaqaqa	*(Runa Simi?)* A water male deity, who fell in love with *Choquesuso (*from the tale of 'Gods of Huarochiri').
Pumapunku or Pumapuncu	*(Runa Simi)* The door of the Puma (Andean lion).
Qocha	*(Runa Simi)* Lake.
Qocha mayllay	*(Runa Simi)* In the Colca Valley, people use this word to refer to the cleaning of the reservoir.
Qollana	*(Aymara)* The principal of the Ayllu.
Qollanapataca	*(Aymara)* The principal or chief of a hundred people.
Qollqa	*(Aymara)* See also as *colca*. It is a special structures to store agricultural products, mainly grain.
Qollquiri	*(Runa Simi?)* Ancient male water deity, husband of *Capyama (*from the tale of 'Gods of Huarochiri').
Qorikancha	*(Runa Simi)* Temple to the sun.
Regidor	*(Spanish)* Spanish name of the traditional water authority (or water mayor) of Coporaque. The former name was *Mallku Kamayoq*.
Regina	*(Spanish)* Water distribution point in Coporaque. At the regina users have informal meetings to discuss every day water activities.
Rimaq	*(Runa Simi)* The one who is talking.
Rimanakuy	*(Runa Simi)* Open democratic meeting in which every member of the community participates (both women and men).
Runa Simi	Best known as *Quechua*, or *Quichua*. This is one of the ancient languages of Peru, which probably originated in the Central Andes. Later the Inkas introduced the language in Bolivia, the North of Chile

	and North-West of Argentina, Ecuador, and Colombia.
Sahuara	*(Aymara)* This word comes from the original *Aymara* word *Sahualla*, which means 'the lonely vicuña (*Vicugna vicugna)*. That is why people 'feed' the water of the Sahuara's spring with vicuña blood.
Sarpay	Priestess who was in charge of 'guarding' the ancient temple to water *Apurimaq*
Saya	*(Runa Simi)* Portion or place. In Coporaque people used (or still use) this word to refer to an irrigation turn by partiality (*Hanansaya*, *Urinsaya*) called the 'saya system'.
Sirvinakuy	*(Runa Simi)* The period in which a woman and man live together, to get to know each other before marrying.
Suyu	*(Runa Simi and Aymara)* A region or place. It also refers a portion (land, task or work) which belongs to somebody.
Thakhsi cala	*(Aymara) Thakhsi* = the foundation, or the principal, *cala* = rock.
Taipicala or taypi cala	The ancient name of the Tiwanaku culture. In *Aymara* this means *'the stone of the middle', Taypi* = the middle*, cala* = rock.
Tahuantinsuyu	*(Runa Simi)*The four quarters of the Inka kingdomship.
Tata	*(Runa Simi)* Father.
Tiachikuy	*(Runa Simi and Aymara)* To invite someone to stay (at home). The starting night of the water festivities in Coporaque.
Tihuanaku or Tiwanaku	*(Runa Simi)* Comes from two words: *tiyay*= to set, and *wanaku* = an Andean wild lama or camel). Nowadays this word is used to relate to the ancient culture *Taipicala*. The name changed after Inkas conquered *Taipicala*.
Topo	*(Runa Simi)* Andean standard measure of land area, especially in the Southern Andes. It refers to approximately 0.3 ha of land.
Tomero	(*Spanish)* The water distributor.
Tticcillapaqocha	*(Runa Simi) Tticci* = the foundation, the source, the genesis, *llapaq* = powerful, *qocha* = lake.
Tticciqaqa or Titicaca	*(Runa Simi) Tticci* = the foundation, *qaqa* = rock. The rock of the genesis or the foundational rock.
Tticciqocha	*(Runa Simi)* The lake of the genesis, or the foundational lake.
Tunapa also known as Ttonapa, Tonapa	*(Aymara)* Aquatic deity*.*
Uma or Oma	*(Aymara)* Water. It has a feminine connotation.
Umacollo, or umaqollo, or Umakollu	*(Aymara)Uma* = water, *collo* = hill.
Umahala	*(Aymara)* Probably derived from the Aymara term, *Umajatha,* which according to Ludovico Bertonio's dictionary means to give something to drink to another person. *Mama Umahala* would then refer to the function of the water source, as the mother who provides water to

	others to drink.
Umahuaca	*(Aymara)* See *Humahuaca.*
Umani or Yumani	*(Aymara)* Water place.
Umapacha	*(Aymara)* Underground aquifer or the deep world.
Unu	*(Runa Simi)* See *Hunu.*
Urin	*(Runa Simi)* The lowest.
Urinsaya	*(Runa Simi)* The other 'low' half partiality or moiety.
Urpayhuachaq	*(Runa Simi)* Life-giver of the fish in the sea.
Uyhuay	*(Runa Simi)* Nurturing and caring for each other, which implies cooperation, reciprocity, compliance, but also conflict and negotiation.
Vara	*(Runa Simi)* Condor or snake headed staff. Ornamented with silver rings. In the Colca Valley the *Vara* is carried by the traditional water authority.
Wallqa Wallqa	*(Runa Simi)* See *Hualca-hualca*
Willka	*(Aymara)* The ancient name of the Sun, in Aru language.
Willka-Uma or Willaq-Umo or Wila-uma, or *Villca umu*	*(Aymara) Willka* = Sun, *Uma* = water (in *Aymara*), and head (in *Runasimi*). The ancient Andean highest priest.
Wiraqocha	*(Runa Simi)* Great lake.
Wiraqocha Konticci	Ancient aquatic deity. See also *Kon-tticci-wiraqocha.*
Yanque Collaguas	*(Runa Simi?)* The place of the main governors of the Collagua Culture.
Yaku	Water.
Yaku Alcalde	The traditional authority of water (Water Major).
Yarqa Haspiy	*(Runa Simi)* Literally means digging of the irrigation canals. Culturally, it means the celebration of the water festivities celebrated throughout the Andes (including Chile and Bolivia).

Chapter 1
Linking ethnicity and gender to water security:
An introduction to this study.

'[…] Who are we? Are we perhaps the stepchildren [of the government]? Because when something happens with the big Majes canal they immediately come running to repair it, but when something happens with our own communal [Coporaque] canal nobody comes to our aid and we have to deal with it on our own […]'. Speech of one of the peasants of Coporaque in a meeting of the local water user organization with State water authorities (fieldwork October, 2006)

'What has this woman to do in this programme? Why is she included as a speaker in an event of the water users' meeting?. What do you think that this woman will say in a gathering of men?'. Observation of an executive engineer in the Colca Valley, when the organizers of the annual meeting of the water users proposed a female peasant leader as one of the official speakers (fieldwork November, 2008).

1.1. Problem Statement

These quotes are just two examples of people experiencing asymmetries in everyday water realities in the Andes of Peru. The examples suggest that some groups of people have a lower status than others in terms of their rights to water; they are for instance seen and treated as 'unlawful water users' or as 'improper actors' in terms of water. It seems that such asymmetries have existed throughout Peruvian history, and were often based on the construction of cultural (ethnic), racial and gender differences which hierarchically structured Peruvian society, creating a societal order in which some were favoured over others. Andean people[1] – living in the highlands of Peru- have often belonged to the least favoured group, something they have experienced in terms of their exclusion from public water (re-)allocation and investment plans and projects, leading to continuous threats to their water security and to their possibilities to access the water they need for agriculture and for consumption.

This study is an active attempt to analyse how such (constructions of) social and cultural difference have shaped, and continue to shape, the water security of people living in the Andes, focusing on the Colca Valley of the Arequipa Region, and the community of Coporaque in particular. In this area, as elsewhere in the Andes, irrigation has been practised for millennia, but has also been profoundly affected by recent large-scale water transfers and new water policies. This study presents a historical and contemporary analysis of how explicit and implicit policies and politics of ethnic and gender differentiation have – through shaping water development interventions in their political

[1] In this thesis, the use of the term 'people' refers to what in Spanish is called *el pueblo.* The term denotes a political construction on the basis of an identity as marginalized inhabitants of rural communities, but also refers to rural villages themselves. In this thesis I also work to compare the practices and strategies of the people studied in the Colca Valley with research elsewhere in the Andes, to see how similar repertoires are found across Bolivia, Ecuador and parts of Chile. This comparison is referred to in footnotes and text. I try to see how these behaviours constitute practices found in common among what I term 'Andean people', as a term to allow for reference to spatial and social practices and identities. Thus I use the term to bring analysis and debate over common practices, identities and meanings rather than as an ideological position.

and social context – led to the exclusion and marginalization of these people in terms of their access and rights to water, and in terms of their parity of participation in the Nation-State political project of development. In addition, I provide a bottom-up analysis of how Andean people – although internally differentiated by class, ethnicity, and gender - have defended their rights to water, and their rights to be treated as lawful citizens, by constructing and appealing to their ethnic and gendered otherness. In the next section I explain my personal motivation to embark on this research project, given my own experiences in working with irrigation. This also helps to situate the research area and its gendered water management in the context of history and in a context of irrigation development interventions, as a prelude to a more in-depth discussion of the research that this study has undertaken.

1.2. Some starting points of the study

'What have women to do with irrigation?!'
Water engineer, during a workshop about 'Gender and Irrigation' (Ayacucho, 2001)

The gender workshop in Ayacucho in 2001 (where I was working as an advisor on gender and interculturality for a Dutch development organization (SNV[2])) was not my first time to experience this kind of provocative questioning. In fact, I had already been confronted many times with such challenging enquiries, directed at me by my male and female colleagues. Such enquiries reminded me of the moment when I chose to study agricultural engineering: my father was dismayed by my choice, because he considered the study and profession of engineering to be only suitable for men. My mother kept silent. And indeed, when I started to work as an engineer (around 1988), I was hardly accepted or treated as one. Instead, and because I am a woman, people tended to identify me as the secretary or assistant of the male technician (usually not a formally-trained engineer) who worked with me. My father seemed to have been right in associating irrigation and engineering with men. Nevertheless, the diverse difficulties I experienced as a female engineer also constituted a source of curisosity, and provided the basis for understanding and questioning the male biases in the professional water world and for learning to see how gender, ethnicity and expertise come together in complex ways and shape irrigation interventions in Peru.

1.2.1. A first questioning of the link between water and gender; a personal experience

My third job was one as an engineer in the Colca Valley, between 1990 and 1993. The Colca Valley is a semiarid region located between 2800 and 4000 meters above sea level, in the western Andes in the department of Arequipa. In this region (as in most of the western Andes), water is central not only in ensuring agricultural production, but also in the socio-cultural and political dynamics of the communities. I was employed by CAPRODA[3], a non-governmental organization (NGO), which worked on irrigation and gender as main thematic issues. I was somehow familiar with irrigation, although I still

[2] SNV means *Stichting Nederlandse Vrijwilligers*. Now it has been renamed as: *Nederlandse Ontwikkelingsorganisatie*.
[3] During 1988-1992, CAPRODA (Centro de promoción y desarrollo agrícola; Center for agricultural extension and development) focused on three issues its activities in the Colca Valley: irrigation, women's rights, and productive (income generating) projects. I was given the responsibility to work with women's organizations (on horticulture and women' rights) from a gender perspective.

framed it according to my university engineering training[4]. I did not know anything in relation to gender. At the beginning of my career, I was therefore deeply confronted with my own cultural values and perceptions of the (gendered) reality. Although I could 'read' the existing social, ethnic and racial inequalities in society, I was not able to perceive gender inequalities in the same way. This was, in part, because of my religious (Christian-Protestant) background. For instance, I tended to consider the mistreatment of women by their husbands, or their exclusion from important decision-making domains within the community, as normal. This was also based on my tacit agreement to the general opinion that men were the natural 'heads' and 'chiefs' of women and of households. Although I saw that reality was unfair to women, it did not occur to me to critically question why this was so, let alone attempt to change it. My university training undoubtedly further reinforced my acceptance of prevailing gender norms and societal orders. At La Molina, the university where I studied, the superiority of 'criollo' men went without saying, and indeed was considered a constitutive element of the professional prestige of engineers[5]. Thus, the first time I heard my Dutch colleagues (in CAPRODA) say that 'rural women are doubly subordinated in society, as women and as Indians', I partially resisted this argument. I readily accepted the existence of ethnic marginalization (not only of Andean women, but also of men) but rejected the subordination of women (as a gender) by the so-called patriarchal society. I considered it as a fact. However, subsequent years of gendered experiences, encounters and clashes around and about water, together with my own marginalization as a woman engineer, forced me to reconsider my opinion. Working with and for indigenous women around questions of water taught me another reality and an untold history, one that had until then been somehow obscured by my own culture and formal and informal education. I thus was triggered to find out how and why exclusion and marginalisation can become part of an almost subconscious acceptance of normalcy,

1.2.2. The link between ethnicity and water

CAPRODA chose the theme of irrigation because water scarcity was one of the fundamental problems constraining the productive use of most agricultural lands of the 16 villages[6] of the Colca Valley. However, and seemingly in contrast to this water scarcity, what first strikes any outside visitor to the Colca Valley are its vast number of neatly constructed terraces, which are perfectly built and adapted to the mountainous topography of the valley, waiting for water and ready to be cultivated (see Photo 1.1). Yet, in those years (prior to 1992) farmers could only irrigate 39% of the total area of the terraces in the valley, even in a normal rainy season (Guillet 1990, Treacy 1987).

The water scarcity problems had different interrelated causes. Although water scarcity was a common concern in the area, in those years (1989-1992), it was worse because of

[4]This university ('La Molina' Agricultural University) had the reputation of having a high quality modern agricultural techno-science curriculum, which was a copy from Harvard University.

[5] The students (especially from hydrology, agronomy, forestry, and animal husbandry programmes) were trained to become a specific type of technocrat, whose superiority was embodied in specific racial and gender characteristics. The hymn of the university clearly reflects this: *"To be a good and brave Creole four things are needed, and these four things are: being from 'La Molina', handsome and 'brave'; with a bottle of Pisco* (Peruvian brandy) *in one hand, and a good 'chola'* (mestizo woman) *in the other"*. The song is accompanied by spoken phrases, like: "*Knife, why do you bend if you are made from fine steel, is why women bend when they see a Molinero* [engineer]". (translation JVD).

[6] Seven of the 16 Villages of the Colca Valley are on the right bank: Sibayo, Tuti, Coporaque, Ichupampa, Lari, Madrigal and Tapay, and nine are on the left bank: Callalli, Canocota, Chivay, Yanque, Achoma, Maca, Pinchollo, Cabanaconde, and Huambo.

low rainfall (see table I (row 4) in the Annexe A). Impotently I observed how the hope of the farmers to harvest their crops dwindled, while their livestock died of starvation. As an agricultural engineer, fully equipped with knowledge about water and irrigation, I felt incapable of tackling the problem. What was particularly inexplicable and shameful about the situation was that the farmers could not use part of the 10 m^3/s of water actually flowing through the new canal of Majes, which was constructed alongside the left bank of the Valley, and in some communities even alongside their agricultural lands.

This Majes canal is the main canal of the state-backed large-scale 'Majes Irrigation Project'. It diverts water from the Colca River to the desert areas of *Pampas de Majes* and *Pampas de Sihuas* (both located in the coastal region of Arequipa, see map 1.1) through a sophisticated hydraulic infrastructural network (see detailed description in chapter 4). The objective of the Majes irrigation project was mainly to make sandy soil suitable for growing high value crops for the market. Although the project diverts and uses water from the Colca River, it did not include the different communities located alongside this river as beneficiaries. After a long struggle (1983-1993) some communities were granted access to some water of the Majes canal (see chapter 5), but this was not enough to meet local irrigation demands.

Photo 1.1 The Colca Valley terraces

Photo taken by the author

When seeing the Majes canal and the drying terraces of the Colca Valley, a question that immediately sprang to my mind was: How is this possible? Why do the people living in the area from which the water is originating not benefit from the enormous public investments made to make water available for farming? Furthermore, any agricultural engineer would right away notice the incongruence of preferring investments in the infertile arid soils of the coast over those in the fertile terraces of the Colca Valley. It makes one wonder what kind of rationalities guided these seemingly incongruent planning decisions. Why were the water needs of the people from the Colca Valley, who have expertly irrigated their lands for centuries, not considered in the new project? These were at least the kind of questions that I asked myself when working in the area. Most of them continued to float in my mind, although many remained unanswered for many years. My MSc studies at Wageningen University (between 1997 and 1999) in 'Management of Agriculture Knowledge System' (MAKS) from a perspective of social

sciences and anthropology provided me with important ingredients for possible answers, also planting the seeds for this thesis.

1.2.3. Trying to mainstream gender and ethnic dimensions in irrigation interventions.

When engineers from the of SNV counterpart organizations approached me in 2001 with the question referred to at the beginning of this sub-section (*"What have women to do with irrigation?!")*, I was glad, and even expecting, to hear this kind of question. Unlike earlier, I already felt quite confident[7] to tackle their enquiry, after doing my MSc. Although my colleagues tried to do their best to understand what a gender and interculturality approach implied for rural development interventions, they found it rather difficult to operationalize for irrigation projects. When working for the SNV, my task consisted of helping counterpart organizations to mainstream (or integrate) a gender and intercultural approach into their annual plan of operation (*Plan Operativo Anual*), and to make it visible by means 'objectively verifiable indicators'. We somehow succeeded to come up with some gender indicators, such as: quota of membership in water user organizations, or percentage of participation of women in training and project planning. Yet, it was difficult to find indicators to operationalize interculturality. We realized that the question of interculturality introduces many different issues into the debate, such us: cultural identity, ethnicity, marginalization, subordination, power etc. and that gender was inherent in all these issues. I discovered that constructing gender and interculturality indicators for approaching existing water injustices and inequalities was not only an almost impossible task, it also was beside the point. If one was to really understand how the construction of social difference shapes water and irrigation realities, it was necessary to go beyond objectively verifiable indicators. To work on the basis of such indicators would be like 'curing the sick' rather than finding, explaining and addressing such causes of existing inequalities and injustices. To some extent, this study is the result of the quest for such causes.

The opportunity to work with the WALIR (Water Law and Indigenous Rights) network and the valuable knowledge interchange and feedback I got from colleagues (researchers and activists working in this multidisciplinary group) were central in inspiring me to further pursue this quest. Finally the opportunity and funding for this research came with a grant from the Nederlandse Organisatie voor Wetenschappelijk Onderzoek, (NWO, The Netherlands Organisation for Scientific Research) in 2005.

With this study, I try linking ethnicity and gender to water security in the Andes, by explaining how both intersecting axes of social difference have moulded the design, development and outcomes of irrigation policies and irrigation management throughout history. In other words, I set out to investigate how and to what extent threats to water rights and water security and existing water injustices in Andean communities stem from the construction of social difference along intersecting axes of ethnicity and gender. I am also interested in how local people have used (constructions of) gender and ethnicity in trying to protect and defend their rights to water and their water security. I further explain the themes and objectives of my study in section 1.3, because first I would like to introduce the reader to the research area.

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[7] My increased confidence was based on twelve years of experience (as a professional and researcher) in rural development, my own cultural knowledge, and the training obtained during my MSc Studies in Gender and Irrigation in the Wageningen University, the Netherlands.

1.3. The research area

I conducted this study in three inter-related water spaces: the catchment[8] of Colca-Majes-Camaná (CMC); the sub-catchment of the Colca (or Colca Valley); and the community of Coporaque, one of the communities of the Colca Valley.

1.3.1. The catchment of Colca-Majes-Camaná

As can be seen in map 1.1, the catchment of the CMC comprises thirteen sub-catchments[9] (AUTODEMA, 2009), and its main water tributary is the Colca River, whose name changes during its flow from up- to downstream respectively from Colca to Majes to then finally become the Camaná River. This catchment is situated in the western Andes of Arequipa, between 15º 22' – 16º 30' latitude South and 71º20' – 72º33' longitude West. Although the water regimes and the climate vary, the catchment presents a common pattern: dry-tropical climate and desert vegetation in the lower part (60 -1200 m.a.s.l.); dry-subtropical climate and semi-arid vegetation in the middle part (1200-4000 m.a.s.l); and humid-cold climate and *paramo* (tundra) vegetation in the upper part (4000-4950 m.a.s.l). The rainfall in the upper part of the catchment reaches an average of 629.8 mm/year (20-year series, SENAMI[10]), which in combination with the vegetation (tundra) and the low temperatures created the conditions for the development of a vast area (3,369 km^2) of wetlands with small rivers and lakes. This area is also characterized by the presence of snow-capped mountains, such as: Mismi, Hualcahualca, Ampato, and Huarancante.

This natural environment is favourable to one of the most important livestock activities of the high Andes: the rearing of alpacas. Most people who have alpacas in the high regions of the catchments are also involved in agriculture in the lower and intermediate parts of the catchment. This 'verticality' is a well-known characteristic of Andean livelihoods, with people combining the management and control of different natural resources in different ecological niches at different altitudes (Pease 1997; Rostworowski 2004). People mainly practice agricultural activities in the lower and middle parts of the catchment. In the lowest downstream section of the catchment it does not rain at all. This area is characterized by vast desert areas which extend between the western Andes and the Pacific Ocean, along the coastal region of Peru. The flows of water from the Andes to the Pacific basin have formed green narrow valleys cutting the desert into 'U' shapes. These inter-coastal valleys are characterized by the high agricultural productivity of their alluvial soil. Indeed, the quality of the soil, the water availability and the ideal climate (maximum temperature 30ºC, and minimum 12ºC) together have made these valleys into places of prosperous agricultural development. As map 1.1 indicates, the catchment of CMC has two such inter-coastal valleys: the Majes-Camana and the Sihuas-Quilca.
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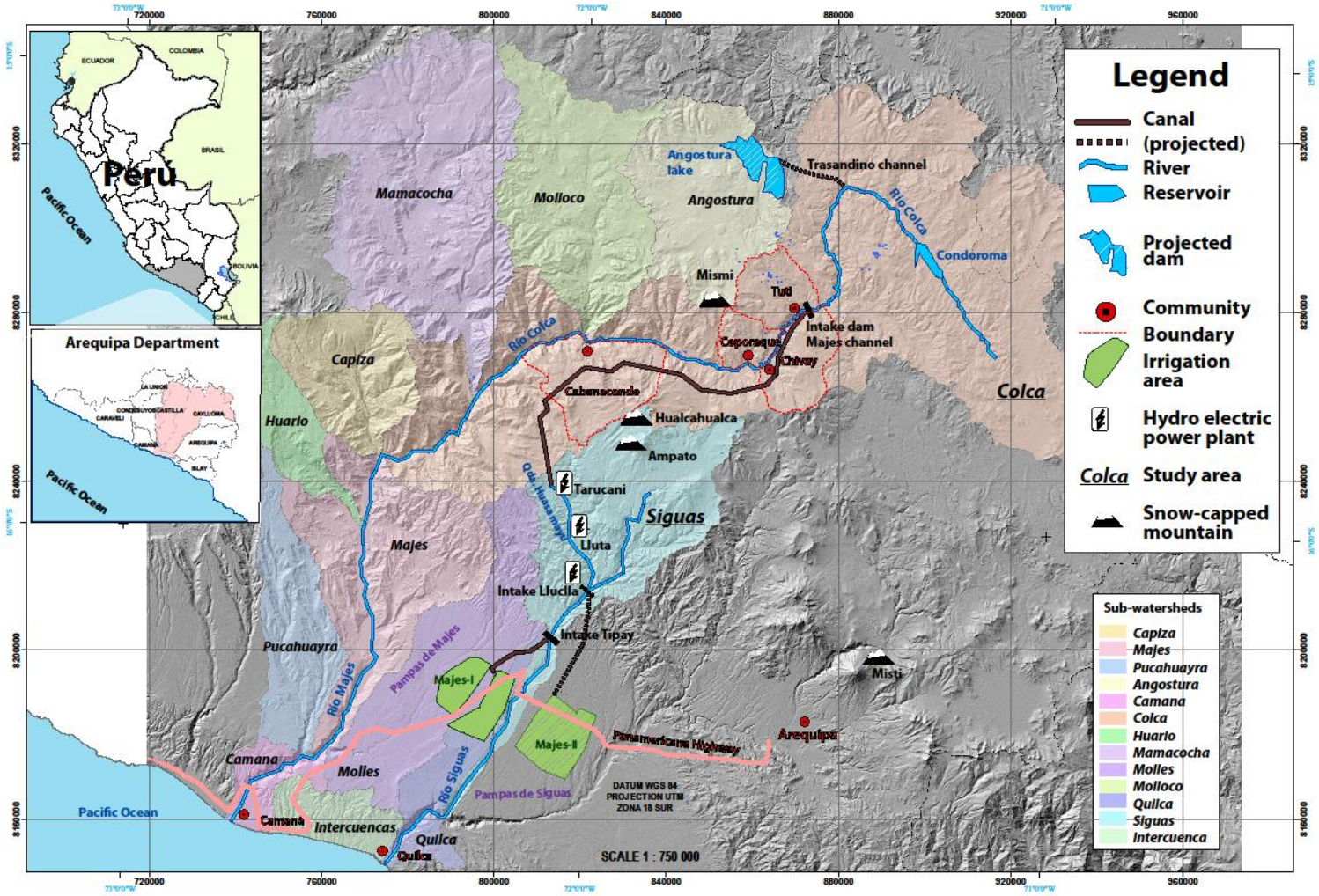
[8] I define a catchment (British English) or river basin (American English) as the geographical area where systems of streams and rivers converge toward the same terminus, generally the sea. Tributary sub-basins or basins more limited in size are often called watersheds. For more details, see Wester and Hirsch (2007).

[9] When following the concept of catchment referred to in the previous footnote, the watershed of Angostura pertains to the catchment of Apurímac, because it flows into the Apurimac River (a tributary of the Amazon River), however, because of strategic reasons (source of water of the future irrigation project Majes-II) the ZEE-AUTODEMA included Angostura as one of the watersheds of the CMC.

[10] SENAMI: *Servicio Nacional de Información Meteorológica* (National Service of Meteorological Information).

Map 1.1: The Catchment of Colca-Majes-Camana and the design of Majes Irrigation Project



Source: own drawing on the basis of the ZEE map of the Colca-Majes-Camaná catchment (AUTODEMA, 2009)

The sub-catchment of Colca is one of the most important reserves of freshwater of the entire catchment of CMC, and in general of the region of Arequipa, because of its abundance of different water sources in its upper part (as already mentioned above). The Colca Valley is an abundant valley which is part of this sub-catchment, and people have practised agriculture here for centuries. Temperatures in the valley fluctuate between -5^{o}C and 18^{o}C in the dry winter, and between 10^{o}C and 25^{o}C in the rainy summer. Rainfall occurs only during the summer, and it mainly concentrates in three months (January, February, and March), reaching an average of 482.6 mm/year (Valdivia 2007). Because of these climatic conditions, agriculture is highly dependent on irrigation during five or six months of the year (from August until December, including January in a dry year).

Already since the early 1890s, the water abundance of the upper part of the sub-catchment of Colca attracted the attention of politicians and rulers of the Arequipa region. They saw this region as an important water reservoir that could be tapped to make agriculture possible in the vast desert plains (like those of *Pampas de Majes* and *Pampas de Sihuas*) that are located at the lower part of the CMC. Realizing this dream of making the desert bloom, however, presented many technical difficulties. Firstly, the main river (Colca River) cuts deeply into the desert. Secondly, the water flow of the river was irregular, with an abundant volume of water (average 130-150 m^3/s) during the rainy season (three months) and low volumes of water (6-8 m^3/s) during the dry season (ALA-CSCH 2004). To irrigate the vast desert areas it would be necessary to dam and store the water in the upper or middle part of the CMC catchment. This was indeed what the Majes Irrigation Project set out to do, turning a long-awaited dream into a reality. The history of the construction of this project, including the complete hydrological design and functioning of its infrastructure, is detailed in chapter 4 of this thesis.

1.3.2. The Colca Valley

As already described above, the Colca Valley is situated in the intermediate part of the CMC catchment, and is part of the so called sub-catchment of Colca. People living here consider themselves as the descendants of the *Collagua* and *Cabana* cultures, which were present in the valley before the Inka period. Both groups share the same myth about their origins, tracing their existence to water. The first group, the *Collagua*, attributed the origin of their ancestors to the snow-capped mountain (volcano) *Kollawata*, and the second to the snow-capped mountain (also volcano) *Hualca-Hualca* (see chapter 2). At present, people from the Colca Valley identify themselves in terms of the village or community they are from, calling themselves for instance: 'Cayllomino' (name of the province), 'Coporaqueño', 'Yanqueño', etc. They do not publicly identify themselves as *Indians* or *indígenas*, but do sometimes refer to themselves as *campesino* (peasant), *comunero*, or *usuario* (water user), depending on the social context.

Water users from this valley differentiate themselves in *mayoristas* and *minoristas*, a categorization which is based on land ownership. The *mayoristas* own more than 3 hectares of irrigated land, and the *minoristas* own less than 3 hectares. *Mayoristas* are not necessarily richer than *minoristas,* because there is no real concentration of irrigated land ownership with *mayoristas* owning only up to 10 hectares of land.

Manifestations of ethnic origin are strongly gendered in the Colca Valley, with local women generally wearing the nicely embroidered colourful traditional dress (see Photo 1.2), while men dress in a more 'westernized' style. Ethnic or racial characteristics also (although subtly) play a role in social hierarchies and are (seen or used as) markers of

social status. Those who are considered more 'white' (*criollo*), or have a profession, or those who are better off economically, may degradingly label others as *Indians*, *cholos*, or even as 'backward'. Such racial and ethnic distinctions also apply to the clothes that represent ethnic and gender identities, and regional loyalties (Femenias 2005).

People from the Colca Valley have always known situations of water scarcity, because of the dry and semi-tropical climate, and because the rainfall is concentrated in a three-month period (Valdivia 2007). The adverse climatic conditions, however, have also inspired the ancient cultures to develop a highly sophisticated system of irrigating, which simultaneously formed the backbone of a strong social organization around water with clearly spelled out rights and duties (Gelles 2002, Denevan 1986, Treacy 1994). Indeed, I chose this area as my study site mainly because of its water-based culture and history, which provides a rich case for understanding the water history of Peru. The valley witnessed the development of at least four different civilizations before the start of the contemporary period of the Peruvian Republic (Sandor 1992, Rubina et al. 1995). The first one (as I tentatively conclude on the basis of my research) could have been Tiwanaku (see next chapter), the second the *Collaguas* and *Cabanas*, the third the Inkas, and the last the Spanish. Hence, over centuries, and through continuous investments of massive amounts of labour, people have turned approximately 12,000 hectares of steep and rocky hills into fertile agricultural terrain by constructing terraces (as shown in Photo 1.1), and through the construction of interlinked canals and reservoirs (Guillet 1990). They also constructed the *qolqas*[11] to store their agricultural produce. The terraces, canals, and reservoirs are still in use (and thus remain (as Gelles remarked) as a valuable living agricultural technology (Gelles 2002, 2005)), however not in their full capacity. In 1986, Denevan and Hartig (mentioned by Guillet 1990) calculated (by using aerial photographs at the scale of 1:17,000) that 61% of the terraces were abandoned, mainly because of water scarcity.

Although the Colca river or *Hatum Mayu* (meaning 'big river') provides a significant volume of water for the entire catchment, the indigenous people from Colca Valley could not make use of this water because the river cuts deeply into the valley almost at the beginning of their agricultural land (Tuti Community). Instead, the farmers of the different communities have always captured water from local sources: small rivers, lakes, springs and snow-capped mountains (Mismi, Huarancante, Hualca-Hualca).

In the last 40 years, two big events have heavily impacted on the dynamics of the valley. The first is the already mentioned construction of the Majes irrigation project (1971-1983), and the second is the sharp rise of tourism since the beginning of the 1990s. The Majes irrigation engineers constructed an unpaved road and a small airport (not in use anymore) to transport their staff and construction materials from Arequipa city to the valley. By doing so, they also connected both places, which in turn facilitated cultural and economic exchanges between people. The Colca Valley is currently a major sight-seeing attraction[12], advertised as the world's deepest canyon. It is of interest because of the terraces but also because of the condors which, in the early morning, soar gracefully

[11] *Qolqa* also called *colca* were special infrastructures to store agricultural products, mainly grains. For the ancient Peruvian states, and later for the Spaniards, the *qolqas* constituted a sort of 'reserve bank', not only of food, but also clothes, different agricultural tools and other 'precious' domestic artefacts.

[12] The Colca Valley terraces, together with the 'Condor's cross', are major attractions for the hundreds of tourists who visit this place every day. In 2008, the Colca Valley was declared 'Second Natural Wonder of Peru' by UNESCO.

upwards on thermals of warm air rising from the canyon. Tourism has opened possibilities for local people to diversify their incomes, although most hotels, lodges and restaurants are managed by big outside enterprises.

Photo 1.2 The difference of dress between husband and wife in Colca Valley

Photograph: the author (Sept. 2006)

Nowadays, people living in the Colca Valley (around 6,000 families) still dedicate much of their time to irrigated agriculture. They grow different crops, both for their own consumption and to supply the local and regional markets. The main cropping pattern consists of a combination of different grains (maize, barley, quinoa, wheat, etc) with beans (peas, lima-beans, etc). However, because of the increasing demands from Arequipa city and tourists, crops like potatoes, as well as fresh vegetables (onion, garlic, lettuce, etc) are increasingly gaining terrain in the valley. These crops require more water (both in terms of volume as in terms of irrigation frequency) which is disrupting the traditional farming pattern. Local farmers also grow some fruits, such as: prickly pear (mainly in the middle valleys), and peach, apple, avocado, and lukuma (*Pouteria obovata*) (in the lowest areas).

The most important local institutions in the valley are the community[13] and the water user organization. In contrast to the other regions in the Andes of Peru, where the community is the most important collective local institution, in most villages of the Colca Valley the water user organization is most important. This is undoubtedly linked to the

13 A community is a historical product subject to change according to pressures of the socio-political and natural environment, and the needs and aspirations of its members (Monge 1994, cited by Pajuelo 2005). Scholars have suggested that the Andean community is an institution, the members of which, develop different activities - productive, economic, political and cultural - necessary for the reproduction of each individual and consisting of different internal collective organizations: a women's association, a water user organization, a livestock association, etc. The community articulates individual, family, and collective interests - which co-exist in permanent tension, but also in solidarity and cooperation - to manage local natural resources (Albó 1999).

importance of water as a central resource for livelihood in this semi-arid region, and to the well-established historical roots of collective organization around it. Because of the strong water-based culture and identity of the Colca Valley communities, these can be identified as 'hydraulic communities'[14] (something suggested by Gelles 1990, 2002), (see chapters 2, 5 and 6).

In the next section I briefly describe the 'hydraulic community' of Coporaque, the village on which I concentrated most of my study. The reason for this is that this community, in contrast to the others in the valley, has succeeded in developing an irrigation project (called Canal Coporaque) which makes use of water from the Colca River. They constructed this canal only after the Majes Irrigation Project (MIP) diverted most water from the river to the *Pampas de Majes*, with the construction of a kind of dam downstream of the main intake of the Majes canal. People from Coporaque not only started a long struggle against the MIP to get more water, but also to get a minimum amount of attention from the central government to construct the infrastructure of their own irrigation project (see chapter 5).

1.3.3. The hydraulic community of Coporaque

Officially, Coporaque was founded as a peasant community in 1987, but it was only legally recognized as such in 2007. However, the indigenous community of Coporaque already existed in the 15th century, even before the visit of Viceroy Toledo. As is well known, Toledo obliged the existing *ayllus*[15] of the Andes to re-organize in 'reductions' during 1570-1581 (Málaga 1977, Manrique 1985). Reductions were settlements founded by the the Spanish colonizers of the new world for the purpose of assimilating indigenous populations into European culture and religion. The reduction of Coporaque consisted of 20 *ayllus*[16]. Every *ayllu* had its own irrigation infrastructure and water authorities. Most of these canal networks were interconnected, because they used water from the same water source. The village itself is situated on the right bank of the Colca River, seven kilometres from Chivay, the main city of the province of Caylloma. It is located at 15°26'36" latitude South and 71°41'55" longitude West, at 3575 m.a.s.l. Moving downwards, Coporaque is the third community on the right bank of the Colca Valley, and has some 685 hectares of irrigable land, nicely distributed and conserved through a system of terraces. In Coporaque, there are 320 water users, with 70% of the registered users being men and 30% women. Of the total female members, 39% are married women, 33% are widows, 7% are separated or divorced, and 21% are single (including unmarried mothers)

The community has five sub-irrigation systems (Table 1.1, also see Fig. 5.2 in chapter 5), which irrigate around 685 hectares of land (Desco-Chivay 2005). Two of these irrigation

[14] 'Hydraulic communities' are distinct from Wittfogel's 'hydraulic societies', a term which he used to argue that large irrigation systems can only emerge in authoritarian and hierarchically organised societies (Wittfogel 1957). Instead, the term hydraulic community refers to the existence of a prominent local cultural identity around water and collective practices of water management. I further discuss and analyse this in chapters 2, 5 and 6.

15 The term *ayllu* has many definitions. Most authors agree that it was a corporate ethnic group, linked by some degree of kinship, which 'owned' or managed communal resources, like land and water. An *ayllu* ensures the rights of all households to main subsistence resources (Godoy 1987).

[16] Coporaque consisted first of 4 *ayllus:* Yumasca, Cupi, Collana-Pataca, and Cayao-Pataca. Later on, with the reduction policy of Toledo, the *ayllus* of Tunsa, Llanca, Quita, Hamallaya, Suripampa, Chiptapampa, Qanaqe, Mosoqchacra, Muraypata, Chucpalla. Marquisahui, Machingaya, Huaynalama, Coporama, Qatupamapa, Umañasu, and Qayra were also incorporated in Coporaque (Málaga 1977).

systems are considered most important, in terms of irrigated area and number of users: the Canal Coporaque-Mallkuqocha reservoir and the Canal Aqenta-Santa Rosa Reservoir. Each irrigation sub-system has its own traditional water authority or water mayor, called *regidor,* who distributes water and controls the irrigation turns at the *regina* (the traditional water distribution meeting). The water mayor fulfils his duties in agreement with the official authorities of the local water user association (WUA) represented by the *Comisión de Regantes*, the water organization instituted by State Water Law. (in the rest of this thesis I refer to this organization as *Comision de Regantes* or Water User Association (WUA)). Thus the local water organization is simultaneously guided by traditional and state water rules and norms. Assuming the taks of a *regidor* is compulsory for each (male and female) member of the local water user organization, because it is part of the traditional *cargos*[17] system. Hence, every member has to assume this function at least once, for one year. The official authorities of the *C. Regantes* are elected democratically. One of the important duties of the *regidor* is to celebrate the yearly water festival and rituals, known as *Yarqa Haspiy,* which is one of the outstanding cultural manifestations in Coporaque, as in the rest of communities of the Colca Valley (see chapter 6).

During irrigation maintenance works, people have to provide labour according to the size of irrigated land they use. Hence, *mayoristas* have to provide more labour than *minoristas*. Besides agriculture, both women and men from Coporaque are employed in complementary activities, such as: embroidery of traditional clothes and crafts (for which the Colca Valley is famous); small trading of grain; grocery shops; taxi driving (only men); and as cook (chef) or custodian of the local tourist hotels.

Table 1.1: Coporaque's irrigation systems

Irrigation systems	No. users	Irrigated area (ha)
Canal Coporaque-Mallkuqocha reservoir	240	265.15
Canal Aqenta-Santa Rosa reservoir	320	223.26
Canal WallalliK'uchu-Chilliwitira reservoir	100	42.40
Spring of Qachulle-Ch'usña reservoir	120	123.30
Springs of Ch'aqere	25	30.12
Total		**684.25**

Source: Desco (2005) and field research data

1.4. Research theme, objectives and questions

1.4.1. Research theme

Although the different cultures of the Colca Valley must have each left their marks on the social and irrigation development of the valley, there appears to be a remarkable historical continuity in local water traditions, practices and knowledge. People from the valley have apparently managed to safeguard their own ways of managing water, at the same time protecting, adapting and renewing their water-based collective identity and

[17] *Cargos* are a customary tradition in the Andes, by which a *comunero/a* has to serve the community assuming different duties. Usually it implies a civil-religious duty. The *cargo* system also plays an important role in socio-cultural dynamics and rituals.

culture. Clinging to existing customs and identities has also formed part of a strategy of resistance to attempts at outside cultural imposition and threats to local water security (Boelens 2008a, Gelles 2006, Hogue and Rau 2008).

Though some researchers (Albo 2002b, Cadena 2004, Guevara 2002, Gelles 2006, Hogue and Rau 2008) indicate that ethnicity and ethnic identity, as a political project, have been absent from the agenda of social movements in the Andes of Peru (in contrast to those of Ecuador and Bolivia), ethnicity has always been present in the everyday practices and struggles of such Andean communities as those of the Colca Valley. It figured more or less prominently in attempts to legitimize claims to resources, authority and autonomy. What has been noticeable in Peruvian water history, at least since the beginning of the Republican period until recently[18] (until 2009), is that the different State water policies, legislations and irrigation interventions have not recognized existing local water tenure arrangements and collective forms of water management (CAOI 2010, CONACAMI 2005, CONAIE 2009, Espinoza 2010, Gelles 2006, Mena 1998, Pacari 1998, Sherbondy 1998). Water politicians and bureaucrats have, in general, tried to treat the plural Andean water culture as if it were similar to the water realities of the Coast, by treating both equally in legal terms. Such equalization has led to a denial of difference, and has often provoked the more or less implicit undermining of the water security of local water users (Boelens and Zwarteveen 2003). Indeed, the principle of equality can be highly discriminative, because it hides existing social, ethnic, racial, and gender injustices (Boelens and Gelles 2005, Cadena 2008, Espinoza 2010). Various authors assert that this equalizing process has also constituted one of the pillars of the nation state to construct a unique national identity (Assies 2005, Baud 2006, Boelens 1998).

In this study, I critically investigate the role of ethnicity and gender (and of ethnic and gender identities) in constructing and securing access and rights to water in the Andes of Peru throughout history. I am deeply aware that the meanings of gender and ethnicity (and of gender and ethnic identity) are not straightforward or given. Instead, they are prone to conflicting interpretations and are contested. They depend both on how social or ethnic groups themselves internally define their cultural traits and boundaries, and on the way in which they are defined and categorised (or 'othered') by those who have the power and authority to do so (Boelens 2008a, Degregori 2005, Jenkins 1994, de Vries and Nuijten 2003). Labels of ethnic or gender identity are also often used strategically, and may refer more to the effects that use of such labels have (for instance in terms of claiming rights) than to any claim to authentic identity. Water users may for instance claim ethnic and traditional authenticity even though they lead an urban or urbanized and modern life (Gelles 2002, Oliarte 2005).

Looking at Peruvian history, Spaniards, and subsequently the Peruvians, have tended to categorize indigenous people as 'barbarians', 'lazy drunkards', 'feminine', all labels that denigrate indigenous identity and culture. At present, in the Peruvian Andes, the label of *indígena* still remains suspicious and unpopular (Albó 2002a,b, Baud 2006, Cadena 2004, Degregori 2005, Gelles 2006, Yepez 2003). Because of continuously being associated with all kind of negative images, many people have come to resist ethnic identifications and prefer instead to be identified on the basis of class, for instance by using the label of

[18] In April of 2009, the Peruvian government approved the new water law, called *Ley de Recursos Hídricos 29338,* which in its Artº 32 recognizes and respects customary water authorities and existing organizational forms of peasant and native communities. This law still needs to be ratified to be applied in in practice.

'peasants'. The negative associations with *indigeneity* were even more severe for indigenous women, who were considered most backward of all, and more *Indian* than their male counterparts (Cadena 1992, Claverías 2002, Pinzas 2001).

1.4.2. Research objectives

With this study I try to analyse and make a new contribution to understanding how gender and ethnicity interact in the contemporary ethno-politics of water and how water acts in defining and reshaping gender and ethnicity. I thus look at how and why water has become a focus for struggles of identity and survival; at how gender and ethnicity combine to enable or disable strategic political water action in different societal arenas; and how, in turn, action around water can reshape identity. By explicitly linking ethnicity and gender with water politics, I hope that this study will contribute to putting gender more firmly on Andean water agendas of both NGOs and Gos. Although ethnicity is already being debated and included in water policies and interventions, gender is still marginal. It often remains a cross-cutting component that is nicely explicit in documents and discourses, but which sometimes does not have any practical implications. The water management arena is still (perceived as) a male domain, even though there is ample evidence that women in the Andes participate not only in irrigation activities (hand in hand with their husbands), but are also active in overall water management activities (Arroyo y Boelens 1997, Cadena 1992, Claverías 2002, Gutierrez and Arratia 1997, 2009, Perales 2009, Vera 2004, 2005, 2006a,b, Vera and Zwarteveen 2007). The consideration of gender in water management also becomes relevant nowadays, because of the increasing tendency of policies to individualize and privatize water rights, a tendency that risks legalizing and even increasing the gender imbalance in favour of men (Kome 2002, Guerrero 2007).

My endeavour explicitly includes attempts to provide new insights into how irrigation development interventions by State and international programmes shape, and are also shaped by, strategies of ethno-water politics. In this respect I focus primarily on the overarching developmental project of manufacturing modernity and productivity, showing how this project works to re-appropriate and accumulate water rights in specific ways through a combination of legal force, science and technology. I analyse people's actions to shape interventions and investigate their own projects and funding options as *people's projects,* providing alternatives (from below) to such political and scientific efforts of successive state governments of Peru.

As part of this thesis, I also aim to raise further debate on the process of 'doing research', setting out to show that in research the researcher is not only an actor but also has an identity. Researchers' identifications with interests and social and scientific processes need recognition to understand the knowledge generated, and indeed make it more 'objective' (Haraway 1991). I thus review my own research efforts not only through the knowledge I gained as a development actor and later researcher, but also in recognition of changing myself and my own politics of identity.

My target audience for the first two objectives are workers in development and local government/civil society, and the third targets future researchers.

1.4.3. Research questions

Main question:

How have ethnicity and gender moulded water rights, water policies and practices of Andean communities throughout history?

Sub-questions:

How have Andean people approached ethnicity and gender in relation to water throughout the different cultural and political developments of Peruvian history? How has this influenced their security of access and rights to water?

What possibilities have different policies of identity recognition and different water laws offered to indigenous women and men to access and control their rights to water, as well as to participate in water-related decision-making process?

How are irrigation development policies and interventions linked to water security in the Andes? How have indigenous women and men responded to these policies and irrigation interventions? How do they construct water security and water rights in every day practices?

1.5. Theoretical concepts

In this section I discuss the theoretical concepts and perspectives I used to analyse this study.

1.5.1. Ethnicity, place, and cultural politics

Most scholars understand ethnicity as a social process of identity construction of a group of people, which emerges and is made relevant through social situations and encounters and through people's ways of coping with socio-environmental situations. Ethnicity can be based on the presumption of an existing sense of 'we-ness', of sharing particular common elements, such as: a common origin and ancestry, cultural inheritance, belonging to the same territory and depending on the same resources, or even sharing some racial traits of superiority (like colour). Ethnicity, therefore, is a term that emphasizes (cultural) difference of one group from another (Barth 1969, Brumfiel 2003, Cento 2003, Jenkins 1994).

There are different approaches to the study of ethnicity. The present study focuses on how ethnicity comes about and transforms over time in efforts to access and control water in the Andes. In view of this focus, I consider the approach proposed by Brumfiel (2003) useful. She makes a distinction between three ways of approaching ethnicity: the isolationist/primordial, the interaction/instrumental, and the power/domination approach. The first approach comes close to Barth's (1969) definition of ethnicity as social forms of organization generated by interpersonal transactions (in relative isolation), mainly in response to ecological factors. In this approach, collective ethnic identity is tied to a local or regional natural environment, such as: water sources, mountains, or forests. This may for instance apply to some tribes in the Amazonian region of Peru. The interaction/instrumental approach focuses on how people develop

their own feeling of ethnic identity in interaction with other groups of people. In this approach, usually a collective group or community defines themselves based on the presumption of shared criteria, such as: common ancestry, shared cultural inheritance and history, or even archaeological representations of the past. There can be cultural and class differences between the members within the community, however what is important for them is the conviction that they belong to a community of people who are culturally unique, therefore sharing some kind of common bond. Important in this approach, is that individuals use ethnic affiliations (and loyalty) as a tool for obtaining a desired end. The ethnic group provides a coalition, a group of allies, that individuals use to compete more effectively against others (individuals or groups) to accesses and control resources, like land, water, forest, etc. (Barth 1969).

These first two approaches define ethnicity primarily as a form of self-identification and definition. However, ethnicity need not only come about as defined internally by a collective consensus of a group or community. It can also be the result of a categorization by a powerful group whether pertaining to the same community, or coming from outside. This process can be analysed by the 'power/domination' approach, where ethnic self-consciousness is introduced by people or a group of people who have the power[19] and authority to categorize 'others' (Jenkins 1994). Dominant groups attribute a superior identity to themselves, associated with specific cultural or biological traits (stereotypes), in the process simultaneously defining and downgrading (through assigning negative stereotypes) the ethnic identity of other groups. Gender stereotypes often figure prominently in this process, with indigenous women for instance seen as even less developed than indigenous men (Cadena 1992, Claverías 2002, Pinzas 2001), and with labels of femininity used to negatively distinguish some groups from others (who are, by implication, more 'masculine' and therefore better). Dominant groups use such labelling and categorizations to legitimate their social, political and economic privileges, or to justify their interventions and domination (Brumfiel 2003). Outside efforts to categorize certain groups, and to thus construct ethnic identities, sometimes have the effect of strengthening the subordinate groups' sense of collective self, either by conforming or resisting to the ascribed identity. Ethnicity, for instance, can then become a symbol or a common discourse and struggle; a strategy of shared interests in resisting oppression (idem, 2003, Hogue and Rau 2008, Jenkins 1994). In every day practice, ethnicity denotes both the self-definition or identity affiliation of a group, and the way this group is 'othered' by a dominant group (Boelens 2008a, Espinoza 2010).

The process of identity affiliation and attribution is not only a question of defining (internally or externally) identity traits and culture, whatever the purpose is. It also implies a process and struggle by which different social or ethnic groups attach certain meanings to the surrounding natural environment – what Fraser (1997, 2009) refers to as interpretation, representation and valuation of aspects of reality. Many approaches to understanding ethnicity give little attention to this interpretative dimension of ethnicity, thereby failing to see how ethnicity also links to particular cosmologies or ways of understanding the world. For instance, what is important for Andean people's sense of ethnic identity is that they attach a sentient meaning to their natural environment, seeing it as a living and sacred entity (Cadena 2004, Castro 1997, Gelles 2002, Hogue and Rau 2008, Sherbondy 1998, Vera 2008, 2009). To capture this dimension, the suggestion of

[19] According to Jenkins (1994), the exercise of power implies competitive access to and control over resources, while authority is, by definition, only effective when it is legitimate.

such researchers as Long (2001), McCann (2002), Mitchell (2000) and Peters (1984) that everyday struggles over resources include struggles over interpretations is useful. Understanding such struggles over a particular interpretation of the world, of identity, or of an intervention, requires analysing the process by which concepts, knowledge, decisions and organizations are framed, enclosed or contained by different actors within specific domains. Hence, it implies investigating meanings, looking into how resources, actions, and practices are invested with symbolic, material, and socio-cultural values.

McCann's (2002: 389) definition of politics captures this precisely; he defines politics as the appropriation and transformation of meanings, which are both shared and disputed. In relation to ethnicity, the importance is that different categories of groups and actors assign different meanings, different definitions, different emphases, at different times to known concepts, events and acts. The construction and legitimization of meaning-making is therefore an important dimension of ethnicity, and it is always a contested process. That is what authors such as Mitchell (2000), McCann (2002), and Gelles (2006) call cultural politics. Cultural politics refers to contestations over meanings, borders and boundaries, over the ways in which people make sense of their worlds, of their collective identity, and of the ways they live their lives. Cultural politics are enacted when a set of social groups shaped by, and embodying, different cultural repertoires and practices come into conflict with each other. This definition of cultural politics assumes that the interpretation, representation and the meanings attached to certain aspects of reality can be the source of a process that must be accepted as political (Alvarez et al. 1998, mentioned by McCann 2002: 389).

Since water has been, and continues to be, a central resource in the Andes to make livelihoods possible, struggles over meanings of water have always been present in the water history of the Andes. Such struggles occur over the definition of rights and boundaries, over norms and over interpretations and values of water (Boelens 2009, Boelens et al. 2007, Bustamante 2000, Castro 1997, Gelles 2006, Gentes 2002, Guevara 2006, Urteaga 2006). In other words, the water history of the Andes is one in which particular meanings about and values attached to water have always been contested. This struggle over interpretations, meanings and values has been, and often continues to be, part of a larger struggle over identity and place, over water interventions and meanings of development. Sometimes water interventions threaten people's access and rights to water (and land); including their political, social and civil rights (or rights to citizenship) (Castro 2006).

1.5.2. Modernity, hydraulic mission and irrigation development intervention

As noted, indigenous-peasants from the Andes tend to attach a sentient meaning to water, seeing it as an actor with identity and agency. This view of water stands in stark contrast with the view that water needed to be 'conquered' , a view that has been central in modernisation and development thinking starting in the 19th century and also characterising the first half of the 20th century (Molle et al. 2009). This thinking affirms that modernity and civilization would come about through the 'liberation' of Man from superstitious beliefs and nature through science and technology. By allowing those nations or people that had successfully modernised to feel superior over others, the idea of modernity simultaneously created a hierarchical distinction between 'modern' and 'backward' countries. This distinction is often linked to a notion of time, positing 'underdeveloped' countries as representing an earlier stage of development, one of technological inferiority and ignorance, and inhabited by less civilized people who still

lived with superstitions about nature (Arce 2000, Zwarteveen 2006). This idea of modernity (and development) was clearly what Arce and Long (2000) call 'westernized', because it was rooted in the ideologies and practices of the former European colonizers. Western experts were concerned with modernising and developing colonial territories and newly-emerging independent countries, based on definitions of the meaning of nature, place, and people that reflected their own political and economic interests: productivity and capital accumulation.

Irrigation was an important tool in such modernisation schemes; irrigation would foster not only progress, but would also help create progressive and productive men. It could do this by taming and domesticating wild nature (including 'wild' individuals). Thus rivers had to be 'tamed and domesticated' to turn deserts into 'gardens'. Science, modern technology and engineers were central to realising this objective. This modernisation project (of which irrigation was an important element) was also related to a brave and masculine calibre of persons that would venture to carry out this mission. Hamilton-McKenzie (cited by Molle et al. 2009:330) mentions that irrigation was a question of 'intelligent', 'audacious', 'industrious', 'thrifty', and 'skilful' people. In those years, these qualities were surely associated more with men than with women, and the ideas on which they were based had a strong influence on the emergence of an elite of water professionals committed to achieve the 'hydraulic mission'.

Wester (2008) describes the 'hydraulic mission' as the strong conviction of hydraulic engineers, most of them civil engineers, that every drop of water flowing to the ocean is a waste. The flow of water must be therefore captured before it can reach the ocean, so that it can be used productively. The State has a central role in task, by investing in the construction of modern hydraulic infrastructures, with engineers as their most important allies in achieving this objective (see also Molle et al. 2009). The term 'mission' is used not as a value judgment, but reflects the mind-set and conviction of State politicians and engineers that it was their duty to transform existing agriculture into a more productive one by developing irrigation (Wester 2008). This mind-set was particularly powerful at the beginning of the 20th century, and it usually materialized in the construction of large-scale irrigation projects in flat and desert areas worldwide. Some authors (like Molle et al. 2009, Wester 2008) point out that large irrigation projects have also constituted an important political strategy for controlling water, place, and people.

In general, a sense of superiority, reason, objectivity and hence authority characterize the professionals and hydraulic engineers responsible for the hydrualic mission (Prieto 2006, Williams 1995, Zwarteveen 2006). It is the authority of these experts which defines the form and content of development, and they derive part of their authority from science that allows them to speak of 'certainties' and effectively represent these certainties in linguistic references, designs, models and maps. 'Development' therefore invades and takes possession within the local culture through the routine use of such languages. Words like progress, market, efficiency, modernity express a future state of affairs, and use of these terms works to label the existing situation as traditional, inefficient, unproductive, backward, underdeveloped (etc.) and in need of intervention (Arce 2000:33-36).

1.5.3. Resistance, counter-development and ethno-water politics

People and water users are not passively included or excluded in the modernizing efforts of irrigation development interventions. Rather, they are active actors who can resist, re-

shape, re-create, and even appropriate and re-position it into local practices. Resistance by peasants resides, first and foremost, in multiple, heterogeneous, interlinked practices to confront hegemonic modes of ordering the world. Resistance may sometimes take place in mass demonstrations and open mobilizations. However, it need not necessarily and only be expressed in going into the opposite direction, but can also happen through the appropriation and repositioning of modernity and its institutions within local culture and practices. This generates dynamic processes of fusion, blending and counter-movements to modernity, entailing the disembedding of western civilized standards of development, while embedding it within various local representations and organization of modernity. This process generates the pluralization and localization of modernity, giving rise to heterogeneous realities or *alternative modernities.* (Arce and Long 2000, Boelens 2008a, Ploeg 2008).

Arce and Long (2000:19-20) call this range of people's responses or reactions *counter-development*. It involves multiple processes of reworking old or predominant modes of organizing and meaning-making of nature and people's interventions in it. Counter-development is based on people's scope and power to create new things and alternatives, challenging universalistic ways of making modernity (Escobar 2008). Counter-development, viewed from above, may result in the loss of power to implement and a minimization of the role of expert knowledge. From below, it represents a series of opportunities for organizing specific projects.

For the analysis of the linkages between water security and ethnicity, counter-development implies that it is crucial to understand how Andean women and men make sense of their culture and collective identity around water, how they deal with livelihoods and uncertainties, and threats. Processes of sense-making happen in every-day encounters and interactions, where people have to confront and defend, or appropriate, adapt and reposition values, ideas and meanings of modernity and development. Such encounters and interactions form the basis for the development of local alternatives to mainstream development in their own terms. These alternatives are place-based, because they are usually rooted in local water culture and traditions- and they also constitute alternatives to hegemonic cultural[20] interventions (Escobar 2008). Place[21], as referred to throughout this book, is both a space and a political construction that constitutes one of the essential points of reference (of identification) of people. Place allows people to collectively organize to resist interventions that attempt to define their identity and the meaning of local resources (Escobar 2008, Parajuli 2004, Dirlik 2001).

[20] Hegemonic culture, what Escobar (2008) refers to as 'westernized' ways of meaning-making, produces knowledge, technology, organizations, discourses, symbols, etc., by 'inventing' and defining the meaning of nature, place, and people's identity according to distinct political and economic interests, and based on a sense of cultural superiority. Through this process, also history and the future are interpreted in specific ways, with specific definitions of modernity, progress, and development (Boelens 2008a, Escobar 2007, Mitchell 2000, Zwarteveen 2006).

[21] The concept of 'place' is also related to 'locality' as referred to by Arce and Long (2000), who define it as a situated context where people, bound together by some common identity (transitory or intrinsic), seek to reconstruct the world in such a way that they may live on their own terms, and not on the terms of those who seek to control them.

These particular ways to resist and construct alternative water realities can be seen as a way to do water politics 'from below', or what I call *ethno-politics*[22] *of water.* This term allows understanding water security in the Andean context not only as a conflictive process of cultural politics, but also as the development of an alternative and a re-creative response to 'outside' interventions. It refers to the cultural political processes by which Andean people appropriate, transform and reposition norms, discourses, meanings, symbols, knowledge, and technology of predominant cultures (like modernity) within their own local practices. The concept allows recognition of how local people may define their own collective identifications - in spite of existing internal differences such as those based on class, ethnicity, and others -, and develop place-based water alternatives. Ethnicity, cultural politics, irrigation development interventions, and place-based alternatives are essential concepts that support the conceptualization and understanding of ethno-water politics. Gender also is constitutive to ethno-water politics, because gender is an important dimension of identity[23], and one that intersects with other dimensions such as ethnicity (Fraser 1996).

1.5.4. Gender and water

Harding (1986, mentioned by Zwarteveen 2008) argues that gendered social life manifests itself in three main ways, through a) symbols, b) structures, and c) identities. According to Harding, societal life is pervaded with symbolic discourses that assign dichotomous gender metaphors to aspects of reality that have nothing to do with differences in sex. This dual symbolization supports a structuring of the world in dual gender orders, dividing and organizing human groups' activities (and rights) on the basis of gender. And thirdly, gender also is an important way in which people identify themselves and others. This constructed identity is only very partially correlated with perceived or represented reality, and it varies from one culture to another and over time.

Gender, as a set of ideologies, identities, symbols and structures, is also embedded in how water rights and rights to other resources are defined and in the dynamics of struggles and claims (Roquas 2002). In this sense, water rights are clearly gendered. In other words, what is generally referred to as the 'use of' and 'access to and control over' water is usually different for men and women. When using a relational definition of water rights, having the right to water defines the social status of one person. The rights to water often comes in a bundle of rights, combining the right to use water, the right to voice and decision-making, the right to elect or be elected in the water organization board, etc. Water rights, therefore, reflect and are reflects in social relations of power. The social relationships in which peasant men and women operate and into which they are admitted, their status within these relationships and the economic activities they are permitted to undertake are strongly influenced, among other things, by their rights to

[22] The term 'ethno-politics' refers to issues of ethnicity in the construction of a political project, in conflicts of ethnic minorities, or in the construction of a collective identity based on ethnic otherness to pursue an end (Cento 2003, Helly 2002)

[23]Some authors, like Nancy Fraser, prefer to use the term 'status' instead of 'identity', because of the problematic (volatile) concept of identity (see Fraser 1996: 10-23). Although I agree with the argument of Fraser, for the purpose of this study I continue using the term 'identity'. As a shifting and contextual phenomenon, identity does not denote a substantive being, or simply a categorical attribute that can be attached to social groups. Instead it is a relative point of convergence among culturally and historically specific sets of social relations (Zoomers and Salman 2003, Zwarteveen 2006).

water together with their right to land (NEDA 1997). The rights are therefore embodied in a wide range of social, cultural and economic relationships.

The use of gender as a concept has triggered quite some debate in the Andes. Especially one group of scholars tried to deny that gender mattered as a socio-cultural construction of differentiation and power relations in the Andes (Grillo 1994, Ignacio 2006), and instead insisted on ethnicity as the main axis of differentiation. By doing so, they also rejected gender as a valid analytical concept to approach social injustices and inequalities (Pozo 1997). Others recognized gender (or rather women) as a necessary component of the present indigenous political struggle and project, best known as '*Sumak Kawsay*' or 'good living' (Chancosa 2010, CMPCC 2010, León 2009). Those authors, who defend the first position (a-gender), claim that gender is a category invented by western feminism, with the objective to harm the harmonious relationships of the family in the Andes. These relationships are supposedly based on principles of complementarity, reciprocity and the collective interest of the family and the community. Existence of such intra-familial and intra-community harmony and complementarity would explain why indigenous-peasants always struggle as collective groups and for collective use and management of land and water. Individual struggles, as well as individual property right regimes, are characteristic of western society and not of indigenous communities (Claverías 2002, Grillo 1994, Gutierrez and Arratia 1997, Pacari mentioned by Deere and León 2002). In this perspective, the identity of a man or a woman acquires its real meaning as soon as they come together (and not individually). Men and women relate to and complement each other, mirroring the well-balanced and complementary relationships existing between the male and female divinities of nature (Boelens 2008a, Claverías 2002, Zwarteveen 2006). Although harmony and complementarity indeed are important values characterizing Andean gender relationships, I consider the a-gender position as a somewhat idealized or romanticized point of view. Day-to-day interactions between men and women in the Andes cannot just be described in terms of harmony, reciprocity and complementarity, but also display hierarchies and are characterized by processes of negotiation, confrontation, and struggles that exist in intra-household relations and within the community, and which are intertwined with class, ethnic, and knowledge differentiation; and even with urban and rural experiences (Cadena 1992).

This study adopts gender as an analytic category as suggested by Zwarteveen (2006). She argues that the meaning of gender is a site of dynamic contestation and negotiation. Therefore, gender is not treated as a given, as something that can be known in a positivist sense, but its meaning is socially constructed, negotiated and contested, according to the cultural and historical setting of social relations. As in any social relation, power mediates these relations. Scott (1986, mentioned by Waylen 1996) points out that gender is a primary way of signifying relations of power. Through this proposition, the theorization of gender can also be linked to the analysis of ethnicity and ethno-water politics. Inspired by Foucauldian notions of 'capillary' power[24], gender then becomes implicated in the way power is constructed and legitimated around water rights and water security in every day practices (Vera 2006).

[24] Foucault (mentioned by Waylen 1996) believes that 'capillary' power is exercised 'strategically' at all levels of society. It generates compliance instead of resistance, a sense of belonging to a given culture. Boelens (2008a) further points out that capillary power is developed from within and penetrates into all areas of every day social practices. People participate in their own subjection, through self-correction, often unintentionally. This power is subtle, invisible, inclusive and bottom-up (subject-centered).

1.5.5. Water rights and water security

There are different approaches to analyzing and defining water security. The concept is usually related to trans-boundary water conflicts, with the State playing a central role in protecting and defining the terms of security for avoiding conflicts (Falkenmark and Lundqvist 1994, Jutro et al. 2003). In this book, instead, I use the concept of water security from the perspective of female and male water users of Andean communities, in an attempt to understand the fairness and security of their access and rights to water. I thus look at how Andean people deal and organize themselves to achieve adequate access to water in terms of quantity (and quality), to ensure food and livelihood strategies, as well as to sustain local ecosystems and cultures (Vera 2006c).

Some authors, such as Dimitrov (2002), suggest that in order to understand what security means, it is useful to analyse its opposite concept: insecurity. This prompts asking such questions as: What causes insecurity, against whom, what needs to be protected, against what dangers or threats? In other words, Dimitrov's approach suggests identifying the sources of threats, analysing where dangers come from and who are (potentially) affected. According to Dimitrov, this very act of identifying the threats gives a general idea of how one is to guard against these threats. Threats to water security can have different origins, such as scarcity, ethnic conflicts and wars. Scarcity for instance originates from the unsustainable use of water resources (depletion or pollution), and is often linked to irrigation development policies and institutionalized priorities of allocation (Ahlers and Zwarteveen 2009, Falkenmark and Lundqvist 1994, Jutro et al. 2003, Vera 2006c). Water can for instance be diverted from rivers and lakes to develop a particular irrigation project, thus affecting the access and rights of people who depended on these water sources. Institutional arrangements of water rights and water allocation, and politics of irrigation investments, are often interlinked and are constitutive of an analysis of water security. Jutro, Morrison and Wolf (2003) suggest that especially the analysis of water allocation and rights is central to an understanding of water security.

Water rights are embedded in social relations, culture, norms, and meanings attached to water, which are shaped by the way power is socially and culturally organized (Boelens 2008, Boelens and Zwarteveen 2003, Gutierrez 1996, Roth 2005). In daily encounters at the local level, it is possible to find a mixture of different norms and regulations: customary law, new forms of self-regulation, old or new roles derived from de State or government agencies, including the church and NGOs. This whole mixture of norms and rules that are expressed and used at the local level are called local water rights (Pradhan and Pradhan 1996, van Benda-Beckmann et al. 1996, Roth 2005). Local water rights, rather than referring to strict place-related origins, indicate that water access, definitions and control are made by users. They constitute the normative foundation for user-controlled irrigation systems. Local rights means that these are perceived by users as 'theirs'; they 'belong to them and their locality'. The locally appointed authorities are the ones who have the legitimate powers to enforce these rights, rather than 'outside' rules and rule makers' (Boelens 2008a:6-11). Water rights can be conceptualized as 'authorized demands to use (part of) a flow of water, including certain privileges, restrictions, obligations and sanctions accompanying this authorization; among which a key element is the power to take part in collective decision-making about the system management and direction' (Beccar et al. 2002:3).

Boelens and Zwarteveen (2003) distinguish three categories of rights: reference rights, activated rights, and materialized rights. Reference rights can be derived from national water regulations or from local principles and rules that embody notions of fairness and justice. Activated rights (or right in action) refer to the process of transforming reference rights into operational rules and procedures, including the right to vote. Materialized rights refer to actual water use and distribution practices and decision-making processes; these rights are not always written on paper, but are exerted and authorized by un-written collective agreements. In most Andean societies, activated and materialized rights to water are related to the contributions (labour or/and cash) that each water user makes during the construction or the maintenance of the water infrastructure system.

In many user-controlled Andean irrigation systems, water users create (or earn) their rights to water by investing their time and sweat in physical work, in meetings and discussions, and in participating in social movements and struggles (Boelens 2008a, Boelens and Hoogendam 2001, Gelles 2006, Gerbrandy and Hoogendam 1998, Gutiérrez and Arratia 2009, Perales 2009, Vera 2004). Although users can create their rights to water, they need to actively maintain this right (in order to materialize it), by paying dues according to collectively established contribution rates and by serving the community (Vera 2004). The duty of service to the community is usually acquitted by freely assuming, rather than by obligation, a political or religious charge (from the local *cargo* system), or by participating in communal *faenas* or *mingas*. Few authors recognize that the principle of service also plays a role in the construction and maintenance of water rights. In most Andean communities, this principle is also of crucial importance to acquire, and indeed deserve, the status of a social actor, as *comunero(a)* (community member) and as a member of the local water user organization (Vera 2004).

Boelens and Zwarteveen (2003) also distinguish three dimensions of water rights: the socio-legal, the technical and the organizational. These dimensions overlap in complex ways in everyday practices. The socio-legal dimension refers to the fact that a water right is an expression of agreement about the legitimacy of the right holders' claim to water. This agreement is intimately linked to social and cultural relations of authority and power. The technical dimension of a water right refers to the different means of infrastructure, technology, and technical skills needed to actually take water from a source and convey it to fields. The organizational dimension indicates the collective means (labour and resources) needed to direct and organize actors' behaviour and resources according to the management needs of the system and to distribute the water according to the agreed rules and rights.

When conceptualizing water rights and water security in the Andean context, an additional dimension may be distinguished. As I mentioned in former paragraphs, indigenous peasants from the Andes consider water as more than just H_2O (Bendezú 1983, Castro 1997, Gelles 2002, Gerbrandy and Hoogendam 1998, Kessel and Condori 1992, Laruta and Bustamante 2007). The consequence of this interpretation and valuation of water is that water rights and water security also have an important symbolic meaning, which is why many water practices are ritualized. Although this perception of water is very local, it acquires its actual meaning and significance in interactions with the outside world, in different domains of encounter, confrontation and negotiation. Recognizing this symbolic dimension of water rights also implies that different forms of interactions and power relationships are developed not only among the water users and other competing claimants, but also between users and engendered water deities, or between users and Nature. The symbolic nature of water also implies

that a special meaning is attached to a place, as sentient and magical with the earth, mountains, rivers, lakes, forests, etc. as animated.

1.6. Research Methodology

Sections 1.2 and 1.3 have explained the reasons why I chose to carry out this study in the Colca Valley. This is, in part, because my working experience in this valley allowed me to open my 'eyes' to see water realities in the Andes beyond the technical education I received at the university. The organizing practices around water and the particular water culture existing in the Colca Valley fascinated me and encouraged me to investigate and understand what kind of meanings and values existed behind these practices.

I developed my field research in two stages: an exploratory and an in-depth study phase.

1.6.1. Exploratory stage

In the first stage (five months), I contacted an NGO (DESCO[25]), working in the area, to introduce me to the community and to different organizations which were working in the Colca Valley. DESCO also facilitated my access to bibliographical information, maps and statistical reports of the area, such as: the actual irrigated area; the non-irrigated area; the numbers of active water users disaggregated by gender; the yields of crops per hectare; and the water availability per month, etc.

In this period I also tried to find a research assistant, which proved to be difficult, since it took a long time until I found a bachelor student (final year agricultural science student) capable to do hydrological studies in the Colca Valley.

I went back to Coporaque in September 2005, 15 years after having worked there for CAPRODA. I accompanied one of the male engineers of DESCO, who actually had to mediate in a conflict around a water spring between the Municipality (of Coporaque) and some families who used this water for pastures dedicated to *alpaca* livestock. The respective water spring was located in the highlands, at 4200 m.a.s.l, a five hour steep walk up from the village of Coporaque. Once we arrived at the spring, exhausted and hungry, we could not even find a dry spot to sit, because that day snow covered the area. Thus, when the local women and men and the local authorities saw me, they both pitied me and respected me for my competence as a female engineer (apparently with an urban background), who had the courage and force to climb the mountain confronting the harsh climate (wind, cold and snow). This was the first time I formally approached the authorities of the community and of the *Comisión de Regantes (C. Regantes)* and explained the reason why I was in Coporaque. Some of them recognized me immediately, and felt happy about my return to the community. The next time I assisted in the meeting of the *C. Regantes,* the president introduced me to the Assembly, and he remarked how 'brave' I

[25] DESCO (Centro de Estudios y Promoción del Desarrollo) has worked in the Colca Valley since 1985 (see also: http://www.descosur.org.pe/bb.php). When I worked in Colca Valley at the beginning of the 1990s, I befriended the actual members of the NGO board (DESCO-Arequipa). This made it easy for me to ask them to be introduced in the community, and also to ask for some logistic support (including transport, computer use and access to their library).

was climbing the mountain, and he said: '*[…] these are the kind of engineers we need in our region, they are really professional'.*

Once I gained the trust of the office-holders of the *C. Regantes*, we organized focus group discussions with them to converse about their water concerns and their understanding of water security. With this group we (myself and my research assistant) did participatory mapping and modelling exercises of the community irrigation system, paying attention to the distribution or delivery points, the water authorities in charge, the general water rules and norms to allocate and distribute water and water conflicts. This information was corroborated with transect walks, together with the local water authorities. This field identification was fruitful, because it helped building a friendly relationship with the water authorities, especially with the president of the *C. Regantes* (whom I nicknamed Sistor). Sistor[26] constituted one of my key informants not only during my field research, but also during the writing process in the Netherlands. In this exploratory phase, we also made a diagnosis of the irrigation infrastructure and offered some technical assistance to the *C. Regantes*. Some critical points (of water losses) were repaired with the funds from my study budget (specifically allocated for this purpose). We also identified points alongside the canal to install water flow measurement devices, to study the water balance (supply and demand) of the system.

In this exploratory stage of the study, I also identified key informants, and did the sampling of the households. As already outlined above, one of my key informants was the president of the *C. Regantes*. Later on I also gained the trust of the vice-president, who had a different position from the president: he was a *minorista* user and most of the time acted as president, because Sistor was busy with his teaching duties. Two women also acted as my key informants. One of them had a restaurant in the main square of Coporaque, and knew a lot of everyday gossip and about events in the community. She was divorced with three daughters, and as a head of a household was the official member of the *C. Regantes*. The other was a widowed woman and member of the board of the *C. Regantes*.

To select households for in-depth study, I adapted the participatory 'wealth ranking' methodology for stratified sampling. The interesting thing about this wealth ranking technique is that it gives information not only about economic attributes of a person or a household, but also reveals attributes such as status, power and authority, education, ethnic differentiation, participation, and access to resources (Lingen et.al 1997). In the beginning we wanted to crosscut variables such us: land ownership (*mayorista, minorista*), migration, and marital status (married, widow, single and divorced) to select the households. To be sure about the selection of these variables we undertook rapid structured interviews in 20 houses (selected at random) to see whether these variables influenced the access, rights and control over water. In the end we found that migration was irrelevant (because it almost stopped in Coporaque after the construction of Canal Coporaque). The land-based differentiation and the marital status were then used as variables to select the households, having 8 different combinations (table 1.2), and for

[26] Sistor is a *mayorista* user and also a teacher at the local primary school. According to the situation, Sistor identified himself either as teacher, as a president, as a campesino, or as a *mayorista.* He embodies the prototype of a local literate and white (he has blue eyes) leader, fighting with a strong hand for the progress of his community. This is also the reason why some people identified him as dictatorial. He twice stood as a candidate for the post of mayor of the municipality, but lost on both occasions.

each case I started to study three households or 24 cases. However after three months, I realized that studying 24 cases would not allow me to gain an in-depth understanding of the dynamics and life of the spouses. This is why I decided to follow 2 cases per combination for the in-depth study. I selected these cases on the basis of the accessibility of the families and their willingness to share their (often private and intimate) information with me. In some of the cases, especially the women were a bit reluctant about doing this. I nevertheless also followed their cases, but from a greater distance.

Table 1.2: Variables considered to sample the households for in-depth study

Marital Status	**Land based differentiation**	
	Mayorista	*Minorista*
Single (woman)	Two households	Two households
married	Two households	Two households
divorced	Two households	Two households
widowed	Two households	Two households

1.6.2. In-depth study

Since I was interested in understanding how ethnicity and gender moulds water security and water rights through every day encounters, I favoured ethnographic methods. According to the situations as they presented themselves to me in my research location, I used different ways to approach people and socio-cultural water events. When having an opportunity to talk with people in the field, or in the street, or at their house, open interviews were used. In other cases I made appointments with people (like engineers, local leaders) to have a talk, and then I usually used semi-structured interviews. I used focus group discussion in two different ways: during formal meetings with *C. Regantes* authorities and women's organizations, and in informal meetings, like in the main square of the village, in the small restaurant of the village, or even travelling in collective local taxis. In the first case, I used structured questionnaires prepared in advance to facilitate the discussion of the group, and I purposively invited the participants for the occasion through the president of the respective organization. In these formal discussions, we also used organizational diagramming (Venn diagrams), to learn about the organizations (local, NGOs, Gos) that play a role in the daily life of water management and control, as well as to understand how women and men of the different groups perceived the decision making power of the different organizations and to analyse the accessibility of the different groups to the provided services. In short, it allowed me to recognize the different interfaces of water control (Chambers 1994, Lingen et al. 1997, Vincent 2003a)

In the informal meetings, the questions (or just one question) that generated the discussion in the group came up according to the circumstances. For instance, during my stay in the field, the PETT (Projecto Especial de Titulación de Tierras y Catastro Rural, see also Chapter 3) was implementing the registration of land titles, and many women (especially those separated or divorced) were concerned about this process. The PETT considered those who were registered as members of the *C. Regantes* as the first title-holder of the land. Many women, who actually were the owner of the land, were not registered in the WUA, instead their husbands were. When I encountered a group of Coporaqueños who were waiting for the collective local taxi discussing this issue, I tried to silently follow their discussion. I intervened after a while by posing a question like

'why are women who own land not registered as a member of the *C. Regantes?*' The heated discussion among women and men that such a simple question generated can be seen as an informal focus group discussion, yielding much information.

When visiting people at their home, in their fields, or at festivals or other cultural events, I deepened my understanding of their life through intensive participant observations. I was fully engaged in such different agricultural activities as: sowing, irrigating, and harvesting; and actively participated in cultural activities like the celebration of 'San Santiago' (patron of the village and of agriculture) the village's anniversary or in marriage events. Sometimes I went to these events just as one of the guests, and not as a researcher, yet I always learned a lot. One of the cultural events to which I gave special attention, was the yearly water festival – called '*Yarqa Haspiy'* (maintenance of the canals), which takes place during 30 days in Coporaque and which I filmed (see also: http://www.thewaterchannel.tv/index.php?option=com_hwdvideoshare&task=viewvideo&Itemid=53&video_id=590.

The fact that I speak *Runa Simi* (Quechua), and had already worked in the Colca Valley 15 years ago, made it easier for me to relate to people, who amicably opened the 'doors' of different spaces to me: their homes, the *C. Regantes*, the women's organization, the celebration of their festivities (wedding, birthday, *cargos* celebrations, etc).

The following sections describe the research methods used in the three different levels of my in-depth study.

a. At household level

To understand the intra-household relations and processes around water, I followed the life history of the adult women of the 8 selected households, using semi-structured interviews. I did these according to what I needed to know to understand a specific issue. The first semi-structured interview opened up avenues for new questions, forcing me to rephrase or elaborate new questions for the second or third interview session. On some occasions (especially during the first interviews), I took notes in the presence of the interviewed, previously asking her or his permission. Most of the information was collected during more informal chats about everyday life events, or even gossiping about family conflicts, and about rivalries between groups (of power) in the community. During such chats, I never took notes in the presence of the interviewed, but tried to write down and systematize all information of the day once I was at home.

As I already explained above, I forged amical relationships with most of the women and men selected for the interviews, and this sometimes entailed becoming actively involved in their lives. On one occasion, for instance, I could not refuse the petition of one of the husbands to act as a mediator in a conjugal conflict. He wanted to make up with his wife, who wanted to separate from him. On another occasion, one of the divorced women asked me to accompany her to her lawyer, because she had some suspicion about his interpretation of formal procedures. Her complaint against her husband risked being turned down and she failed to understand why, also because she was monolingual and illiterate. She was keen to understand everything that the lawyer explained to her. I can just say that the lawyer attacked me fiercely and almost threw me out of his office for accompanying this woman.

Some would perhaps say that I was involved too much, and interfering, with the people I studied rather than acting as a 'neutral' and detached observer.. In response, I would like to quote Arce and Long (2000:8), who accurately point out that a good ethnography must repudiate the idea of the detached and objective, or neutral observer. Instead, they argue that understanding the overarching and complex socio-cultural life of people, requires to be involved in experiential and (sometimes) subjective social life. Indeed the strength of experiential ethnography lies in fully acknowledging the 'battlefield' of everyday relationships, and organizational practices, wherein multiplicities of actors engage in struggles over meanings, values and principles, identities, knowledge, access and rights to resources and even over power. It implies a detailed and systematic treatment of how the life-worlds of the researcher and other social actors interact in the production of specific types of interpretation.

In chapter 7, I provide a detailed analysis of the cases of 4 households (married and divorced). I chose these four cases, because they allowed a more in-depth understanding of intra-household negotiations and struggles (and specifically between husbands and wives) around water, or related to water. I discuss material and evidence from the other cases (widowed and single) throughout the other chapters.

b. At water user organization and community domain

An important method to understand water user organisations consisted in attending the *C. Regantes* and the *reginas*' meetings, and observing what happened. The *C. Regantes* meetings are held at the patio of the building of the *C. Regantes*, and sometimes take place during the night (from 8 p.m until 11 or 12 p.m) or early in the morning (from 6 a.m. until 9 or 10 a.m). During the high irrigation season (Sept-Dec) *C. Regantes* meetings are held at least once a week, while in other periods they are only held once a month. The *regina* meetings always take place early in the morning (4 a.m – 6 a.m), every day in the two main irrigation systems, and once a week in the other 3 small systems.

I also prepared semi-structured interviews to approach the actual, former and elder leaders of the *C. Regantes*, both official and traditional authorities, as well as their wives (separately). I did this to know how they organised water management in the community, how they dealt with water problems and livelihoods, and to learn about their visions about progress, modernity, etc.

We also made a careful review of the minute books of the *C. Regantes* (from 1971 until 2006) and the community (from 1998-2006) in relation to issues debated, including water access and water rights conflicts, confrontation with State water professionals, and the construction of the *Canal Coporaque*. We also reviewed the internal bylaws and different normative instruments of control (such as the 'irrigation control card'), and reviewed the minutes of the ATDR-Valle del Colca (in Chivay).

To understand the meanings of actual water traditions, ethnicity and gender, I had to incorporate the history of water interventions, occupation and resistance in Colca Valley. Consequently I also spent much time collecting ethno-historical and archaeological information about Andean water culture, symbols, infrastructure and identity. I especially studied the writings of the first Spanish and Peruvian chroniclers. In order to better understand their descriptions of sacred water places or sanctuaries, I personally visited some of the main archaeological sites, like Tiwanaku and the '*Isla del Sol*' (Sun Island) in Bolivia, Pachakamaq and Tipón in Peru. In this way I discovered that the

Andean water culture is much more deeply gendered than is reflected in the reports of most historians and ethnographic researchers.

In this in-depth phase, we also made a hydrological study in the community of Coporaque, and of the Valley, using Hargreaves and FAO Penman-Monteith methods to calculate the water balance (see detailed procedure in Valdivia, 2007). To this end, we measured the water flow at the main off-take (head and tail) points of the five sub-irrigation systems every month, especially during the irrigation period. For this purpose we used different discharge measurement equipment depending on flows and cross-sections: the portable RBC flume, the dipping bar meter 'acc. Jens', and the float method, comparing the different values. We also took information of the cropping pattern, the entire cultivated area, the physical-chemical quality of the soil (analysed in the laboratory of 'La Molina University') and meteorological data for the last ten years from the local meteorological station. We had to apply for this information in Lima, often facing tough bureaucratic procedures. We faced similar difficulties when asking (in Lima) for data about the number of beneficiaries of the land entitliment program by gender and region made by PETT (*Programa Especial de Titulación de Tierras)*.

c. At watershed level

At this level, I focused attention on studying irrigation policy discourses, water security and scarcity concepts, irrigation development policies, gender and ethnic ideologies. To this end I followed and documented the diversion of the Colca River to the desert area of *Pampas de Majes*, best known as the Majes Irrigation Project (MIP). I obtained these informations from different sources: reports, proposals and internal documents of the MIP filed at AUTODEMA (autonomous authority of Majes). I also visited the *Pampas de Majes,* observing, taking Photographs, and filming the effects of the irrigation intervention. I interviewed and took testimonies of different key actors of the MIP (engineers, technicians, farmers and leaders) at different levels of the watershed. All these data were complemented with quantitative data about the total water availability per community (of the watershed), the total cultivated area per community, and the number of beneficiaries per community. I also documented quantitative and qualitative data about the effect of the MIP on environmental and social dynamics, which I took from the reports and documents filed at the *C. Regantes* of Sihuas Valley.

Together with Sistor, I made what I call 'subversive[27]' photographs of the main dam-intake of MIP located at Tuti. Sistor wanted to have some proof of the complete diversion of the Colca River at Tuti, to be able to denounce it in front of the regional authorities and demand justice for Coporaque. The State water authorities (then ATDR) and the MIP technicians always denied the drying up of the river at the dam-intake of Tuti[28]. We also

[27] I use the term 'subversive', because it is forbidden to enter into the territories surrounding the dam-intake of Tuti, which are guarded by security police. A long bureaucratic procedure is required to get permission to visit the place through the official entrance, located at right side of the riverbank. At first glance, the infrastructure itself seems to be 'invisible', because it is situated deep in the canyon, also making it difficult to access. Sistor knew how to secretly reach that place and get an excellent view of the dam-intake, without being detected by the guards. To do this, we had to approach it through a narrow path on the left side of the river, climbing the rocky and steep mountain.

[28] This is because around four kilometres downstream, the river starts to recharge with the so called return flow, as well as with the water flowing from the different water sources of Tuti and Canocota, the first agricultural communities located in the proximity of the dam-intake of Tuti.

made a film with the title: '…*y se llevaron nuestras aguas*' ('…and they diverted our river', in English).

During the formal and informal interviews, as well as the focus group discussions, I also paid attention to how questions and problems were framed, and to how this in turn feeds discourses on organizational practices. To study (ethnic and gender) hierarchy and power relationships, I paid special attention to socio-cultural interfaces between local water users and extra-community water actors, such as state employed engineers or technicians, and NGOs. To this end, I tried to participate either actively or passively in different events organized by the local water user organization, the *Junta de Usuarios* (JU) of the Irrigators District of Colca Valley, the Autocolca (*Autorida Autónoma del Colca*), and the provincial Municipality of Caylloma.

I also engaged in a participatory action research study with the faculty of Chemistry of the National University of San Agustin-Arequipa and the Municipality of Caylloma, with the objective to discover why the fish population in Colca River was dying during 2007. Students of chemistry, guided by the staff of the municipality, identified four sampling points alongside the river (starting at the first village of the Valley (Callalli) and finishing in Chivay (the main city of the Valley) to take water samples in one day, and take them to a laboratory at the University. To the surprise of the local authorities and the university itself, the analysis reported the presence of lead (Pb) and arsenic (As) in the water. Nobody knew the source of these heavy metals, and the Municipality of Caylloma took the responsibility to investigate it further. In the end, it was suggested that a mining company (still not fully identified), located at the head of the watershed was the possible polluting agent. The results of these analyses were published in the newspaper: *El Gran Sur/La República* (Wednesday, 05/11/2008). I was also invited to explain this study in two different television programmes in the city of Arequipa.

I was involved in another participatory action research to collect information about the rich cultural heritage around water of the Colca Valley communities, which is manifested in rituals, myths, legends, song, festivities and organizing practices. To do this, we organized a contest of oral and written water traditions in the Valley. The best history tellers, writers or singers were awarded. To do this work, we trained four young people to collect the primary information. They were bilingual (Runa Simi and Spanish speakers), and they had to approach the people in their native spoken language, paying special attention to elderly women and men. We invited representatives of local Gos and NGOs to participate as members of the jury and as sponsors of the event. For instance, the *Junta de Usuarios* of the Colca Irrigation District was the leading organization, while the State Project *Sierra Sur,* the Municipality of Caylloma[29], the NGO Desco, WALIR[30], and my own PhD research project supported logistically and financially. This experience was cheering, as the elderly felt proud telling the local water histories and traditions of their villages, some of them already in the process of disappearing. One of the older women, who won the prize as the best teller of myths and songs, died some weeks before the award ceremony.

[29] The Municipality of Caylloma did not fulfil its promise to contribute, which caused a financial imbalance (for awarding the winners). Confronted by this incident, I presented a proposal to WALIR (see next footnote), which agreed to fund most of the award's costs.

[30] WALIR was a research programme and network on Water Law and Indigenous Rights focused on the Andean region held with the Irrigation and Water Engineering Group at Wageningen University, coordinated by Rutgerd Boelens and a network of regional participants,

1.7. The thesis outline

This study is structured in eight chapters, including this introductory chapter. Chapter 2 presents the water-related ethno-history of the Colca Valley and the wider region, based on my reading and analysis of the foundations and processes underpinning contemporary gender and ethnic inequalities and power hierarchies in the Andes. In it, I deconstruct and reconstruct the water history of Andean society, in an attempt to explain how people justified their rights and privileges to access and control water and land. Peruvian history and in general, Latin American history, has mainly been written by men, educated from a Eurocentric perspective. This influenced their interpretation of reality, and may even have recursively contributed to the constitution of everyday gender and ethnic relations and identities, water allocation and distribution practices, and the formation of the Nation-State. The chapter explains how water played a central role in constructing ethnicity and ethnic affiliations and attributions, and examines the gendered construction of water rights in the different periods of the cultural development of Andean society, namely: Pre-Inka, Inkas, Spanish, and the early Republican period.

Chapter 3 continues analysing these politics of differentiation and recognition in recent times, by paying attention to the development of irrigation policy and legal water discourses during different Republican governments from the 20th century onwards: the Aristocratic-Republic (1900-1950, although with roots from 1821), the Military-Republic (1965-1979), and the Democratic-Republic (1979-until now). I critically discuss how the official policy discourses and the predominant attribution of identity have shaped the possibilities and agency of indigenous women and men to access and ensure their rights to water and land, as well as their rights to be considered as lawful Peruvian citizens.

Chapter 4 analyses how the water security of the Andean peasants can be (and is) threatened by irrigation development intervention projects, that have prioritized large-scale irrigation systems, excluding (as beneficiaries) Andean beneficiaries. Most of these irrigation projects divert water from rivers (and lakes) in the Andes to irrigate desert areas located along the coast. Since legal water policies grant the State absolute control over water, Andean communities had and have no legal chance to defend and protect their water rights and access to water sources on which their subsistence and livelihood depend. The chapter analyses these vulnerabilities by describing how communities and villages of the watershed of Colca and Sihuas were affected by the Majes Irrigation Project (MIP). The particularity of the MIP, in contrast to other large-scale irrigations implemented alongside the Peruvian coast, is that its costs of construction and maintenance have hugely exceeded the average investment cost per hectare elsewhere. I argue that the outcomes of the project achieved after 25 years of intervention (2008) have not justified these excessive investments. I also assess the variable water availability found across the communities of the Colca Valley, and the differential investments they have received from public funding for their 'peoples projects'.

Chapter 5 analyses people's responses to the intervention of the MIP in the Colca Valley. These responses vary from peaceful to violent mobilizations and from localized actions to massive mobilization of the entire population of the Colca Valley and the province of Caylloma. Since people from Colca Valley were not included as beneficiaries of the MIP, they had to struggle to be considered as such. Their struggles were rooted in a collective sense of identity and ethnicity. Given the fact that State politicians and water bureaucrats

undervalued people's demand for water justice, as well as the people's urgent need for water, people from one of the communities (Cabanaconde) felt they were left with no other option than using dynamite to destroy the canal of the MIP. This decisive action marked the beginning of other struggles and processes of negotiation for water justice in the valley. The chapter documents these, analysing them as people's irrigation projects developed as alternatives to centralised State driven irrigation projects. People's irrigation projects are conceived, constructed and managed by local users, according to their traditions and local norms. I dedicate quite some space to a detailed study of the strategies and struggles by the people of Coporaque to build the Canal Coporaque, as one important 'peoples' project'.

The strategies of indigenous peasants' to deal with the lack of support from the State, or sometimes with top-down interventions, has always been rooted in local traditions, and in their own ways to relate to water. I show how the particular Andean way to understand and relate to water (and nature in general) constituted the core of cultural resistance to interventions that tried to delegitimize local water authorities and institutions, including local knowledge and technologies. Precisely in chapter 6, through a study of irrigation organisation and its everyday politics in Corporaque and the Colca Valley, I describe and analyse how water traditions and practices are still central in organizing the gendered socio-cultural water management in the region. The gendered practices and traditions documented are not static, nor inflexible. On the contrary, local people have wisely appropriated and incorporated the official laws and predominant discourses in their local practices. Actually the chapter shows how people construct their rights to water, and how they understand water security in every day practice at community level

Having analysed ethno-water politics and water security at watershed and community level in earlier chapters, chapter 7 attempts to understand and analyse how water rights and water security are constructed, negotiated and bargained in everyday life within and beyond the household. This chapter is thus an analysis of the everyday gendered politics of water security. On the basis of four different household cases, I argue that the materialization of water (and land) rights depends to a certain extent on the bargaining capacity and position of each individual and conjugal couple, in different domains of interaction. This bargaining capacity is influenced by different factors, such as access to land, family networks, education (literacy) and information, among others. Local norms and communal traditions, official policies and the predominant gender discourses and ideologies mould this process.

Finally chapter 8 presents the conclusion of the thesis. I return to the objectives and questions of the research, by looking at what this research has contributed to the debate of ethnicity and gender in the Andes and its link with water.

Chapter 2
Water culture and ethnicity in the Andes
A historical reconstruction of gendered water-based identities and power

"Who controls the past controls the future.
Who controls the present controls the past." (George Orwell, 1949)

2.1. Introduction

Orwell's phrase evokes Foucault's analysis of contemporary power structures and inequities, which according to him rest on social categories, symbols, meanings and metaphors that were constructed in the past by individuals and groups in power who attempted to safeguard a 'system of order'. This analysis suggests that to explain current ethnic and gender inequities it is important to understand how identities and the rights ascribed to certain social categories were constructed throughout history. That is precisely what I start to do in this chapter. In it, I try answering one of my main research questions: How have Andean people constructed, produced and reproduced ethnicity and gender in relation to water throughout Peruvian history? Basically, I describe and analyse how ethnic identity affiliations and attributions, and the ways in which these interact with gender, have shaped the differentiated access to and control over water in the Andes. Discourses, symbols, metaphors, narratives and norms which categorized and ranked people according to ethnicity and gender have supported the emergence of power asymmetries and hierarchies – also based in water – throughout the development of different cultures in the Andes: before and during the Inkas, the Spanish and later the Republican period.

I base my analysis on ethno-historical data which I de- and re-constructed from a critical ethnic and gender (feminist) perspective. This is a challenging task, because much of Andean history or ethno-history, at least up to the middle of the past century, has been narrated and written by men, and from a Euro-centric perspective. In other words, most historians have interpreted historical socio-cultural and political issues through a particular ethnical and gender 'lens' (Claverías 2002, Escobar 2008, Blaser 2004, Blondet and Oliart 2008). A critical reading of these texts therefore requires a careful sifting through normative interpretations of accepted reality and normalcy, and involves questioning their definitions and boundaries. In this exercise, (my own interpretation of) existing water practices and traditions constituted an important source of reference and inspiration.

The chapter begins the analysis by describing the central role of water in the collective identities and organizational practices of ancient cultures, before the Inka period. At that time, water was considered the divine creator of the ancestors and of nature in general. Water was considered sentient and was awarded a gender, which was represented in religious symbols (like female and male idols, temples, pyramids), water infrastructures (water altars, canals), religious authorities (priests and priestesses), in social hierarchies, as well as in the political organization. The political, cultural, religious and social importance of water explains why control over water has always figured prominently in the strategies of pre-conquest governors – like Collaguas and Cabanas in the Colca Valley – to conquer Andean territories. They often legitimized their political and religious projects by appropriating local religious beliefs around water. Control over the meanings attached to water (both as a deity and as a natural resource) thus became an important entry-point for controlling behaviour, identities (both ethnic and gender), access and rights, and indeed territories. This pattern of appropriation and legitimation of water power was also

followed by the Inkas –the *Tahuantinsuyo* governors-, although they slowly shifted water-based identities and deities to sun-based identities and deities. I describe this in more detail in the third part of the chapter.

In the fourth and fifth part of the chapter, I analyse the processes of transculturation begun by the Spaniards and later continued by liberal Republicans. Spanish colonizers gained absolute control over fundamental resources –such as water and land- , in a process that was accompanied by (and indeed partly occurred through) labelling indigenous women and men as pertaining to an inferior race, 'incapable' to drive their own destiny. This negative interpretation of indigenous identity and culture left its traces long into the 20th century, and allowed a gradual displacement of indigenous leaders (both political and religious). Finally the last part presents the conclusions.

2.2. Ethnicity, gender and water culture in pre-Inka periods.

Indigenous people from the Andes have always constructed their collective identity around local elements of the natural environment, such as mountains, lakes, rivers, springs, etc. A sense of ethnic identity also emerged from such communalities as a common history, language, traditions, territory, or the collective use and management of local resources (water, land, forest, etc). Water has been particularly central in how Andean people constructed their ethnicity, because water has always been valued as a sacred living being, and a creator of life (Castro 1997, Sherbondy 1998). The belief in water as a divine and sentient being, as the supreme creator of life on Earth, has been the cornerstone of ancestral philosophies and practices, around which people developed their individual and collective identities, their livelihoods, and their forms of political and religious organization (Boelens 2008a, Carrion 2005, Rostworowski 1998). Hence, many ethnic groups related the origin of their ancestors to a specific local or regional water source (lake, river, spring, snow-capped mountain, etc) (see next section).

There were female and male water deities, with political and religious roles and authorities organized accordingly by gender. This is, female religious authorities in general served water goddesess, while male authorities served masculine water deities (Rostworowski 2004, 2000, 1998). Water of the sea, lakes and springs was considered female, while water of most snow-capped mountains and rivers was seen as male, although some were also considered female. The different ethno-historical writings suggest that female water deities were more prominent than male ones, a suggestion that is corroborated by the existence of important temples and sanctuaries dedicated to female deities (Carrion 2005, Guardia 2002, Rostorowski 2000, 1998,).

In general, ancient Andean society used to consider all sources of water as sacred. The sea was considered even more sacred than all other water sources, because it was seen as the great 'mother' of all water sources, and therefore the creator par excellence. The Spanish chronicler Cobo says: **'***They called the sea MAMACOCHA, as if we were saying "mother of the lakes or the water"; they worshiped it, especially the people dwelling on the Plains* [Coast]*, which is maritime land;… and the highland Indians, when they went down to the Plains, on discovering the Sea, even if they were from very far away, would revere it*' (Cobo (1892 [1653]: 370). The sea, lakes and underground aquifers (called *Omapacha or Umapacha*)

were considered as the places from which the gods and ancestors emerged. It was also the final destination of those who departed for the great beyond (died); as the tales recorded by chronicler Ávila[31] (1966 [1598]: 80) show[32]. The Aymara aquatic deity *Tunapa* (*Kon-Ticci-Wiraqocha* of the Inka version, or *Cuniraya-Wiraqocha* of the Huarochirí version) also disappeared into the 'great lake' where he is believed to be to this day.

In the Colca Valley, at least in the community of Coporaque and Yanque, people still refer to water flowing from the snow-capped mountain with its old Aymara name *Mallku*. This name emphasizes the sentient character of water, while also expressing that water is a deity of the male gender. *Mallku* was also the name of the main male water deity in the times of the Urus and Pukinas, very ancient cultures around Lake Titicaca in the formative or initial horizon period[33], also recognized as Tiwanaku-I (1200-100 B.C, see also figure 2.1). The female aquatic deity was called by her old Aymara-Uru name, *Uma*. People in the southern part of Perú still revere *Uma.* For instance in Yanque there is an altar to perform rituals to *Mama Umahala*[34] (Valderrama and Escalante 1988). Actually, in the entire Aymara region of Peru (Puno, Moquegua) and Bolivia, water is referred to as *Mama Uma* or *Mama Oma*, while in the central Andes of Peru water is called *Mama Yaku.*

The female and male water deities related to each other in the way humans do. Thus, as many legends of the region show, they marry, have children, discuss, confront each other and negotiate. For instance, *Mallku* is considered as the husband of *Mama Umahala* by the people of Yanque. Similarly, newly appointed water authorities (also husband and wife) represent this divine couple during the celebrations of water rituals in the community (see chapter 6).

In general, female deities were related with the motherly capacities of giving life and nurturing, while male deitys were identified with natural phenomena such as fire and lava. For instance *Tunapa* (the Aymara deity), or *Illapa* and *Libiac* were deities of threatening lightening, whereas *Pariaca* and his son *Macahuisa* (the deities of Huarochirí) belonged to the snow-caps and to torrential rainstorms, with their risks of avalanches and mudslides (Rostworowski 2000).

2.2.1. The origins of people and the construction of water-based identities

Sherbondy (1998) describes that Peruvians in the southern Andes believed that the place where humans originated was Lake Titicaca, the highest lake in the Highlands. This lake was where Ticci-Wiraqocha (translated from Runasimi as *Tticci* = foundation or origin, and *Wiraqocha* = great lagoon) emerged and 'created' the sun, moon, stars and ancestors of all

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[31] Francisco de Ávila was a Spanish priest and chronicler, unique in his time (1571 - 1621). Unlike his contemporaries, he collected and wrote different myths in the native language (Runa Simi) about the gods and heroes of the zone of Jauyos-Lima, and more specifically of Huarochirí, to learn in depth about the religious practices and to be able to effectively wipe them out. The other value added of this work is that the indigenous informant speaks in the first person. The work is known as 'Gods and Men of Huarochirí'.

[32] One of the tales is about the customs of the indigenous people of Huarochirí (Lima) holding a luxurious rite or 'going-away' party for prisoners of war condemned to die. It was luxurious, because '*They had the idea that the prisoners would go back where Omapacha lives, who created them …*'.

[33] An archeological era, see fig. 2.1.

[34] *Umahala* is probably derived from the Aymara term *Umajatha,* which according to Ludovico Bertonio's dictionary means to give something to drink to another person. *Mama Umajala* would then refer to the water source function, as the mother who provides water for others to drink, although Valderrama and Escalante (1998) translate it from *Runasimi* as the 'mother with her head bare'.

human beings. Betanzos (2004 [1557?] 51-55) says: *'At that time, when this land was all night, they say that a Lord they called Contiti* [Kon-Tticci] *Viracocha emerged from a lagoon* [now Titicaca] *which is in this land of Peru, in the Province they call Collasuyu…*'. Further, *Wiraqocha* ordered his collaborators to dive into the aquifers or veins of the Earth from Lake Titicaca (*Tticciqaqa*) and come out through lagoons, springs, rivers, hills or tree roots, considered the ancestors' *paqarinas* [place of genesis].

The belief in the creative property of water, as well as in the aquatic origins of gods and humans, was widespread throughout the Andes of the Americas. A myth collected by Yauri in the zone of Huaraz (place of the Chavín and Wari[35] cultures) for instance says that: '*…from Auquiscocha Lake, at the foot of Hualcán, emerged Tisillapiajcocha* [Tticci-Llapaqocha] (see Acronyms), *who in his work of creating light, walked around the world shooting stones with his sling against the sky, and light broke forth, lighting the Earth. But the Earth was dry and hard, with no trace of life. Tisillapiajcocha took his sling and made water spring forth in Ecash, across from Carhuaz. Plants appeared,… then he created animals and finally humans*'. (Yauri 2006: 51-52)

The tradition of these ancient cultures of tracing their origins to aquatic sources is also reflected in the Collagua (or Kollawa) and Cabana cultures, early inhabitants of the Colca Valley. Chronicler Joan Ulloa y Mogollón reported that the Collaguas considered themselves the offspring of the snow-capped mountain (volcano) *Kollawata*; and Orihuela (1994:79-83), based on evidence he himself collected, assures that this mountain is located at the beginning of the Colca River, between Mt. *Apu Kiku* and Mt. *Qhaqharani,* in neighboring P'asma (District of Chivay), Caylloma. According to a local legend told by a villager from P'asma, the mountain *Apu Kiku* made his sister, the mountain *Kollawata,* pregnant. She consequently gave birth to the founders of the 'Kollagua' ethnic group. Orihuela also reports that the Colca River starts on the *Kollqa Wallata* plateau, which could well be the origin of the word *Kollawata*, or Collaguas. Likewise, the Cabanas considered themselves children of another snow-capped volcano the *Wallqa-Wallqa* (or Hualca-Hualca). According to Ulloa Mogollón: '*People from the province of Cavana tell the tale that they came […] from a mountain across the way, called Gualcagualca, crowned with snow, and the runoff provides the water to irrigate their land [...]'* (quoted by Orihuela 1994, pp. 70-71). According to testimonies by the rural people of Cabanaconde, gathered by Gelles (2002, 2006), Wallqa-Wallqa is considered female, which is why the runoff from its snow-caps is likened to mother's milk. Another argument for the female gender of *Wallqa-Wallqa* is that during the work of cleaning tributaries and canals, male users have altitude sickness (even vomiting blood) but the women who assist in this work apparently show no signs of problems with the altitude.

These representations and interpretations of the aquatic origin of ancestors were used and appropriated by different governors and elites throughout history to legitimize their own political and religious projects.

[35] In the Aymara language of the ancient *Aru* cultures, *Huari-huari* means very liquid. *Huariptatha* means to soften by becoming more liquid (Ludovio Bertonio's dictionary, 1612). It is noteworthy here that the Huari or Wari culture is related to a word with an aquatic meaning.

2.2.2. The structuring of society in Colca Valley, the role of priest and priestesses

The cultural water history of the Colca Valley is very interesting since different Andean cultures have roots in this area. The importance of water is still clearly manifested in the 'living' architecture (terraces, canals, water sources, etc.) of today's agricultural landscape, and even more in the way the indigenous peasants organize to manage water. Archaeological studies made by Malpass and De la Vera (1990) and by Sandor (1992, mentioned by Treacy 1994) confirm that the Colca Valley figures prominently in the development of at least three different cultures before the arrival of the Spaniards, and it seems that agriculture with irrigation started very early. These archaeologists found that the first terraces and canals (for irrigation) of the Valley were constructed in Coporaque, in the zone of *Sh'iqra, Huayquiri, Ch'aqo* and *Ch'ilaqota*. The radiocarbon tests[36] of the soils, indicates that some of the fields may date from between 300 and 800 A.D., which corresponds with the period of the 'Early Horizon' (100-800 A.D).

Some pottery dug up from the terraces may have Wari cultural influence, the reason why some authors (Rubina 1995, Treacy 1994) inferred that the first terraces and canals were constructed under the influence of this culture. However, as far as is known, Wari started its expansionist period around 1000 A.D, during the Mid Horizon (see also figure 2.1, and also Rostworowski 2004, Narváez 2008), which invalidates this assumption.

Fig. 2.1: Chronological development of the Southern Andean Society in terms of water

Years	Stages	Cultures	Type of societies
4000 B.C to 1200 B.C.	Archaic or Preceramic Period	?	Villager farmers; water *(Uma)* is one of the most important female deities. Priestesses are among the most important political-religious authorities.
1200 B.C to 100 B.C.	Formative or Initial Ceramic Period	Taipicala or Tiwanaku-I and II Pucará, Uros Wankarani	Theocratic kingdoms and dominions, preponderance of aquatic deities: *Uma* (female), *Tonapa* and *Mallku* (male). Water became the central religious and also political symbol. Priests and priestesses were important politico-religious authorities.
100 B.C to 800 A.D.	Regional Developme nt or Early Horizon	Tiwanaku (Taipicala) III Huarpa, Wari-I	Theocratic kingdoms and dominions. Aquatic deities were (*Uma, Mallku, Tonapa*, etc.) the central religious and also political symbols. Priests and priestesses were important politico-religious authorities.
900 A.D to 1200 A.D.	Mid Horizon	Wari-II Pachakamaq Tiwanaku (Taipicala) IV	Theocratic and military kingdoms and dominions. Aquatic deities: *Pachakamaq, Uma, Tticci llapaq-qocha* (female) *Mallku, Tonapa, Kon-Tticci, Cuniraya* (male) are political and religious symbols.
1200 A.D to 1400 A.D.	Regional States	Collaguas and Cabanas Aymaras Chankas	Centralistic societies, theocratic and military States, relatively expansionist. Local aquatic deities (*Pachakamaq, Uma, Mallku* and *Unu*) are still main political and religious symbols.
1440 A.D to 1532 A.D.	Fading horizon	Inka Empire	Warrior society, military-theocratic State, quite expansionist. The sun is the main political and religious symbol. *Pachakamaq, Uma* and *Mallku* are kept in second range.

Based on Rostworowski (1999), 'Chart of Development of Andean Society' and on Rowe (1962, cited by Arqueología del Perú) 'Chronology of Peruvian Cultures'.

[36] One of the soil samples, taken from the canal of *Ch'ilaqota* (30 cm deep), seems to be the most ancient (300 A.D). The analysis of the soils was done in the Radiocarbon Laboratory of the Wisconsin-Madison University.

The reported periods by the archaeologists coincide with the development of the *Taipicala*[37] or *Tiwanaku*-III cultures in South America: Peru, Bolivia, Chile and Argentine (Janusek 2004, Albarracín-Jordán 1996). On the basis of the available evidence, I think it is likely that *Tiwanaku* was the first culture which developed the terraces, the irrigation infrastructure, and laid the foundations for the politico-religious organization and management of water that exists until today in Colca Valley (Janusek 2004).

I base this, firstly, on the fact that people from the community of Coporaque and Yanque call water *Tata Mallku,* and *Mama Umahala* respectively. *Mallku* and *Uma* were also the ancient male and female water deities of the Urus and Pukinas culture (Tiwanaku-I) of the South Andes (Bouysse-Cassane 1986). The *Mallkus* were also the top political leaders of the different states of the Tiwanaku culture which developed around the Titicaca Basin (around 1000 B.C-1200 A.D). The Tiwanaku culture expanded greatly, covering the territories of Bolivia, Argentina and Peru (Janusek 2004). Nowadays, *Mallkus* still remain the main leaders of most Aymara communities in Bolivia (Albarracín-Jordán 1996).

Secondly, the moment the Spaniards arrived in the Colca Valley, (1476-1554 A.D), they encountered two ethnically different cultures, the Collaguas and the Cabanas (1200-1476 A.D). The indigenous Collaguas talked Aymara (Ulloa Mogollón, mentioned by Orihuela 1994:65-77), which was the main language of the former Tiwanaku or Taipicala. Actually, the Aymara names of the different fields and canals in the Valley (like *Hualca-Hualca* (Wallqa-Wallqa), *Qollanapataca, Sahuara, Umacollo, Iranta, Lari, Coporaque, Checa,* etc., see acronyms) testify to the Tiwanaku origin of this culture. Finally, Giesso (2003, cited by Janusek 2004:150) asserts that the Tiwanaku got 76 % of their obsidian from the Colca Valley. Obsidian was the most important stone within Tiwanaku's culture, in material (for instruments) and symbolic terms (for religious purposes). To maintain and feed the miners who extracted the precious stone, Tiwanakus had to provide enough food and cloth. This may explain why they started to develop the necessary agriculture infrastructure in situ, since Colca Valley is situated hundreds of kilometres away from the main Tiwanaku centre which was located in the highland region of Bolivia.

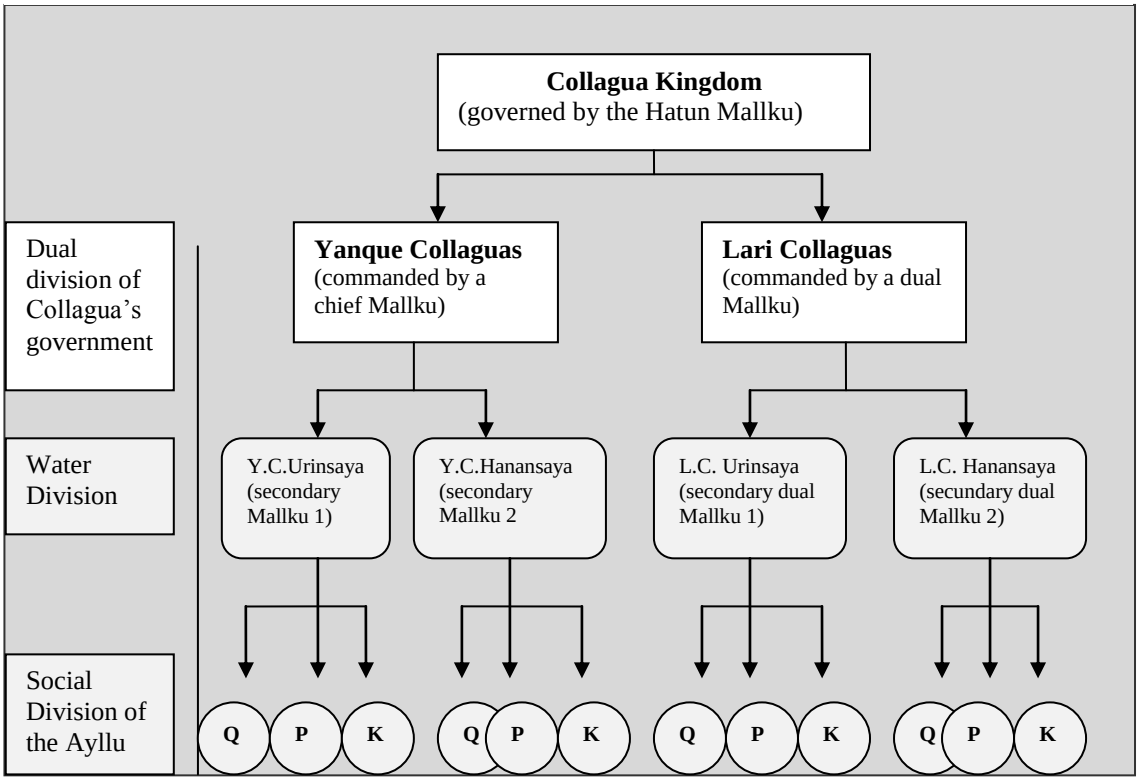
Tracing these historical foundations is important in view of better understanding the historical and cultural value of currently existing water practices and identities of the people of Colca Valley, who have maintained their water culture throughout the centuries, resisting different regimes of colonization.

As good descendants of the Tiwanaku culture, the Kollagua's high governors appropriated the name of the male aquatic deity *Mallku* by also calling themselves *Mallku.* There was a hierarchy among governors, for instance the *Hatum Mallku* (great mallku) was the top political chief of the Collagua kingdom, while the *Mallku*-I and *Mallku*-II each governed half of the kingdom that was subdivided in two parts: the Yanque-Collaguas (YC) and the Lari-Collaguas (LC) (see figure 2.2). *Yanque Collaguas* was the settlement of the main *mallkus* of the Collaguas and the 'head' of the Province, and *Lari Collaguas* was the seat of the second *mallkus*, considered 'uncles' or 'kin' of the former (according to Ulloa de Mogollón, mentioned by Orihuela 1994).

[37] In relation to the term of *Taipicala*, Cobo (1956 [1653]:86) explains: *'The name that this people had [*Tiwanaku*] before being conquered by the Incas, was TAYPICALA, taken from the AYMARA language, the mother tongue of the natives, which means "the stone in the middle", because the Indians of COLLAO feel that their people are located in the middle of the world, and emerged from there after the flood…'*

Yanque and Lari Collaguas, as in every ayllu, were further divided into two parts: Hanansaya and Urinsaya, which were governed by secondary *Mallkus.* Current water distribution practices in the Colca Valley suggest that these divisions into dual *sayas* were based on norms regarding water management and distribution. This is confirmed by Treacy (1994) and Gelles (2002, 2006). There were even further subdivisions: these dual halves were divided in three parts, called *Qollana*, *Pahana* or *Payana,* and *Kayao* (Pease 1997, Zuidema 1964 quoted by Treacy 1994, Wernke 2007)). This sub-division was based on social hierarchies and gender differentiation within the *ayllus*. Rostworowski (2000:147-148), based on the chronicles of Friar Antonio Calancha, explains that *Qollana* referred to the main elder men of the *ayllu*, which is confirmed by the Aymara dictionary by Ludovico Bertonio, where *Qollana* means excellent/foremost. The term *Payana* was for noble women, and *Kayao* for commoner men and women, the plebeians (Rostworowski 2000). All these social and water-related categorizations illustrate the importance of water in constructing identities and social hierarchies, with access to water determined accordingly.

Fig. 2.2: Political and social division of the Collaguas



Author's design, based on the studies referred to in the text.

Q = Qollana (the main one(s) in the ayllu
P = Pahana or Payana (noblewomen)
K = Kayao or Qayao (common folk)
Urinsaya = The 'lower' moiety
Hanansaya= The 'higher' moiety

Unfortunately, there is no written evidence of how such identities and social hierarchies shaped actual water distribution practices. It seems probable that the more privileged people had more frequent access to irrigation, or to greater volumes of water, and had greater areas of land under irrigation. What can be witnessed today is that some people in the valley divide water distribution areas in three rather than in two. For example in the community of Chivay (which was part of *Yanque Collaguas)* there is, in addition to the

Hanan and *Urin*, the part of *Ccapa* (translated as rich/powerful). Each of these localities has its own water authorities, its own irrigation infrastructure, and its own way of distributing water. Similarly in Coporaque, although not so important as with the *Ccapaq* of Chivay, there is the *regina* of *Qollana Pataca,* also with their own water authority and separate irrigation system, different from that of the localities of *Hanansaya* and *Urinsaya*. This division would also explain a further water based social and gender differentiation.

Rostworowski (2000) argues that the political and religious leaders and governors justified their position, as well as the structuring of the society, by relating their origins to important deities. The religious authorities (priests) played a prominent role in structuring the society, since they were considered as the counterpart of the political governors. As already explained above, insofar as ancient Andean cultures believed in feminine and masculine water deities, the socio-cultural life and authority was also organized by gender. This suggests that religious leadership also included priestesses. I also infer this from the report of Cobo (1956[1653]), who, in referring to the sacrifice of the main guard (the priestess) of the temple *Apurimac,* made clear that this person was a woman (I return to this point in the next section). Yet, the importance of women in performing important religious duties has been astonishingly overlooked or covered up by ethno-historians and anthropologists throughout history. The first Spanish chroniclers read and interpreted the reality of those times with 'lenses' that were shaped by the profoundly patriarchal and Catholic education of the times, and thus reflected a European male perspective. But also the chroniclers of mixed-ancestry, such as Guamán Poma de Ayala, Garcilazo de la Vega, and Santa Cruz Pachacuti, betray the influence of Catholic creed and a masculine superiority.

The dual gendered system[38] of priesthood practices in Andean society opens up an interesting perspective to help understanding and analysing how gender relations have been constructed historically, and how these interact with access to vital resources such as water in the Andes. In ancient Peru, priesthood was one of the most honourable and prestigious positions that an individual could hold. Priests were not only religious authorities who were in charge of mediating between the deities and humans, but they were also political authorities who played an important role in local governance. They for instance could legitimize or delegitimize maximum political authorities or governors, whether *kurakas, mallkus or ccapaqs*. Sometimes priests shared their authority with these rulers, in a sort of political-religious alliance, which is why they were often considered as the sovereigns' doubles. There were even religious leaders who led rebellions and uprisings against the Inka sovereigns. According to Rostworowski (2004: 227), this happened until the reign of Inka Pachakuteq, who thoroughly reformed the religious and priesthood system of the time, and imposed the Sun as the absolute, universal deity. This religious reform also entailed a masculinization of priesthood. Since these reforms by this Inka, political leadership by priests faded.

Priests and priestesses were the ethnic leaders who practiced religious rites and pilgrimages, sacralised a physical space and even defined territorial boundaries (Péres-Galán 2004, Rodríguez 2006, Rostworowski 2004). They often were also well acquainted with many of the healing properties of the different elements of nature (water, earth, minerals, plants and animals), which is why they were also the local healers. Their

[38] A gender dual system refers to the possibility of participation of both women and men in socio-political, religious and productive domains of everyday reality.

practices included healing psychosomatic ailments (Puente 2007) and they were also considered to be each individual's spiritual counsellors and guides.

Ethno-historical reports suggest that women also actively participated in political leadership, which a gender-dual political system: there were roles for both men and women and women could assume leadership positions just as men. Rostworowski (1995), for example, mentions that numerous regions in Peru were governed by women, as with the *kurakas* in the central Andes, the *mallkus* and *ccapaqs* in South Andes, and the *capullanas* in the North. This practice persisted during the Tahuantinsuyu up to the early centuries of Spanish colonization. It seems that not only the socio-political and religious system in general was gender dual, but also that the boundaries between domestic and public spaces was much less important and clear as after the Spanish colonization (see point 2.5.2).

Given the centrality of water in the socio-cultural, political and religious life of ancient people, majestic temples were constructed and institutionalized as 'universal'[39] worship centres. In the following section, I show that these structures were also central in forging religious-political power.

2.2.3. The water temples and worship centres

The writings of the first chroniclers, archaeological evidence, and different local myths provide a clear testimony of the fact that the main pre-Inka sanctuaries and temples were devoted to female aquatic deities. Examples are the temples of Apurimac and Pachakamaq in Peru, and the sanctuary of Tticciqaqa and the temple of Tiwanaku in Bolivia. The centrality of water in the organization of the cultural, social and political life of Andean communities has been ignored or neglected by many who have studied Andean culture. Although Carrión (2005), and Rostworowski (2008, 2000, 1995, 1994, 1998) have retrieved and highlighted archaeological evidence, cultural manifestations and Andean practices (pre-Inka and Inka) about water, they do not attach much significance to the centrality of water in Andean philosophy, religion, identity and politics. Yet, a careful review of the writings by the first chroniclers, together with evidence of current practices and rituals involving water still prevailing in many Andean communities (Bolivia, Chile and Peru) (see also chapter IV) definitely suggest that the history of the Andean world and identity was marked by the way these people understood and have related to water. In the following sections, I try to further substantiate this.

A. The Apurimaq Worship Centre in Peru

The APURIMAQ temple[40] may have been a worship centre for water, located at the border of the Apurímac River, as the chronicler Cobo describes. Apurimac in Runa Simi (*Apu* = deity, and *rimaq*= speak) means the 'deity who speaks'. This temple was located on the banks of the river of the same name, as Cobo wrote: *'On the banks of the APURIMA River there was a very painted temple, which was a famous worship centre. Inside there was a*

[39] Chronicler Cobo uses the term 'universal' for those worship centres visited by pilgrims from different regions, not necessarily belonging to the culture governing the worship center. The power of religious and political dignitaries was associated with these shrines.

[40] There is no archaeological evidence of this temple; it was completely destroyed by Spanish colonizers. It came to my knowledge while reading the chronicler Cobo.

pole…It had a golden band as wide as one's hand, with two breasts like a woman, made of solid gold, and this pole or idol was dressed in women's clothing, with very delicate golden clothes, and with many TOPOS or large brooches of the kind that Indian women wear. On both sides of this idol there were other smaller ones […] and dressed in women's clothes' […] The guard of this idol and temple was a woman called SARPAY […]'.(Cobo (1956 [1653]: 95).

The current name of the Department of Apurímac probably comes from this worship centre, although such scholars as Julio C. Tello (1934) and J.M. Arguedas (1956) relate the term Apurímac to the rugged geography typical of this part of the Peruvian Andes, consisting of steep snow-capped mountains and deep canyons. In the Andes, mountains are ascribed with special supernatural 'powers' that influence the lives of living beings[41]. In the case of the mountainous terrain in Apurímac it is easy to understand how it could have been related with a male speaking deity, because of the very rugged topography and the majesty of its mountains. However, and as noted, the chronicler Cobo clearly portrayed the main idol in this temple as female, and also tells that the idol spoke, which was why it was called *Apurimac.* Since the idol had the features of a woman, and the temple was located on the banks of the Apurímac River, it was doubtlessly a female aquatic deity that was related to that river.

The temple to Apurímac was thus 'guarded' by a priestess named *Sarpay*, who communicated with the main deity. Puente (2007) tells us that priests who could communicate directly with the gods and who could predict the future (oracles) were considered the highest-ranking. The fact that *Sarpay* could 'communicate' directly with the deity's 'spirit', shows that she was a priestess of the highest rank. This indicates that both men and women could occupy the highest rank of priesthood. In fact, there seem to have been many priestesses in the different *kuracazgos* of the pre-Inka, as many authors inidicate (Carrión 2005, Cobo 1956[1653], Rostworowski 2004, Silberblatt 1987).

B. The Universal Worship Centre of Pachakamaq, in Peru

Pachakamaq archaeological centre, best known as Pachacamac, is located at 31 Km from Lima (city), on the Southern Coast, about 5 km from the Pacific Ocean. Chronicler Cobo (1956 [1653]: 69) says that the temple of Pachakamaq was 'universal' and the most venerated in antiquity. Even during the Tahuantinsuyu period, this religious centre was second only to the Temple of *Qorikancha* (temple to the sun) in Cusco. The chronicler describes it: '*After the above Temple of the Sun* [Qoricancha], *the second-greatest in size, devotion, authority and wealth was to PACHACAMAC […] this temple was in a valley near the ocean, pleasant and fertile […] this building was close to the sea […] and to the river watering the valley […] along with a small lagoon, which seems to have been connected to the sea in the old days'.* In Runasimi, Pachakamaq means 'creator of the world'.

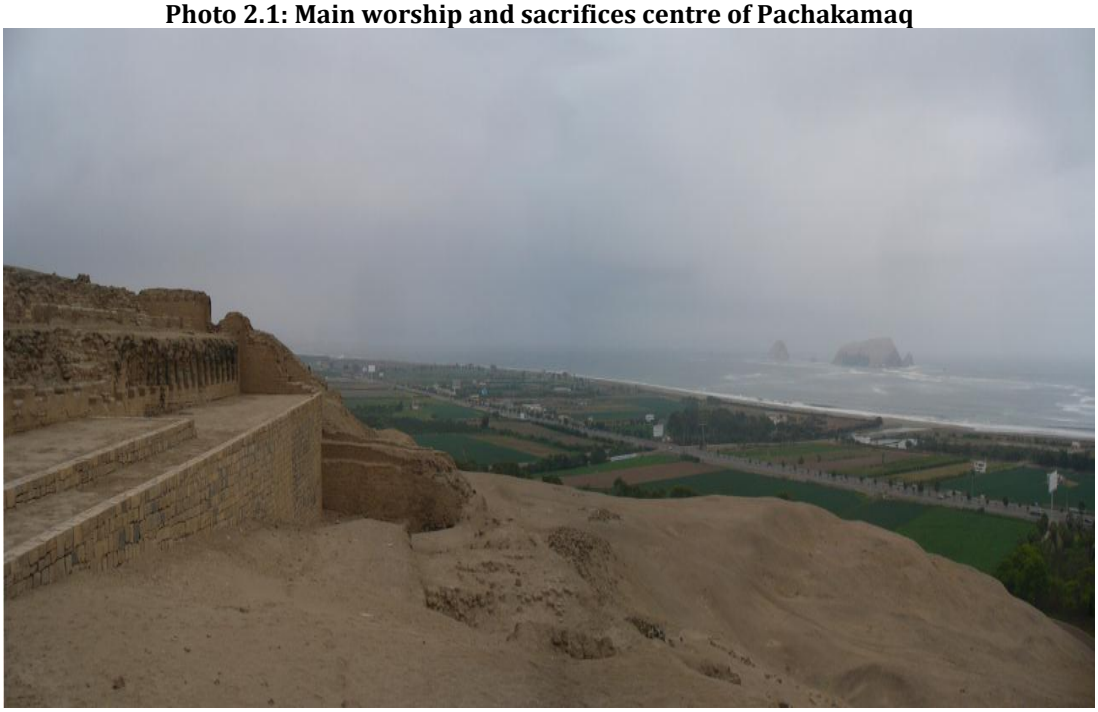
I deem it likely that this worship centre was also dedicated to *Mamaqocha* or to the mother of all lakes: the sea. In antiquity it was called *Pachakamaq*, as the following chronicles show: *'The Incas proclaimed this: "In the lake* [the sea] *that is below Titicaca, which we have already described, is the so-called* ***Pachacamac*** *that is the end of the earth. There could be no people further beyond there, nor could there be any splendour", by which they meant that* [Pachakamaq] *must be worshipped' (*Francisco de Ávila (1966 [1598?]:72). Another piece

[41] Mountains have inspired mysticism and respect not only in Andean cultures; such places have also been sacralized by cultures such as the Hebrews (Mt. Horeb), Jews (Mt. Sinai), Christians (Mt. Calvary), etc.

by the same author comments on a myth of *Cavillaca*, a semi-goddess, who decided to dive into the depths of *Pachakamaq* out of grief: *'[…] Because I have had the son of a despicable man, I am going to disappear,' said* [Cavillaca]*, and threw herself in the water. And there, to this day, in that deep sea of* ***Pachacamac,*** *two stones* [Islands] *can be clearly seen, in the shape of the people who live there […]'.* Hence, this indigenous informant – probably a priest from Huarochirí – clearly referred to the sea as Pachakamaq.

The sea, or Pachakamaq, was considered the supreme water fountain out of which 'emerged' and also 'returned' deities such as *Tonapa* (Aymara version), or *Tticci-Wiraqocha* (Inka version), or *Cunirraya-Wiraqocha* (Huarochirí version). It is almost undeniable that Pachakamaq was a female aquatic deity. The ancient Peruvians called or identified the sea as the 'mother creator of all living being'. In addition, in the myths collected by chronicler Ávila, the sanctuary is also related to other water goddesses such as the daughters of *Urpayhuachaq*, the mother or 'life-giver' of the fish in the sea.

Photo 2.1: Main worship and sacrifices centre of Pachakamaq



Source: own photograph

Unfortunately, chroniclers give no details on the gender of the main idol worshiped in the temple of Pachakamaq, saying only that it was 'wooden, with a wild, frightening figure' (apparently a serpent) that spoke with priests (or priestesses) who foretold the future, as told by Acosta ([1590] (mentioned by Eeckhout 2008:164): '*Regarding this temple there is a true story, that it was seen to speak with the devil, answering from the oracle, and sometimes they saw a very painted snake […]'.* The interesting thing about this text is that it refers to a serpent, an animal also mentioned in the myth of *Cunirraya* described in the preceding paragraph. As already explained, serpents generally symbolized the flowing property of water and aquifers. The presence of a snake in the reference to Pachakamaq once again confirms my hypothesis that this temple was erected to worship the Sea.

When I visited the temple of Pachakamaq, I could clearly see that the most important place of worship and sacrifice is located at the top of one of the pyramids in front of the Sea (in the direction to the West, see photo 2.1), and not in the direction of the East (the sun rise), as is the case of the Inkas temples. From this pyramid I could also observe the two islands

referred to in the myth of *Cavillaca.* At the East of the pyramid (in the direction of the sunrise) one can find the temple of the Sun constructed by the Inkas, after they conquered the people of this region.

C. The *Tticciqaqa* Worship Centre, in Bolivia.

Following the references of Cobo and Santa Cruz Pachacuti, it seems likely that the Island of *Tticciqaqa*[42] (or Titicaca) was the home of a sanctuary in honour of an aquatic deity, *Mama Uma.* This sanctuary is located within the territories of the community of *Yumani* (which may come from Aymara *Umani*, meaning 'water place', see photo 2.2), situated in the 'Island of the Sun', in Titicaca Lake, Bolivia. This centre was considered as one of the holiest religious sanctuaries during the times of the *Tiwanakus* or *Taipiqalas*, and subsequently during the *Tahuantinsuyu.* Chronicler Cobo says that: *'This sanctuary […] comprising two magnificent temples, built on two different islands in CHUCUITO Lake* [now Titicaca]*; and both of them near the town of COPACABANA, was called by the above name. One of these islands was called TITICACA* [Tticciqaqa] *and the other COATA* [now the Island of the Moon] *[…] both of them […] in the Province of OMASUYU. […] The Sun Temple, on the island of TITICACA, was a big, solid outcropping, which was worshipped […] for a totally ridiculous reason and story'* (Cobo (1956 [1653]: 76-77). One of the 'ridiculous' stories was that: '*Residents of COLLAO are divided into two beliefs: some believe that creation was done in TIAGUANACO, and the others on the island of TITICACA*, *in the great lake of CHICUITO.'* (Idem 1892 [1653]: 345).

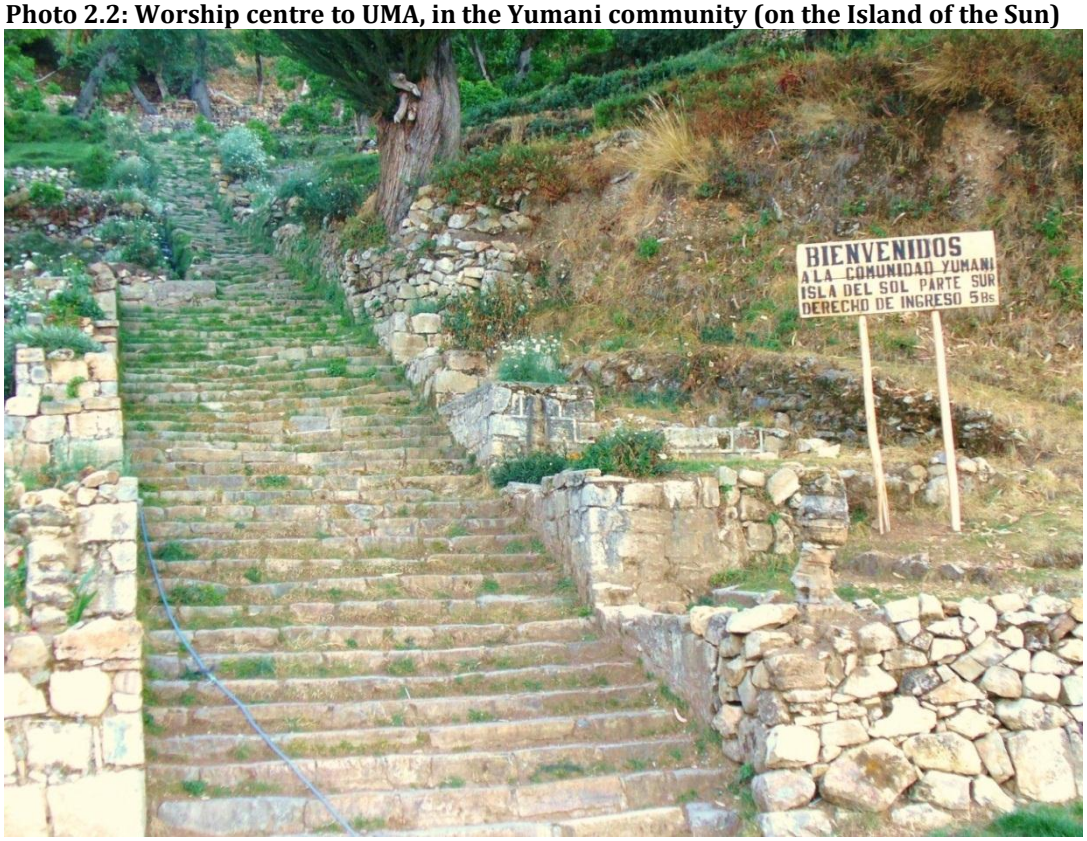
In the same southern part of the Island of Titicaca – Island of the Sun – where the 'solid outcropping' or *Tticciqaqa* was found, the indigenous people (of that zone and Province of *Omasuyu* (meaning water region or place)) erected an altar to worship the water that came out of a boulder, which they considered as sacred. According to the chronicler Santa Cruz Pachacuti: '*In those days, they agreed (Inca Capac Yupanqui* [the 5th Inka]*) to go looking for the place where the man,* ***Ttonapa,*** *had arrived, called* ***Titicaca*** [Tticciqaqa]*, and they say he brought water from there to bathe the new-born Yngaruca, praising* ***Ttonapa****, and they even say that the spring above the outcroppings has something like a cup with the water called capachana quispisutucuno; and then they say that other Ingas like to bring a pitcher, called* ***Coriccacca****, and place it before them, in the middle of the plaza of Cuzco, called Haocaypata Cuçcapata, praising the water touched by* ***Ttonapa***'. (Santa Cruz Pachacuti [1613]: 1879, mentioned by Carrión 2005:25).

The ancient indigenous people represented the aquatic deity with a female idol, like chronicler Pizarro (1986:46, mentioned by Narvaez 2008) described: '*In that lake there is an island called Titicaca where they had a woman idol […], and the Indians said that she had given birth to the first lord of this kingdom'.* In line with this belief about aquatic motherhood, it can be assumed that the 'woman idol' represented *Mamauma* . The Inkas, after conquering the inhabitants of the region of *Omasuyu* or *Umasuyu* (Cobo (1892 [1653]: 188-192), and those of Collao in general, enforced the worship of the Sun on the island of Titicaca (which is why it is now called the Island of the Sun) instead of the 'mama UMA'. They tried to get the local inhabitants to believe that the idol represented the moon, and placed the idol on another nearby island, the Island of the Moon, as described by Cobo: '*[…] where he* [Inka Pachakuteq] *put the statue of the woman, which from the waist up, made of*

[42] The island was called *Tticciqaqa* since the time of the Inkas, which means (in *Runa Simi*) T'ICCI = foundation / origin, and QAQA = rock. In Aymara the name was: *Thakhsi-cala,* from *Thakhsi*= foundation and *cala*= rock.

gold, and from the waist down, of silver, as big as a woman, representing the likeness of the Moon … Although others say that this figure and statue were called TITICACA, and that she represented the mother of the Inkas […]' Cobo (1956 [1653]: 81).

Photo 2.2: Worship centre to UMA, in the Yumani community (on the Island of the Sun)



Source: own photograph

Nowadays the indigenous people, who live on the Island of the Sun, call this place *Umakollu* which, in Aymara, means 'the hill of water'. They still make pilgrimages to this island, and celebrate water rituals there. These pilgrimages go back to very ancient times, when indigenous people from different regions of the Andes visited this sacred place, passing through Copacabana (a village located in front of the island), where people had to prepare ('purify') themselves before entering the Island of Tticciqaqa. As the chronicler documents: '*At the doors in the fence between YUNGUYO and COPACAVANA were, as we have said, guards who examined the pilgrims and – having ascertained that they came only on their pilgrimage, and with no other intentions – turned them over to the confessors and penitence officers there […], all* [penitence] *summarized as abstinence from salt, meat and hot chilli; once they had done this ceremony, they continued to the town of COPACAVANA, where they would confess again, in order to be even purer when entering the island of TITICACA,[…]'.* (Cobo (1956 [1653]: 78-85).

Copacabana[43] also featured other worship centres dedicated to aquatic deities, such as the idols of *Copacabana* and *Copacati*. The former was a very showy blue stone representing

[43] *Copacabana* comes from the word '*copa*' referring to turquoise blue, the colour relating it to the colour of the water of the Lake Titicaca. Nowadays, Copacabana constitutes one of the most visited places of Bolivia by Catholic people (also tourists), because this is the place where the Spaniards constructed a temple dedicated to the Virgin Mary, most known as the 'Virgin of Copacabana'

the creator or mother of fish, since the stone was the shape of a fish with a human face. The second stone, also turquoise blue, had 'hair' of snakes intertwined with each other, and probably represented one face of *Mama Uma*, since in Andean mythology there are symbolic linkages between snakes (*Amaru*[44]) and water coming from aquifers or *Umapacha,* and sometimes with rain and lightning (Yauri 2006, Boelens 2008a). According to Rostworowski (2008: 187) there was a duality between the two stones or '*huacas'*, in the sense of opposition and complementarity: the one represented the waters from 'below' – the waters of the Lake – while *Copacati* symbolized rain, the water from 'above'.

Worship of *Uma* happened throughout the regions of Peru, Bolivia, Argentina and probably northern Chile, a reason why *Uma* was recognized as 'universal' deity. Carrión (2005) affirms that, in San Lorenzo de Quinti (Yauyos-Lima, where Chavín of Huanta and later the Huari culture expanded) there is a very old canal called *Uma-sampi*. The legend collected by Ávila (1966 [1598]: Chap. 7) tells that this canal was built by *Cuniraya*[45], the main aquatic deity of that region. In Jujuy (Argentina) there is a ruin – erroneously attributed to the Inka culture – called *Humahuaca*, which means the 'Water Worship Centre', located in the Humahuaca Canyon (see also: whc.unesco.org/en/list/1116), along the Río Grande Valley. The very name of this ruin suggests that it was a sanctuary erected to honour the aquatic goddess *Uma*.

The worship site of the Sanctuary of *Tticciqaqa* was also 'universal'. Ávila tells how the indigenous people of central Peru (at least those of the Lima Highlands) considered the Island of *Tticciqaqa* as sacred during Tahuantinsuyu times. This can be inferred by a careful reading of the myth of the departure of *Cuniraya* (a major aquatic deity) to *Tticciqaqa*: the moment this deity heard that the Spaniards had arrived in the 'New World', *Cuniraya* advised one of the last Inkas to take refuge or 'disappear' in the depths of *Umapacha*. According to the text by Ávila (1966[1598]: pp. 54-55) *'When the huiracochas (Spaniards) were about to appear, Cuniraya went to Cuzco. And then he spoke with the Inca, Huayna Capac […] Cuniraya told him* [the Inka] *"Come, son, to* ***Titicaca****; there I will let you know what I am" […] Cuniraya said: "Inca: let's follow this pachac.*[46] *I, yes, I will enter this pachac; and you enter in this other pachac […]" Then the Inca, Huayna Capac, said "I will not leave here for anywhere else; I will live here* [Umapacha] *[…]" And no soon had he uttered these words, he disappeared […]; Cuniraya did the same, disappearing'.*

D. Universal Worship Centre of Tiwanaku, in Bolivia

Another important worship centre in the southern Andes, and one that deeply impressed even the Inka conquerors, is the enigmatic archaeological complex of Tiwanaku. Based on the descriptions of this complex by chronicler Cobo, on studies by Kolata (1996), and my

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[44] According to a myth collected by Valcársel (mentioned by Yauri 2006:37) *Amaru* is the incarnation of two snakes that live underground. One has a single head and represents *Yakumama* (mother water), and the other has two heads and represents *Sach'amama* (mother of the trees). When these serpents come to the surface, the first becomes the Ucayali River and the other the Tree of Life. And if it goes up to heaven, the first head becomes lightning and the second a rainbow.

[45] '*This Cuniraya Viracocha* [maker of the world and of people] *[…] just by speaking was able to make nicely finished terraces, supported by walls. And he also taught people to make irrigation canals by tossing the flower of a reed called pupuna (into the clay)',* Ávila (1966 [1598]: Chap. 7)

[46] According to the translator the word *Pachac* refers to a geographical area or a direction. The analyses on this page suggest that the indigenous informant was referring to *Umapacha (*the deep aquifers, or the veins of the earth). *Umapacha* could also have been Lake Titicaca or any of the three *paqchas* (waterfalls) gushing out of the Tticciqaqa boulder.

own observations, I think it makes sense to assume that this sanctuary was erected to worship water. According to Cobo (1956 [1653]: 87): *'[…] the temple of TIAGUANACO was a GUACA and universal worship place […]. The main part of the built area is called PUMAPUNCU […] it is a flattened area or hummock built by hand […]'.* Next, the chronicler describes a series of infrastructures[47], including basins, canals, wells, etc., made 'exquisitely' to accompany *sarpay.* Given the detailed descriptions of the architecture in this part of the complex, and the location adjoining the pyramid of *Akapana,* it seems reasonable to assume that 1) this *Pumapunku* is what in the present-day is recognized as the 'Gate of the Sun', rather than the current complex located almost a kilometre away, southwest from the main ceremonial centre of Tiwanaku (*Akapana*); and 2) the original name of the gateway of *Pumapunku* (which means the door / gate of the Puma[48]) was *UMAPUNKU* or the gateway to enter the sanctuary built to honour the female water deity, the mother and creator of the people of Tiwanaku.

Kolata (1996) states that the ceremonial centre of Tiwanaku was surrounded by an artificial canal that could have been a representation of the Island of *Tticciqaqa* surrounded by the lake, the mythical place where the world and humans were created. In part, this assumption is based on the evidence provided by the water infrastructure (altar), very gracefully fashioned, found in one of the central constructions of the Tiwanaku complex, now known as the pyramid of *Akapana* (also called the sacred mount of Tiwanaku). In the upper central part of this pyramid there is a sunken platform in the form of a cross (*Chakana*), and under it a sophisticated system of interconnected canals, bringing the water collected on the upper platform down to the seven different levels of the pyramid, after which the water drains into the ceremonial site of Tiwanaku, to finally continue toward Lake Titicaca. Kolata suggests that this sophisticated construction could not simply have been an engineering design to transport water. Instead, it carried a profound metaphysical meaning and religious symbolism for the Tiwanaku culture, being located right in the heart of the 'sacred mount' of Tiwanaku.

Water has always been a strategic element in creating and legitimizing power structures and governmental structures. Subsequent cultures, which emerged as empires, strategically took over the aquatic philosophy and culture from their predecessors in order to legitimize their own interests, as occurred in Tahuantinsuyu that was ruled by the Inkas.

2.3. Ethnicity, gender and water culture during the Inka period.

In principle, the governors and peoples of the Tahuantinsuyu in the southern Andes continued the cultural and religious practices of their Aymara[49] predecessors, who had in turn inherited the water culture and philosophy from the ancient *Taipicala* or Tiwanaku

[47] *'[…] toward the southern corner, the foundations are visible for two small square rooms, three feet above the ground, made of highly polished ashlars' stones, which look as if they could have been cisterns, baths or the foundations of towers or sepulchres. Through the middle of the flat building, at ground level outside, a bamboo aqueduct crosses through with stone fittings, marvelously fashioned: it is a water supply […]. To the east of this building, about 400 steps away, there are ruins […] that the Indians call […] ACAPANA. (*Cobo (1956 [1653]: 87-88).

[48] Although pumas have been very important among the deities of the Aymaras, they were not more important than water, so it is unlikely that the ancient Aymaras would have built a majestic sanctuary for this feline, as in Tiwanaku.

[49] Some scholars (Rostworowski 1999, Narváez 2008) based on the myths and legends recorded by such chroniclers as Guamán Poma de Ayala and Cieza de León, maintain that the Inkas who founded Tahuantinsuyu (including Manco Capac, Ayar Apu, Apu Tambo, etc.) came from one of the lineages of Kuracas of Aymara ancestry.

civilization. That the Inkas continued worshipping *Mama Uma* who gushed out of the sacred Tticciqaqa rock for instance shows in how their kings sent for this water. It had to be collected in a golden receptacle and kept it in the heart of Cusco, in the current main square of *Huaqaypata*. According to Santa Cruz Pachacuti: '*[…] and then they say that other Ingas like to bring a pitcher with water from Tticciqaqa, called* ***Coriccacca****, and place it before them, in the middle of the square of Cuzco, called Haocaypata Cuçcapata, praising the water touched by Ttonapa*'. (S. C. Pachacuti, [1613]: 1879, mentioned by Carrión 2005:25). Given the sacred nature of this water, governors would anoint their firstborn with it, according to the same chronicler: *'[…] and they tell that they brought water from there to anoint the new infant Yngaruca, praising Ttonapa, and also say that in that spring, above the outcroppings* [of Tticciqaqa] *like in a bowl, was the water called capachana quispisutucuno'* (the mighty and life-giving water, in Spanish).

The political and religious authorities in Tahuantinsuyu also continued and sanctioned some other ancient celebrations and rites commemorating water. For example, in the eleventh month (October) the Inkas would hold a great celebration for water. This month was called *Umaraymi***,** which means month of the 'mother' water festival. During this period they would remember the origins of their ancestors and people in general. It was also the month to pray for the rains to start. Ondegardo ([1585], mentioned by Carrión 2005:21) wrote*: 'The eleventh month is called Homa raymi puchayquis; they would sacrifice one hundred sheep and, if water was lacking, to make it rain they would put a totally black sheep tied in a plain, pouring lots of chicha drink around and not feeding it until it rained*'. When it was not raining enough, the ruling and religious elite would meet to see how to address the problem: '*[…] and the ceremonies they held to pray for water would gather a council, or cabildo, or however we call it, with the main nobles of the Province, when there was drought and not enough rain, and they would decide to send the sorcerers* [priests] *to fast for two days and be in that cold, windy mountain area, suffering and working hard, as we experienced when we went to break the jugs, and could not withstand it, so they would pray for water […]'* (Augustinian monks [1557], mentioned by Carrión 2005:22-23).

2.3.1. Strategic appropriation of the water identity by the governors of Tahuantinsuyu

The Inkas not only continued the water practices of their predecessors, but they also adopted the prevalent religious beliefs. It was a standard practice of highest political and religious dignitaries of the time to appropriate the local beliefs and take the sacred names of the deities as their own. Numerous authors (Boelens 2008a, Boelens and Gelles 2005, Marsilli 2005, Pérez-Galán 2004, Vera 2009) explain that this practice was part of an intentional strategy to claim and legitimize their authority and right to govern. For instance, the governors of the Collaguas named their Aymara aquatic deity *Mallku*, and attributed their sacred origins to a snow-capped mountain, Mt. *Kullahuata*. When the Inkas came, they copied the belief of the inhabitants of *Orcusuyu* and *Omasuyu* (Urus, Pukinas, Lupacas and Aymaras) that they originated from the sacred lake, then Tticciqocha[50] (now Titicaca). The Inkas thus claimed that, like Tonapa or Ticci-Wiracocha, they had emerged

[50] Probably the Inkas called Lake Titicaca "*Tticciqocha*" according to a reference found in Cobo (1982 [1653]: 196) '*After a few years […], he [Inka Tupac Inca Yupanqui] decided to go to COLLASUYU[…] he wouldn't go to his court without first visiting TICCICOCHA…'*. Another passage by Cobo (pp 18), confirms that this name referred to the sacred lake, since a water source was 'constructed', called *Tticciqocha*, and located in the house of the Coya or Mama-Ocllo queen, the first Inka woman who emerged from the lake, along with her partner, Manco Capac.

from Lake Titicaca. Yet, to differentiate their origins from those of the Collao or other cultures, they added a new belief: that *Inti* or the Sun was their noble father. In fact, the top Inka governors referred to themselves as almost INTI when they called themselves INKA, INKA meaning 'almost Sun' or 'son of the sun', as explained by the writings of Francisco de Ávila (1966 [1598]: 75).

Following this tradition (of appropriating the local beliefs and sacred aquatic names) one of the main political and administrative governors of Tahuantinsuyu (third in rank below the Inka), in charge of organizing the *mita*[51]*,* also adopted an aquatic name. These governors were called *Hunu*[52]*;* which means water in the Cusco region. In *Runa Simi* water is called *Hunu* or *Unu.* Likewise, the ruler hierarchically under the Inka was called *Apu*[53]*,* after the sacred mountains and snow-caps. Similarly, the high priest of Tahuantinsuyu was called *Wilauma* or *Villca umu* (Rostworowski 2004: 226) a name composed from old sacred names of two deities. According to references of indigenous people of Huarochirí (Ávila 1966 [1598]: Chap. 11), *Villca* or *Willca* is the ancient name of the Sun, and was a very sacred name sometimes given to a senior priest. As noted, *Uma* means water (in Aymara), and in *Runa Simi* head*.* The Inkas thus combined the two creative deities – male and female –in a single name of the high priest*.*

The adoption of ancient water beliefs and practices not only legitimized the powers and rights of the elite, but also contributed to centralizing their power in the capital of the empire. This was partly reinforced through religious rites (pilgrimages, sacrifices and offerings) developed along imaginary lines called *Ceques,* starting at the Sun temple in Cusco and joining the most remote territories of the empire's four *suyos* (Cobo 1956 [IV: chapter: XII-XVI], Rostworowski 2000, Regal 2005). Chroniclers such as Polo de Ondegardo and Cobo give the details for each *Suyu* 'containing' 9-14 *Ceques,* and each *Ceque* had 70-90 worship centres or *Huacas;* this is around 3,800 centres*.* Interestingly, at least 92 of these centres were exclusively dedicated to the worship of water. Out of all the *Huacas* dedicated to aquatic deities, the one for *Tticciqocha*, located in the house of Coya Mama Ocllo, was held in the highest regard. It was considered the mother and origin of creeks, and only the wives of the Inkas, the *Coyas,* would use this spring. According to the chronicler Cobo (1956 [IV:XIII): *'The third GUACA was another spring called TICICOCHA* [Tticciqocha]. *[…] This spring belonged to the COYA or Queen MAMA-OCLLO, and great and regular sacrifices were made there, especially when they wanted to ask this MAMA-OCLLO for something […] she was the most venerated woman among these Indians'.* The Coya *Mama Ocllo* probably also was a highly revered woman, because she was considered the first Inka woman (along with her husband, Manco Capac) who 'emerged' from the sacred lake.

2.3.2. The gendered water authorities and roles

It is striking how in the Tahuantinsuyu*,* at least during the early kingdoms, many noble women were especially valued and revered because of the key roles they played in the empire's political and social life. The already mentioned *Mama Ocllo,* the woman who collaborated in founding the empire, was the founder of Inka education in the

[51] *Mita* in this context refers to the obligatory service that people had to do in pre-Inka and Inka times. It was a sort of tribute to the government, in the form of labour.
[52] The *Hunu* commanded 10,000 families who were, in turn, governed by ten *Kurakas*, who were subject to the *Hunu* (Cobo III, 1982 [1653]: 306).
[53] *Apu,* both in Aymara and in *Runasimi*, means lord, prince, sovereign, sacred deity related to the sacred mountains or hills.

Tahuantinsuyu. Another highly respected woman was *Mama Micay*, as we are told by Cobo (1893, Vol. III, p. 170): '*Inka Roca married MAMA-MICHAY (or MICHKA, see acronyms), head of the People of GUAYLLACAN, […] since this Coya queen saw that CUZCO valley did not have sufficient water to irrigate the MAIZE FIELDS, she had them bring most of the water they now have. In memory of this benefit that she gave the region, her family and lineage remained in charge of distributing the water to irrigate the valley*'. At least three main messages can be deduced from this report: this *Mama Michay* was the top ruler or *Kuraka* of Guayllacán. Once she became the wife of Inka Roca (sixth Inka of Tahuantinsuyu), she was the first woman who took the initiative to develop most of the water system of the capital of the Tahuantinsuyu that existed at least until the Spaniards arrived. This woman's work also included organizing and distributing water in the capital of the empire. The work and benefits of this outstanding *Coya* (queen) turned her into an aquatic deity, since in every dry spell people prayed to her mummy and took it in a procession around *Huaqaypata*.

Women, during Tahuantinsuyu, stood out not only as mothers, wives, craftswomen, farmers, engineers, priestesses and healers, but also as warriors. For instance, a legend depicts *Mama Huacu,* wife-mother of the first Inka Manco Capac, as the one who commanded one of the armies that took possession of Cusco Valley. In the war against the Chancas, kuraka *Chañan Curi Coca* contributed to the Inka victory. (Rostworowski 2004:41). There are also reports of Inka women who did not necessarily face their enemies in mass battles, but used subtle strategies to avoid bloodshed, as the following text describes: '*[…] And judging that it was best to leave* [Inka Tupac Inca Yupanqui] *to visit his vassals,[…] he left CUZCO by the roadway of CHINCHAYSUYO, taking his wife, the COYA, who liked to oversee the kingdom along with her husband, the king[…] When the visitor reached GUARCO, the wife* [kuraka] *there, who was a widow, was going to keep him from visiting and registering his vassals, saying that she denied him her consent for the Inca to lord it over her State […]. The Inca received this news, laughed and said that women followed him. The COYA asked him what women, and he answered: "You and this widow. If you were not here, I would teach her some manners". Then the COYA asked the Inca to give her permission to get the upper hand on that woman, without risking a single soldier […]. The COYA took charge of this business'*. (Cobo (1892 [1653]: 202-203).

There are various myths, reported by Ávila 1966[1598] (see also Carrión 2005: 114-145), that show the important roles of women, acting as mediators between high rank governors and common people, or between male water deities and people. By acting in favour of their people, women became highly esteemed and even venerated as water deities. For instance, *Capyama*, a woman from *Yampilla Ayllu* (Huarochirí, Lima) had to ask *Collquiri* (a water male deity, who fell in love with Capyama) to bring water to her village from the lake of *Yansa*. In return she offered her love to *Collquiri.* Because of the astute attitude of *Capyama*, people from Yampilla village celebrate rituals and revere her (as a female deity) during the cleaning of the irrigation infrastructures (called *Yarqa Haspiy)*. The same happens with the memory of *Mama Choquesuso* in the *Copara Ayllu* (San Lorenzo de Quintiti in Huarochirí). This community was awarded abundant water for their lands, including the construction of irrigation infrastructure, thanks to *Choquesuso*'s mediation with *Pariaqaqa, (*another male water deity, who also fell in love with this woman). The myth says that he saw the broken heart of *Choquesuso,* because of lack of water to irrigate her maize. Oré (2005:72-73) also reports how the people from the community of *Tate (*in Ica) got the canal *Achirana del Inka* thanks to the mediation of the local princess – *Mama Chira* – with Inka Pachakuteq. In the Colca Valley, people from Yanque community narrate that *Choquehuanca* – a high ranking chief – had to demonstrate his love to a beautiful woman of the village, by constructing 25 kilometres of

canal to bring water from *Warancante* Mountain to irrigate the local terraces (Testimony of Moisés Suyco, an irrigator of Yanque Hanansaya, fieldwork 2006).

During the Tahuantinsuyo, women continued assuming, along with men, important positions of power and decision-making. Yet at the same time, these positions were gradually becoming more masculine, primarily because the worship of the Sun (the male creator deity) started taking precedence over the worship of female water deities. Worshipping the Sun even risked eclipsing that of *Tunapa, Wiraqocha*, and *Mama Uma*, the ancient aquatic deities (Rostworowski 2000). The Inka Pachakuteq (the ninth Inka), definitively established Sun worship, along with male priests to serve the Sun (Idem: 2004, 2000). Later Inkas built and beautified an altar for the Sun in each of the most important worship centres that had originally been built for aquatic deities, like in *Pachakamaq* and *Tticciqaqa* Island. In this way, they also imposed the system of the sun's priests (only men), and the sun's festival called *Inti Raymi* instead of *Uma Raymi.*

Before the Inka Pachakuteq, the governors of Tahuantinsuyu would 'respect' and maintain the political, religious and social structure in the conquered *kuracazgos*. They also respected the deities that were worshipped in each State, and allowed a specific altar for each of them to be built in the main temple in the Inka capital city, in the *Coricancha*. Chronicler Cobo mentions that this strategy was adopted by these governors to effectively conquer these States politically and religiously, since whenever any of them tried to rise up against the Inka, the first ones to be punished and shamed were their own deities, represented in the Cusco temple. This seriously delegitimized and humiliated the political and religious elite of a rebellious nation. Although Pachakuteq reformed the religious system in his empire, he was careful to respect the existing political-social and political-economic structures and local institutions upholding the pyramid of social castes and driving the extractive centrifuge to accumulate wealth (Boelens 2008a). Hence, also the dual or tripartite social divisions for water use were respected (*Hanansaya, Urinsaya, Ccapaq*) as were the divisions of government with their respective *kurakas* (men and women). The Inkas respected and even refined the ancestral institutions mediating collective and individual relations, such as reciprocity (the *ayni*, the *minka*), complementarity (dual divisions), and mandatory service (the *mita*), among others (also see Ávila 2005, Boelens 2008a, Boelens and Gelles 2005, Rostworowski 2004).

2.4. Ethnicity, gender and water culture during Spanish Colonization

Much like their predecessors, the Spanish colonizers applied a policy of conquering and extracting wealth, keeping and taking advantage of the social and political structures in place throughout the Tahuantinsuyu. Therefore, also for the extractive governance of the Spaniards, the *kurakas* and the social system of dual or tripartite water division (Hanansaya, Urinsaya, and Ccapaq) became the foundation (Boelens 2008a, Boelens and Gelles 2006, Pease 1977, Rostworowski 2000). However, unlike in pre-Hispanic kingdoms, the Spaniards waged direct warfare against local religious beliefs. They insisted on eradicating them in order to impose Christianity. Different scholars (Vieira 2000, Urbano 1992, Yauri 2006) describe how this destruction of existing religious beliefs in the contact between the cultures of the 'old' world (Europe) and the 'new' world (the Americas) was tremendously horrifying and devastating for the latter. The European colonizers simply refused to understand how indigenous people perceived their relation to nature, seeing it as living and sacred and therefore totally holy. To the European colonizers, such worship of

nature was madness, sinful, beastly, and barbarian. This is why they developed and used every weapon they could devise to destroy such ideologies and practices.

2.4.1. The proscription of Andean [water] religiosity

In fact, European colonizers compared such local beliefs and practices to the diabolical practices of witches and sorcerers in Europe of the 14th and 15th centuries, who were fiercely persecuted by the Catholic Church (Huizer 1995). Such beliefs and practices were seen as belonging to barbarian cultures that were considered to be in a stage prior to civilization. Europeans even doubted whether the indigenous people were actually human (Cadena 2004, Guevara 2006). At best, whatever development the indigenous people had attained, it was nothing compared to the finery of European civilizations, as we are told by chronicler Cobo (1892 [1653]: 41-52): '*[…] although some of these nations surpass others in ingenuity and ability, nonetheless, they all lack the human, polite, gentlemanly air and demeanour that prevails among noble, courtly people in Europe. Therefore, the name of barbarians is fully applicable and fitting […]. They were all idolaters, given to infinite superstitions and omens […] so rude and savage, that they were simply too bestial to recognize a deity in heaven or on earth, or to have any sort of worship. And though many people in this New World have received Holy Baptism, many more remain to this day in the darkness of their faithlessness […]. What could spring forth but the corruption of customs and advent of vices and miseries in which these unfortunate ones are immersed'.*

The Europeans' dread and condemnation of existing religious beliefs also extended to the many aquatic deities. The underground streams and springs and all places deep under the ground (*Umapacha,* or *Ukun pacha)*, which the indigenous people revered as their places of origin (or *pakarinas* of the *ayllus)* and as the origin of the aquatic deities and their ancestors, were understood by the Christian preachers to be the same as Hell (Sherbondy 1998, Carrión 2005, Bouysse-Cassane 1986, Rostworowski 2000, Vera 2009). In their violent missionary zeal, many worship centres and their idols were completely destroyed and pillaged, as these were considered as dedicated to the devil. This stunned and terrified the indigenous people (Cobo 1956 [1653]: p. 75), who could not understand how the invaders could be so abusive.

Also indigenous priests were targeted for merciless persecution. This was not only because they served or communicated with the local and regional deities or *Huacas,* but also because they were political leaders. In the perspective of the European colonizers, these priests were servants of the devil. As for instance the Augustinians tell in their "Description of idolatries in Huamachuco": *'One of the most horrifying things, and showing to what degree the devil can blind people,* ***Inga Guainacap****, one of the greatest sorcerers in the world, high priest of the devil Zupai'* (Augustinian Monks [1557], mentioned by Carrión 2005:22-23). The gradual disappearance of priests and priestesses from the Andean political and religious scene later contributed to the gradual erosion of indigenous authority, especially of the *kuracas.* These high governors partly legitimized their authority on the basis of the worship of their *Huacas* (mummies of the ancestors), which were placed in sanctuaries. The role of Andean political governors was drastically curtailed to the simple task of collecting taxes, which was also taken over by Spanish chieftains, by establishing the system of Intendancies in 1784 (after the rebellion of Tupac Amaru) (Chambers 2003).

Although the male political and religious authorities were persecuted or constrained in their functions, female authorities (both *kurakas* and priestesses) were even worse off. They had to withstand twofold persecution, both as authorities and as women. Persecution

of priestesses and of women practicing medicine reached unthinkable limits (Huizer 1995, Puente 2007), partly because witch hunting in Europe during those years was still quite fresh in the minds of the conquerors[54]. The Spanish clergy eliminated priestesses in Peru, proclaiming that they were the most dangerous witches, especially elderly native women (Silverblatt 1987, Huizer 1985).

2.4.2. Gender boundaries and morality

To the European colonizers, the gender roles in terms of political representation, decision making and authority that they encountered in the Americas were vague and amoral. They also considered these as deviating from the Christian norm, which clearly established the man as the main authority and as superior to women. The fact that indigenous people often practiced inheritance of land (at least for daughters) through the maternal line further fuelled the perception among Europeans that – compared to them – indigenous men were 'lesser' men (unmanly), weak, with a feminine character. (Rostworowski 2000, Chambers 2003).

To the Europeans, a special source of offence was that indigenous people did not honour a woman's chastity and did not teach women to obey and respect their husbands. In the Andes, women had the freedom to decide to stay home or leave if relations with their partner were not working out, as we learn from Cobo (1892 [1653]: 53) *'[…] their husbands […] are not very jealous, nor do they take much care about watching them, much less being faithful to them. If their wife leaves them, they will still take her back when she returns; even if her absence has been long; rather, they diligently seek her out*'. Among inidigenous people, virginity before marriage was not an issue. On the contrary, young couples were encouraged to live together (*sirvinakuy*) as a way for them to get to know each other, learn and understand about what it means to live together. This was unheard-of and sinful in the eyes of the new colonizers, as the following paragraph shows: '*They never learned about the splendour and beauty of chastity, to esteem her, rather they were repulsed by virginity in their women, because they would say that maidens had not been loved by anyone […] since they are raised with all freedom from girlhood, without their parents caring for their circumspection, prudishness or honour, or forbidding them from leaving home whenever they wanted to go and be alone wherever they felt like, even to other distant towns, without any obligation to be accountable to anyone for their lives when they came back […]. They were by no means scolded or considered sinful for any excess they might have committed. According to this depraved custom* [sirvinakuy]*, when an Indian sets his eyes on some woman to make his wife, he pays no attention to finding out whether she has lived honourably or debauchedly*' (Cobo (1892 [1653]: 53).

Indeed, gender roles and customs occupied a central place in the civilization efforts of the European colonizers. They felt that the roles and behaviour of indigenous women left much to be desired. According to the European norms of the times, a good woman had no role outside the family circle or the private realm. This meant that as daughters, women had to be immaculate, very obedient and submissive to their fathers and brothers. As wives, they had to be faithful and obedient to their husbands, who were considered the heads of households and their rulers and guides. In general terms, this family code of

[54] Note how Mies (1986: 74-89) argues that the emergence of early capitalism in Western Europe and colonialism of the Third World went accompanied by merciless oppression of women's rebellion and resistance, culminating in witch hunts.

honour was defined by: a) the patriarchal system, b) women's sexual honour and c) the monarchical-racial system (Chambers 2003: 182-201). Women's sexual honour was spatially bounded; it could be stained if she left the protection of the male members of the family circle or the boundaries of the home. Under these principles of honour, it was inacceptable to conceive of women in political or religious leadership positions. This is why the female *kurakas* throughout the Tahuantinsuyu were forced to give up their positions to their husbands and, if they were widows, to a male blood relative. If they were married to a Spaniard, he would then take their position. Women were even forbidden to enter the domain of judicial processes and litigations. And if they were called upon to declare as witnesses, the testimony of three women together was considered to be equal to the testimony of one man. In this way, both Spanish laws and the policies of colonial organization began disturbing the pre-existing relative balance between men and women (Vieira 2000).

Thereafter, the civil policies and morality of the Spaniards have clearly delimited the mobility and public political participation of men and women. 'Public' settings became, by definition, male-only domains in which only men could come together to collectively debate and make decisions regarding political, religious and economic issues. Women were totally relegated to the private or 'domestic' sphere. This imposition of colonial policies affected both indigenous women (political and religious leaders) from the privileged classes, and common women, severely restricting their involvement in collective political decision-making (Vieira 2000, Rostworowski 2000). This had immediate repercussions for water management, as well as for the management of other collective resources such as land. In the Andean culture, the management of these resources – at least those corresponding to *ayllus* – used to be the result of collective negotiation and discussion (*rimanakuy*) in which both men and women were involved.

2.4.3. The water rights of indigenous people

During the Spanish colonization the downgrading of indigenous identity justified the right and 'duty' of Spaniards to subjugate and govern them. Indigenous women and men were seen as belonging to an 'inferior' and 'miserable' race. This justified the inhuman behaviour of the colonizers against the Peruvian population, and the endless appropriation of their land, livestock, water and other fundamental resources. To curb usurpation of resources and widespread genocide against Latin America's indigenous population, the Spanish Crown had to issue the well-known 'Law of the Indies' or '*las Leyes de las Indias*' (in 1542), which, in its first version, was highly humanistic, idealistic and paternalistic. The Monarchy, somehow, recognized the human status of Indians, and tried to grant some fundamental human rights, but just enough to protect them from the extinction.

The *Leyes de las Indias* conferred many civil, religious and material rights to the indigenous population. Yet, these were almost impossible to implement in that period, due to the predominant discriminative ideologies against the 'Indians'. However, the very existence of the law implied that indigenous 'miserable but human' people could at least defend their rights and resources by turning to these laws (Boelens and Gelles 2005, Guevara 2002). In relation to land and water, the 'Laws of the Indies' protected their rights to possess communal lands, to access water and to construct their own irrigation infrastructure to use water, like the following text of the law indicates:

'*We order that the sale, profit and composition of land, are made with such care that the Indians were left with plenty of all that belonged to them, and especially by communities, and the water, and irrigated land, and the land in which they made irrigation canals, and other […]*'. (Book IV, title 2, Law xviij).

The first version of the Law of the Indies met with the armed resistance of the Spanish colonizers. Subsequently it was re-issued in a weaker version in 1552 (Indies 2011). Although the last version of the Laws of the Indies recognized Indigenous Law and Customs as sources of law, this was strongly conditioned by the positivist European Law (from Spain) and the 'good customs' established by the Catholic Church in which they were inscribed (Castro 1997). On the other hand, colonial norms made it clear that water belonged to the Crown, and only the Crown could grant rights, with exclusive control over water. So, the Crown granted royalty rights (to water) through the Spanish conquerors, who then granted usage rights (idem).

During the 18th century different water regulations were issued[55], prepared according to the water needs of the Spanish land-holders of different agricultural valleys situated alongside the Coast. Access to and control of water was conditioned upon the property rights of land (Apaclla et al. 1993, Oré 2005). Despite hugely diverse and complex water management realities in the rest of the country, the Spaniards tried to apply the coastal based regulations to almost the entire colony (CRP 2006a). The validity of these laws lasted even after the early Republican period until 1902, year in which the 1902 Water Code was issued. During the 18th and 19th century, indigenous people still had a possibility to protect their collective water rights under the 'Laws of the Indies'. However, by the end of 18th century the 'Laws of the Indies' were slowly losing its validity. By that time, the Spanish landowners had effectively appropriated most lands with irrigation, a task made easier because the indigenous *kurakas* had already been displaced by Spanish *caciques*, who took advantage of their position to accumulate as much land as possible (with or without irrigation) (Chambers 2003, Seligman 1992).

2.5. Ethnicity, gender and water culture during the early Republican Period (1821-1900)

In many respects, what happened in the post-colonial period can be seen as an extension of the ideology and practices of the European colonization, which had already become deeply rooted in society. As Boelens (2008a:201) states, colonial structures of inequity, rules to expropriate and appropriate resources (natural and human) were further 'polished', and enforced by laws and norms. The political and biological naturalization of 'whites' and 'Indians' was done in such a way that the latter not only had to continue paying taxes, but also were destined ethnically and culturally to live in poverty, with one foot on the way to extinction. The discourses then dominant expressed the inferiority and savagery of the 'Indian' race, and supposed that this inferior race could ultimately disappear by mixing them with the 'white' Spanish (considered vigorous, intelligent and creative). Hence, through *mestizaje* Indians could be redeemed from their miserable situation (Álvarez-Calderón 2005, Cadena 2004, Seligman 1992). This idea spread like burning gunpowder

[55] These are: The Regulation of the Dean of the Cathedral of Trujillo (Don Antonio de Saavedra y Leiva) of 1700, for the valleys of Chicama, Moche, Santa Catalina y Virú. The Regulation of 1793 (don Ambrosio Cerdán y Pontero) for the valleys of Lima.

throughout all regions of the new Republic, and persisted even through the years after 1920 (the year in which the Peruvian Constitution recognized the existence of indigenous communities and tried to protect the 'inferior' Indian race from the abuses of the landlords (Drzewieniecki 1995, also see next chapter). Hence, the existence of 'Indians' was not deemed compatible with the theories and images of modern progress and culture, proclaimed by the new Republicans[56] (Yépez 2008). Yet, and at the same time, they (indigenous people) were good enough to be used as a 'rifle barrel' during the independence wars, and later on during the civil wars among the Aristocratic Peruvians eager to control the new Republic.

The marginalization of women also continued in post-colonial times. Maybe it went even further than during colonial times, because the predominant Spanish stereotype of women became further naturalized and more deeply rooted. A woman's place was considered to be in the home; she was subject to the 'head' of household, and 'naturally' too demure to express any opinions in 'public' settings. This was similar among creoles, mixed and indigenous people. The religious codes of the times reaffirmed these Marianistic[57] ideologies of former Spaniards. The new governors of the Aristocratic Republic, influenced by theories of governance and European-centred policies of the times, defined public opinion and participation as the result of a 'rational' debate among educated male citizens, whereas women's opinion was viewed as 'gossip' and left out of the realm of the 'rational' (Habermas 1989, mentioned by Chambers 2003). In consequence, it can be inferred that the participation of women in water management and associations was reduced to the domestic domain.

After independence, the republicans began to think of themselves as 'new', progressive, modern societies, like European societies. Education and development of Aristocratic male citizens 'liberated' from the Spanish yoke was one of the main principles guiding new nation-building. Aristocratic women could also enjoy education but just 'enough' for their gender position, this is; ideal domestic[ated] wives, examples of morality and patriotism. These female characteristics were essential pillars of Republican families and society in general (Chunga 2011). Aristocratic women, even the literate among them, could not participate as citizens in the political life, because they were not allowed to vote. These gendered principles divided societies into two worlds: developed or modern and under-developed or traditional; the Aristocratic educated and the Indians ignorant. Citizens were also categorized as developed or 'progressive' the further they grew from beliefs and traditions linking humans with 'living' Nature (Blaser 2004, Cadena 2008, Portocarrero 2006). Along these same lines, a citizen showed his '(hu)manhood' the more he conquered and exploited Nature, including human beings. So, any individual inclined toward traditions and respect for animate nature was not only considered backward (uncivilized) but also 'un-manly'. This tradition of relating male 'manhood' with their degree of 'taming' Nature (including the submissive, silent qualities of Nature) was not only a result of the Republic period, but a tradition inherited from the first Spanish colonizers, who wrote about the effeminate and docile character of the indigenous.

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[56] This period is called the 'Aristocratic Republic' the period in which Peru was governed almost exclusively by a group of wealthy men, experts in business management, but with a European mentality. They despised and rejected the indigenous people and its culture.

[57] Veneration for so-called feminine virtues, such us virginity and moral strength were based on Virgin Mary images, the divine mother of Jesus Christ. The ideal virtues of women, then, were: emotional, kind, docile, compliant, unassertive and vulnerable, and above all: immaculate and eternally giving.

The educational gender bias persisted until 1908, the year in which the Republican President José Pardo Barreda 'opened' possibilities to Creole women and 'white' *mestizas* living in the big cities to enter high schools and universities. This educational reform was influenced by the writing of the Swedish feminist Ellen Key[58]. However, these literate women could not exert the right to vote yet. The education of Indian women and men living in indigenous communities was still remote in that period, since there were no schools there.

In relation to water rights for irrigation, the social and water injustices against indigenous people deepened more than in the colonial period in which the 'miserable' Indians could at least defend their rights and resources by turning to the Laws of the Indies (Guevara 2002, Boelens and Gelles 2005). During the advent of the independence in 1821, the so-called Aristocratic Republicans tried to standardize Republican laws with the different political, economic and judicial rights of the Peruvians 'liberated' from the Spanish rule. In line with this, the rights and resource management principles of indigenous populations were also subjected to the principle of equality (Aylwin 2010). However, in practice the land and water of the 'Indians' remained under the control of the landlords, and the former relations of production (feudalism) persisted. The 'Indians' also continued paying taxes, even when obliged to do unpaid work, and yet were excluded from citizenship (Chambers 2003). Only literate 'white' males were considered to be citizens. The Coastal based regulations, issued during the 18th century by the Spanish colonizers, persisted after the independence until the beginning of the 20th century, as the following passage of the first water regulation (Attributions of the Private Water Judges) enacted in 1838 by the president Riva Agüero informs: '*All the valleys have equal rights to take water streaming from the Andes, from the rivers to cultivate the lands, with arrangement and according the allocations and distributions designated by the D. Ambrosio Cerdan […]'* .

It was only in 1902 that the so called Water Code of 1902 was issued, which was a copy of the Spanish Water Law from 1879 (Apaclla et al. 1993). Although this code proclaimed water as a public resource, it also established private property over water, when a specific source (spring, lake, or other fountains) was located within the property (land) of a person. The main beneficiaries of this Water Code were the landlords or hacendados of the Peruvian country. (see also next chapter).

2.6. Conclusions

The different points presented in this chapter put forward two interrelated messages. Firstly, to understand Andean society, authority and power, water and the historical construction of identity discourses and practices are crucial entry points. Therefore, to analyse the actual social structures, water injustices and processes of resistance it is necessary to understand how different cultures (which have interacted in the Andean region) have seen and valued water throughout history. Water played a crucial role in how people constructed, appropriated and used metaphors, narratives, symbols and infrastructures to legitimate and institutionalize particular political and religious projects and power. Secondly, all these different processes have always been gendered.

[58] Ellen Key argued that education must be focused on developing the potentialities and capacities of a child, rather than on the necessities of the society and the religion (Chunga 2011).

2.6.1. Water, beyond its symbolic meaning

Andean people have understood, represented and valued water more than as a natural resource that sustains life and livelihood. Water was seen as a sacred living being, as a source of collective identity and cultural reference. This cosmology remains a distinctive character of Andean culture until the present day, and has also constituted the cornerstone of strategies of resistance and adaptation to different colonization and transculturation processes.

Since the first human groups and local cultures arose, inhabitants of the Andes have continually clung to the belief that water was the creator deity of the ancestors and of life in the world in general. As one might expect, much of Andean philosophy has been built and developed around this very particular meaning attached to water, which has in part sustained collective organization and ethnic identity affiliations, local traditions and norms, and local politics.

Given this special meaning of water and given its importance for life support, it was also susceptible to the interplay of interests and power. Ethno-historical reports referred to in this chapter suggest how the appropriation of water and meanings around water also created and sustained social structures. The elites and governors from Collaguas and Cabanas began to emerge and acquire more power, precisely by appropriating and using Andean water beliefs and philosophy about the aquatic origin (from *Kollaguata* and *Hualca-Hualca* snow-capped mountains) of the ancestors. The same happened with Inka emperors, who attributed the sacred origin of their ancestors to *Tticciqaqa* springs (or Titicaca Lake); creating symbols, narratives, institutions and infrastructure (altars, canals, wells) to justify their 'sacred', thus superior identity. They strategically attributed their 'sacred' origins to water sources to create social dichotomies and fix symbolic boundaries, and claim legitimacy to govern, to conquer and to dominate people. By doing so, they also acquired privileged access and rights to water and land.

Spanish colonizers also conquered and ruled people by attributing the superiority of their identity status and culture, downgrading the ethnic and gender identity of the conquered people. Spaniards acquired inalienable and imprescriptible rights and control over land and water, including people, by proscribing local religiosity and cultural practices, imposing their religion and culture. They appropriated and destroyed the sacred temples and altars, and instead erected new temples and symbols.

The further the dominant cultures have tried to impose themselves on others, the further the conquered/dominated and marginalized people reinforced their ethnicity. They continued to adhere unceasingly to their beliefs and traditions, to their institutions and local celebrations. They did so to cope with and survive the disruption of their cultural world, to maintain social cohesion and cultural identity. At difficult times, the dominated have turned to their religious faith and traditional practices (whether they remain in their own territories or in exile – *mitimaes* or *mitmaqs*) to resist cultural imposition by the hegemonic culture. So, when the governors of Tahuantinsuyu tried to impose worship of the Sun (*Inti)* as the main deity in the region of the *Collaguas*, they failed. Religious feasts dedicated to *Tata Mallku' and Mama Uma* persisted, as did the organization and institutions of authorities and collective work developed around water. The same happened with Spanish attempts to impose the Catholic beliefs on the conquered nations. Indigenous people continued practicing their local religiosity, respecting religious symbols,

rituals and authorities; even when they were unceasingly persecuted and mercilessly tortured.

As time goes by, traditional beliefs have not only resisted, but have also won over more followers from the hegemonic culture. It should come as no surprise, then, that Arguedas[59] himself, considered a 'white *misti*', should say: "*[…] even to this day, I confess with all sincerity, in all honesty, I cannot believe that a river is not a being who is just as alive as I am"* (Arguedas 1997:41). Nor should we be surprised that, to this day, throughout the Andes, as in the communities of Colca Valley, water rituals remain alive, and now it is no longer only the indigenous users who play the religious roles for water, but also literate white people, who share the same community space and use the same water (see also Chapter 6).

2.6.2. The gendered Andean water world and politics

The different narratives and historical events presented in this chapter noticeably illustrate how the meanings attached to water, as well as the way how people organized their practices and authority around it, have always been gendered. Water was both a male and a female deity. The sea was recognized as 'the mother creator of the world' or Pachakamaq (in *Runa Simi* or Qechua), the lakes as *Qochamama* or 'mother' lake, the springs as *Mama Uma* or *Mama Choqechicha,* the rain as *Mama Para;* while water runoff from snow-caps was recognized as men's semen. For the first Andean cultures female water deities were as or even more prominent than male. This, I infer from my findings, is why the most important 'universal' sanctuaries and temples (such as *Pachakamaq* and *Apurimaq* in Peru, and *Tiwanaku* and *Tticiqaqa* in Bolivia) were devoted to female water deities. When worshipping water was displaced by the worship of the Sun, religion and religious authority were also masculinised, with female deities being replaced by the main (male) deity of the Tahuantinsuyu Empire.

Since water deities were both male and female, practices, authority and power were organized accordingly. Political and religious leadership positions were gender dual, while the distinction between a public and a private domain was less defined than it was in more recent history. In line with this, women (just like men) could take part in what were considered 'public' decision-making spaces, and could assume important political positions of authority and leadership. The report about the leadership of *Mama Micay* (a high governor of Guayllacan-Cusco, and later wife of the Inka Roca) designing and implementing an irrigation project in Cusco –the main city of the Inka Empire- gives testimony of the outstanding role of women in ancient Peru. Since Inka Pachakuteq (the ninth emperor), who enforced the worship to the sun, the leadership of women also started to decline slowly.

When Spanish people colonised Peru, indigenous people offered resistance to the European religion and culture in general. However, indigenous men had fewer objections in adopting the gender stereotypes constructed by the hegemonic culture than indigenous women. The Spanish laws and the policies of colonial organization favoured the patriarchal system, downgrading the status of indigenous women and following European models of gender. At the same time, their system allowed the empowerment of (some) indigenous

[59] José M. Arguedas was an Andean white mestizo, novelist, poet and anthropologist. He mainly wrote stories about the everyday indigenous reality in which he grew up, depicting the injustices and clashes between the white Eurocentric civilization and the traditional indigenous way of living.

men, especially those of the elite. Together, this led to a reversal of the relative balance of power between the genders that existed in pre-Spanish cultures. It allowed what Susan Deed (mentioned by Vieira 2000) called the 'double jeopardization' of indigenous women, who were colonized twice: once by the Spanish regime and then by the men of their own cultures. Once men were empowered, they (and later on also women) legitimized these ideologies in practices regarding the roles and spaces (private, public) considered 'appropriate' for men and for women, respectively. So, although asymmetrical gender relations (including ethnic relations) have been controlled and constructed by men of hegemonic cultures, ultimately both men and women were prisoners of these cultural patterns of interpretation, representation and valuation of gender (and ethnic) identity (Blondet and Oliart 2008). Thus, the alleged 'inferiority', and lack of 'character' of women preventing them to take part in public decision-making, and assume positions of authority have become a commonly accepted and naturalized discourse by both men and women, in the current ideology and practice of rural people in the Andes (Cadena 1992, Vera 2004, 2005).

Changes in the dual and relatively equitable gender dual roles and powers had at least three immediate effects on the dynamics of Andean socio-political and religious life:
a) Male privileges were enhanced during the progressive transition towards a patriarchal system modelled after colonial Europe;
b) Socio-political discourses, organizational practices and decision-making overall were masculinised, a process which became most visible in the domain of water management, because it was re-labelled as a public and therefore male domain;
c) That women were forbidden to take part in public decision-making also undermined the gender dual democratic participation, decision-making and authority in water and land management and politics. This, partly, facilitated the expropriation and appropriation of resources by the Spanish colonizers, and later by hacienda owners of the early Aristocratic Republican period. During this last period not only women (in general), but also indigenous men hardly found legal support to protect their rights to water, land, and authority, since they were denied rights to citizenship.

The socio-cultural and economic conditions to which indigenous women and men were relegated in the Early Republican period, however, marked the emergence of intellectual movements. Some of them, like the Indigenistas[60], played a role in the advent of new political winds in favour of indigenous people. Their possibilities to access and ensure their land and water rights opened with the issuing of the 1920 Peruvian Constitution, whilst their possibilities to be recognized as citizens came later in the second half of the 20th century. The next chapter analyses this, scrutinizing the socio-political events during the Agrarian Reforms, and the Neoliberal period as well.

[60] Indigenistas intellectual's movement emerged in Peru at the early 1990s in face of indigenous population misrecognition and marginalization by the Liberal Republican of that period, and 'white' society in general. The first brand of indigenistas (around 1920s) asserted that the underdevelopment of Peruvian society was due to a moral, cultural and physical degradation caused by the mixing of the 'pure' races; the remedy therefore would focus on recapturing and recreating the 'authentic' culture of the Inka through education. Later on (after the 1930s), the second wave of indigenistas, valorized not the 'pure' Indians but rather the hybridized popular culture of the *Cholo* or the mestizo population.

Chapter 3:
Politics of recognition and water redistribution.
Water justice, ethnicity and gender during the Liberal Peruvian Regime

'The more a discourse is internalized by people and accepted as true and legitimate, the stronger the influence of the prescriptions it establishes and the stronger its self-fulfilling forces, actions and effects.' Boelens (1998:20-21)

3.1. Introduction

In the preceding chapter, I pointed out how central water is for the construction of the collective identity of the inhabitants in the Andes. The way people relate to water is intimately linked to wider water-based world-visions or cosmologies. The chapter also revealed how such water-based cosmologies – in which water is considered as a sentient entity – have, over centuries, changed and been altered under the influence of the Inkas and the Spanish colonizers. One clear message in the previous chapter is that struggles over water incorporate simultaneous clashes over meanings, identities and discourses. Conversely, and since water is such an important source of cultural identity and of livelihood and power, the struggle for its access and control is a key element in constructing and consolidating water-based organizational practices within communities. Likewise, control over water has been and continues to be crucial in processes of State formation. I also tried to demonstrate how the appropriation of water control, as an important strategy in state-building, has gone hand-in-hand with a process of masculinization of different public decision-making forums. Throughout the course of Peruvian history, water management has become more and more defined as something belonging to the masculine sphere, a process linked to the accumulation of material wealth and symbolic power in (certain) men.

This chapter continues this historical analysis by investigating the role of policy discourses and water regulation in (re)distributing and controlling water, and in pursuing socio-cultural and water justice in Peru, from 1900 until the present day (2010). To facilitate the analysis, I have categorized this time span in a number of periods, which I call 'regimes' of indigenous water rights. I base this categorization on the emergence of new policy water discourses, vis-à-vis the politics of (identity) recognition. The chapter analyses how different water regulations, organizations and structures have shaped and created possibilities for indigenous water users to access and claim, or defend their water rights during different democratic regimes. At the same time, it also analyses how the predominant cultural pattern of interpretation and valuation of water have divided and differentiated Peruvian society, degrading the identity and needs of certain groups of people in comparison to others, thereby also debilitating their water security.

In the first part of this chapter I propose some concepts that are useful for understanding policies on water rights and distribution in terms of their effects on social justice. These concepts complement the idea of the normalizing power of hegemonic cultural patterns of interpretation of water needs, places, and identities, which I already discussed in the first chapter.

In the second section, I begin my analysis of how indigenous water, cultural, and identity (ethnic and gender) rights were incorporated into policy discourses after the enactment

of the Water Code of 1902 until the Agrarian Reform of 1969. I term this phase the 'nominal water rights regime, with paternalistic identity recognition'. Although the Water Code attempted to recognize the *usos y costumbres* (customary practices) of communities, the *hacienda* system of production that continued to be in place deeply affected the water reality of indigenous people. By and large, this Water Code was a copy of the Spanish Water legislation of 1879, which granted private property rights over water to the landlords. This section also analyses the politics of managed recognition of indigenous people in the 1920 Constitution. This, in part, reflected how the predominant cultural pattern constructed gender and ethnic identities. This period is characterized by a predominant 'Literate Male Democracy', since women and illiterates did not have the right to vote and participate in public politics (CRP 2010). Additionally, I discuss how these policies of recognition interact with discourses on modernization and development to establish irrigation policies in the Liberal Nation-State of that period.

The third section, which is termed 'affirmative redistribution of water rights (and land) without (identity) recognition', analyses the re-allocation of water rights and land during the Agrarian Reform of 1969. The military government of Velazco Alvarado (started in 1968), based on Marxist ideologies, re-distributed land which belonged to the former *haciendas* among poor farmers in rural communities. These were obliged to form agrarian cooperatives and associations. This new organizational arrangement did not cause any major changes in the prevailing relations of production; old patron-client relations were reproduced between the new cooperative managers (or new lords) and the associated farmers. This is why it did not achieve the anticipated social transformation. For this reason, and following the concepts developed by Fraser (1996, 1997), I refer to these policies as re-distributive affirmative, but not transformative. Later on, due to the failure of the cooperatives, the land was parcelled out to the individual members of the cooperatives. This process was implemented without taking into account the long-standing claims made by ethnically marginalised people for cultural justice and recognition. Accordingly, the new water law (17752) enacted in 1969 (although diametrically different from the previous Water Code of 1902), neither took into account the existing local water authorities of rural communities, nor their water-based *usos y costumbres*. On the other hand, the dominant gender ideology biased the re-distribution and parcelling of the land in favour of men, even though the policy (of re-distribution) was explicitly formulated in gender-neutral terms. However female water users did not passively accept this male-biased implementation of water re-distribution: they struggled not only to gain access to water, but also to be legitimately recognized as water actors. To illustrate this, I present a case study of Cusco in the Andes where I once worked (see section 3.4(C)).

The next section analyses the process of change in water policy discourses, and the politics of recognition since the implementation of the neo-liberal reforms in the 1990s. This period is termed as the stage of the 'recognition of individual water rights with affirmative recognition policies'. The new Constitution of 1993 – framed by discourses of recognition, promoted by the new global wave of cultural reification – acknowledged the rights of the Peruvian people to their ethnic identity, as well as the rights of indigenous communities to their traditional forms of local resource management. This policy of recognition, however, did not question existing injustices in land and water distribution. On the contrary, it further reinforced the undermining and erosion of local collective water rights and institutions. Three processes characterized this period: the deliberate change of Water Law 17752 by the new *Ley de Recursos Hídricos* (2009); the subtle

process towards the individualization of water rights; and the recognition of the Andean people to have an indigenous identity, who then started to enter the public political arena, such as the Congress. Finally, the conclusions are presented in the last part of this chapter.

3.2. Policy discourses and the politics of redistribution and recognition.

Discourses are strategic instruments for rulers to represent, create and legitimize specific or desired realities (Long 2001, Parker 1992). Boelens (2008a) argues that the societal orders that dominant discourses and legal policies seek to produce and sustain are often legitimized by (and form part of) scientific knowledge and scientifically produced truths which, in turn, can be institutionalized as 'regimes of truths'. Science and dominant legal discourses (as 'regimes of truth') can co-produce, support and help to sustain power structures. However, discourses can also be strategically used, and form an important part of the strategies of resistance of marginalized groups, as Foucault points out in problematizing and expanding the concept of discourse (Portocarrero 2006).

Discourses thus become dominant when they are accepted as a 'regime of truth' that serves to (at least partially) justify ways of behaving and governing. In the process, such discourses serve to define – and indeed often naturalize – people and the scope or boundaries of their actions, comparing them to each other, categorizing them (often hierarchically), and correcting them according to dominant stereotypes and norms. This practice is termed by Boelens (2008b, 2009, following Foucault) as a process of disciplining and normalization. In Peru, as discussed in the previous chapter, this has happened through gradual and historical processes of cultural alignment of indigenous people to the projects of the rulers, thereby simultaneously altering and co-shaping their subjectivity and their possibilities for action, resistance and advocacy and influencing organizational practices. Boelens (2008a:12) explains that these processes of alignment sometimes even occurred through participatory means and by people's own initiative, such as when they start taking the dominant norms and discourses as their main frame of reference. This is what is called 'capillary' power. When dominant discourses become normalized as part of people's way of thinking and behaving, it can neutralise their capacity to take action for social justice.

Social justice can be analysed from different perspectives. Here, I use the framework of Nancy Fraser (1996, 1997, 2008), because it is useful for unravelling the complex, and sometimes contradictory, processes of identity recognition on the one hand and water (and land) rights redistribution on the other. Fraser proposes a 'bivalent' conception of justice, distinguishing between 'redistribution' and 'recognition'. 'Redistribution' seeks to redress socio-economic (mal-distribution) injustices rooted in the economic structure of society. 'Recognition', in contrast, targets injustices understood as socio-cultural (lack of recognition or misrecognition), which deny people the status of full partner in social interactions, preventing them from participating as peers (parity of participation) in the social context. Socio-cultural injustices are rooted in social patterns of representation, interpretation and communication of reality and in the hierarchical and often dual (superior, inferior) attribution of gender and ethnic markers of status (or identity).

Fraser shows how, in some situations, justice calls for claiming equality ("we are the same, and hence we deserve the same treatment and the same rights"), and in others it calls for rights to difference ("we are different, and thus want to be treated differently").

For instance, when a cultural pattern of interpretation of status (or identity) pervasively differentiates and downgrades the identity and culture of people, impeding their parity of participation, then recognition of difference (for instance through quota systems or special treatment) is a matter of justice. When, instead, misrecognition involves denying the fundamental human rights of a group, then the remedy is not recognizing their difference but claiming their 'sameness' or equality to others (as rights to citizenship).

'Redistribution' and 'recognition' are always interlinked, but not in direct causal ways. Thus, every struggle against injustice implies demands for both, but tensions can arise when integrating 'redistribution' and 'recognition' into a single political framework. To be able to distinguish between justice claims that work towards justice and those that do not, Fraser suggests a pragmatic approach that situates claims for justice in the context of social power. She further distinguishes between 'affirmative' and 'transformative' remedies for redressing social injustices. The first one corrects unfair results in social arrangements without disturbing the underlying framework that generates them. Transformative remedies, in contrast, aim at correcting inequitable outcomes precisely by restructuring the underlying structure that generates them. When integrating these remedies with the 'redistributive' and 'recognition' dimensions of justice, it results in the following analytical table (3.1):

Table 3.1: Fraser's framework to approach social justice

	Affirmative remedies	**Transformative remedies**
Redistribution	Superficial reallocation of existing goods to existing groups, without restructuring relations of production Can generate misrecognition.	Deep restructuring of relations of production; blurs group differentiation. Can remedy some forms of mis-recognition
Recognition	Superficial reallocation of respect to (marginalized) identities. Support group differentiation (mainstream multiculturalism)	Deep restructuring of relations of recognition. Destabilizes group differentiation

Before starting the description and analysis of the water rights regimes and identity recognition at the beginning of the 20th century, it is useful to summarize in table 3.2 the legal situation of water rights and identity recognition in the 19th century (as discussed in the previous chapter). To do so, I combine the frame of 'regimes of truth' (referred to by Boelens, 2008a) with that of justice (Fraser's work). I include in this frame a picture of the capacity of the indigenous population to deal with prevalent 'regimes of truths'.

As it can be seen in this table, the water policy discourses before the issuing of the water Code of 1902, and the policies of recognition (when explicit, like the 'Law of the Indies') offered few possibilities to indigenous Andean water users to access and control water (and land) and led to a gradual downgrading of their ethnic and gender status. During the new independent Republic, water legislation and distribution were still governed by water regulations issued during the Spanish colonial rule. This even lasted until the end of the 19th century. In this period – which I term the 'equalizing nominal water rights' period – Aristocratic politicians continued looking down on women and indigenous people, excluding them from participating in public politics.

With the advent of the 20th century many changes appeared in the political scenario. The liberal ideas of modernization of that period influenced the political projects of the Nation-State. The politicians of the time (under President Eduardo Lopez de Romaña)

among other things replaced the Colonial Water Regulation with the Water Code of 1902. This change signalled a new era for the indigenous population's quest for land and water justice. I have labelled this period as the 'nominal water rights period, with a paternalist recognition of the indigenous people identity rights', as discussed in the next section.

Table 3.2: Summary of Indigenous water rights regimes, cultural and identity rights during the Spanish colony and the early Republican period

Regimes of water rights	Water Regulations	Democracy and politics of recognition	Identity attributions (stereotypes)	Indigenous water agency
Legal paternalistic water rights 1512-1820	Law of the Indies protected the land and water rights of Indians living in 'reductions'. It recognized traditional water authorities First colonial water regulation	Monarchy Law of the Indies protected indigenous people, as Christians. Women were not allowed to act in the public domain and to occupy authority charges	Indians were an inferior race but still human. Indian men were seen as having feminine character. Andean priests were sorcerers, and priestesses the most dangerous witches	Traditional water authorities changed their name to 'water judges', and exerted their duty under customary and Spanish norms. Female traditional authorities acted under cover.
Equalizing nominal water rights 1821-1900	Colonial water legislation still valid Indians Laws no longer valid. Landlords controlled land and water	Nominal, Oligarch and Aristocratic democracy White male educated with rights to citizenship. 'White' women with rights to (domestic) education, but no to citizenship Indigenous men and women without rights to citizenship and formal education	Miserable, backward, ignorant and illiterate Indians, destined to disappear 'Indian' women more 'Indian' than 'Indian' men *Mestizaje* could redeem Indians	Traditional water authorities still distributed water within communal lands.

3.3. Nominal water rights period, with paternalist identity recognition (1902-1969)

This period spans from the beginning of the 1900s until the enactment of the Agrarian Reform in 1969. It is characterized by the concentration of land and water rights in the hands of a small number of landlords, as well as the misrecognition of women's political rights. To facilitate the description and analysis of complex and sometimes overlapping processes, I have structured this section in three: water regulation, the politics of recognition (of gender and ethnic identities), and the discourses on irrigation development. I make use of this same structure in the next water rights periods.

3.3.1. Water regulations

The Water Code enacted in 1902 was basically a copy of the Spanish Water law of 1879. It expressed the liberal, private-property ideology predominant in Europe at that time, which

clearly favoured the existing landowners and hacienda-owners[61] and institutionalized the inequalities that this system embodied. The State only had control over river-water, torrents and springs, waters which were not used as yet (see also Apaclla et al. 1993). The traditional water authorities in charge of distributing water to indigenous users ('commoners') of the communities could still act, even though the Water Code did not recognize them legally. They had to exert their authority under the surveillance of the official water administrators, legally recognized by the Water Code, who were in charge of the Irrigators Communities (*Comunidades de Regantes* in Spanish), set up by the *hacendados* and indigenous water users. Traditional water authorities were strategically recognized by the landlords (including the Catholic Church), mainly because they were in charge of organizing the maintenance and cleaning of the irrigation infrastructure (Gelles 2002). For indigenous people, these authorities constituted the front line of resistance to cultural imposition, because they were not only in charge of organizing the cleaning of the infrastructure, but also performed water rituals according to the customary traditions (described in chapter 6 of this book) that were so clearly despised by the Aristocratic Republicans.

After the enactment of the Water Code of 1902, and given the fact that *hacendados* were controlling the distribution of water and the election of water authorities, the Republican Congress tried to change some articles in this Water Code by enforcing Law 2672 in 1917. This water regulation transferred the responsibilities of water management to Technical Commissions, managed mainly by engineers, who were not allowed to have any direct family links with the landlord. These engineers played a decisive role in modernizing water management, and their appearance on the scene also marked the start of a scientific or technocratic regime of water governance (also see next sections). What is interesting to highlight here is that the distribution of water had to be made in accordance with the 'Cerdán and Dean Saavedra Regulation', issued during Spanish colonial rule in the 18th century. This regulation acknowledged landlords' private rights over water. Law 2672 also acknowledged the existing distributional agreements between indigenous communities and landlords, as the next article shows: Art. 40 – '*Water will be distributed in accordance with the Regulations of Cerdan and Dean Saavedra [...], in line with the commoners' agreements already in existence, or the regulation issued by the communities and approved by the government, in line with the Water Code* [of 1902]' (JVD). At the outset, the engineers in charge of water management encountered many problems when carrying out their task, because landlords tried to enforce their private rights over water, guaranteed by law. During Augusto B Leguía's[62] governing period (1919-1930) engineers tried to impose their authority, but after the Leguía period, the landlords took complete control over water (Apaclla et al. 1993)

The effects of the various water regulations on local water management differed depending on whether or not the hacienda system was present. For instance, in Colca Valley (where there was no hacienda system) it had fewer effects than in those regions

[61] Chapter IV, Art. 18: said '*[…] lakes, ponds, and puddles which are on the territory of the respective domain, are the property of the, individual (called particulars by the law), Municipalities, and consequently the State. Those located on communal land are owned by the respective villages'.*

[62] Augusto. B Leguía was one of the first 'white' Republican Presidents that gave support and made alliance with Indigenistas movement to be elected as President for second time. During his period (1919-1930, at least during the first 5 years), Indigenismo eventually became official state ideology; guiding the formulation of cultural, educational, social and political policies. He made many reforms, among them changing the 1860 Constitution by 1920.

where the *hacienda* system ruled the water management and distribution. As already mentioned in Chapter 1, probably the drought and the apparent water scarcity existing in the Colca Valley minimized its attraction to landlords (see also next chapter). However, in the Colca Valley, the Catholic Church[63], as well as the Municipality and the Governor, took control of most of the productive land (with irrigation) after independence. Their respective authorities imposed taxes, and engaged people in unpaid service involving agricultural products, wool, etc. (Manrique 1985). The dynamics of the local economy were based on wool production (of alpaca and sheep) in the higher part of the Valley, and the activities of the Caylloma Mine (also located in the higher part of the Valley).

Also the indigenous people of the agricultural valley were involved in raising alpaca, since most of them had access to pasture-lands (considered to be communal lands). They occasionally acted as intermediary traders. Their agricultural activities were oriented mainly towards subsistence. The high profitability of alpaca wool[64] attracted the interest of foreign and outside traders, many of whom were *mistis* (creoles and mestizos) from surrounding areas. They dedicated themselves to commercializing the wool, selling it in Arequipa, the main distribution centre for alpaca wool in the South of Peru. Some of these groups of wealthy traders started to acquire (appropriate) and accumulate pasture lands and alpaca livestock[65] in the highlands of Caylloma, and also some agricultural lands in the Colca Valley. They were recognized as *gamonales*. Their land aquisitions were largely illegal, because most of the indigenous communities did not have any written evidence of property rights, or other legal documents to protect their lands. Even when communities had legal documents and tried to defend their rights in court, the prevailing system of justice often acted in favour of the *gamonales*.

The high income generated from trading alpaca wool was not re-invested in more productively managing the pasture and agricultural lands in Caylloma. The *gamonales* were only keen on accumulating land and alpacas, and instead invested their incomes in land (or other properties) in prominent cities such as Arequipa, Moquegua and Cusco (Manrique 1985). Thus, despite the boom in alpaca wool – and mining – the communities of Caylloma and Colca Valley were left behind, and remained poor and anonymous.

The tendency of the *mistis* and landlords to accumulate land dedicated to pastures and alpaca livestock was a common feature not only in the Arequipa highlands, but in most Andean communities located in the South: Cusco, Puno, Moquegua, Apurímac and Ayacucho. This situation was the cause of much tension and violent conflict between the *communeros* and the *gamonales* prior to the 1920s (Álvarez-Calderón 2005, Cadena 2004). These social tensions, coupled with the overall disinterest of the regional politicians and judges to ensure justice, inspired the indigenous population to mobilize and ask the President of the Republic to intervene. However, the regional authorities imposed heavy bureaucratic procedures preventing the written demands of the indigenous people from reaching the central government in Lima (Alvarez-Calderón 2005). To confront these difficulties, indigenous leaders –mainly well-to-do *alpaqueros*

[63]The monumental churches which were constructed in this valley are reminders of the strong presence of a wealthy church. Today, these churches attract many tourists.

[64]The profitability resulted from international demands originating from the 'industrial revolution' in England by the end of the 19th century , and from the First World War (for more information on this see Manrique 1985)

[65]Alpacas can only thrive in pastures where there is plenty of water, known locally as *bofedales* or *puquios*. The *bofedales* (fens in English) are part of the Andean humid *paramos* from where most water (rivers, lakes, ditches) of the different watersheds originates.

from Puno and Cusco, and later from Caylloma- resolutely marched to Lima and contacted the President of the Republic directly. The President tried to listen to the leaders' claims, and even sent special commissions to investigate the conflicts in situ. Some of those commissions reported the reasons and veracity of the existing conflicts, but others were just corrupted by the *gamonales.* The political and social atmosphere of the 1920s nevertheless provided important ammunition for the liberal ideas of the literate Indigenista movements in the Andes and on the Coast, which had already begun to emerge at the end of the 19th century, promoting not only land and water redistribution but also recognition of the rights of the Indigenous population.

3.3.2. The politics of recognition

Although some Indigenista movements, such as the Tahuantinsuyu Committee (Cusco), tried to characterize themselves as anti-hegemonic intellectual movements, many elites appropriated indigenous struggles (and culture), and used them for their own electoral campaigning purposes (Becker 1995, Cadena 2004). In spite of the political interests of those intellectuals, the very existence of these movements helped to pose questions on exploitation, misrecognition and marginalization of the indigenous population on the national political agenda. Therefore, when the Constitution was reformed in 1920 – under the democratically elected President Leguía[66] - it incorporated a special article to protect indigenous people and their land, without recognizing their rights to citizenship.

The National Constitution of 1920 only extended citizenship to married, literate males, (over 21), thereby disregarding the indigenous illiterate population and women in general (also white literate women). In relation to indigenous communities, the Constitution was limited to recognizing their legal status as corporate bodies. Article 58 states: '*The State protects the indigenous races and will enact special laws for their development and culture in harmony with their needs. The Nation recognizes the legal existence of indigenous communities and the Law states the rights they are entitled to*.' This recognition included the possibility of collective ownership of agricultural lands and pastures. However, other resources such as water were excluded. Access and management of water remained subject to the Water Code 1902 (CRP 2006a). Hence, the water security for the Andean communities remained fragile. Although community lands were legally protected against encroachment by haciendas and large landowners, much of those could not be used productively because the hacienda owners owned most water rights and controlled access to and distribution of water. Indigenous communities had to constantly struggle to get some water, as is vividly portrayed by J.M. Arguedas in his books 'Water' (1993[1935]) and 'The Deep Rivers' (2001 [1956]).

Although water injustices imposed by the *hacienda* system did not exist in the Colca Valley, the indigenous people had endured the same cultural, political and economic marginalization as other Andean indigenous communities. The stereotype of indigenous people as lazy, apathetic, and without the required masculine character to pursue their own destiny was very dominant in the ideology of Arequipa's society at the time, as it was

[66]This president astonished and stupefied politicians, intellectuals, media and the public at large by agreeing to meet one of the indigenous leaders face-to-face – Miguel Quispe – from Cusco, an illiterate, monolingual *Indian,* but well-informed about the reality of indigenous people and the dominant policies of that period (see details of the interview in Cadena 2004: 323-327).

in the entire Republic. This ideology –inherited from the Spaniards- persisted even beyond the 1950s and justified that male creoles (including white mestizos) continued controlling indigenous territories, resources, and labour.

Given the persistence of social, political and cultural injustices, indigenous leaders stood up, denouncing the abuse and exploitation of their people and the usurpation of their lands (and livestock) not only by hacienda owners or *gamonales,* but also by the State's prefects, governors and judges, including the priests (*curas*) of the Catholic Church. Their struggle for justice also included demands for the right to education and citizenship, because indigenous people were denied suffrage as illiterates (Álvarez-Calderón 2005, Cadena 2004). Marisol de la Cadena points out that illiteracy defined the possibilities of social mobility of Indians. Indians were considered less Indian, thus less backward, when they could read. The literate males of mixed-blood *mestizos* were already eluding categorization as Indians. Pro-*indigenista* intellectuals from the Andes considered *mestizos* as the authentic representatives of Andean culture. They were called *cholos*, and it is telling that this name came to be proudly used to connote the prototype of a *macho* and bold *Q'orilaso*[67]. By contrast, Indigenistas from the Coast were derided as 'effeminate aristocrats in Lima' who were not 'masculine enough' to align with the Andean culture (Cadena 2004: 167-169). Nevertheless, male *mestizos* and sons of wealthy indigenous people were already attending school (risking racial discrimination), since the formation of the new Peruvian Republic (Idem 2004).

The situation of indigenous and *mestiza* women from the rural Andes did not change in comparison with previous regimes, although they played an active role in the movement of indigenous people. Unlike men, they were not allowed to attend school (and be awarded citizenship rights), because their gender identity destined them for domestic circles. Besides this, access to formal education, and hence to citizenship, for indigenous women was a remote idea on the Nation-State political agenda prior to 1950. Even well-educated intellectual white women were denied citizenship until 1955. It is for this reason that the first half of the 20th century is also referred to as the period of 'Literate Masculine Democracy' (CRP 2011).

The claims of indigenous people for land and water justice also included the redistribution of land accumulated by the *haciendas* to communities. However such claims were omitted from the political State agenda in the 1920s. In view of the apathy and incapacity of the government to carry out the long-awaited land reform, the indigenous groups began to take justice into their own hands. In fact, in the 1930s and 1940s the first land takeovers began in the Highland Provinces of Cusco (Cadena 2004) resulting in casualties on both sides (landowners and indigenous people). Far from paying attention to indigenous demands, the government, intellectuals and landowners were determined to maintain the colonialist *status quo*, interpreting the land takeovers as 'the rebellion of hungry, irrational Indian hordes' who did not act in the national interest. Indigenous leaders were put into jail and some were assassinated. Such repression triggered widespread discontent among the indigenous population, with land takeovers becoming unstoppable in subsequent decades (1950s and 1960s). In all, the indigenous

[67] Poole (1994) correctly describes the *Q'orilaso* (translated from Runa Simi as 'golden ribbon') as the highland cowboy (possibly someone disowned and with no family), daring and very *macho*, who disregards the Law and official authorities. The *Q'orilaso* accesses resources that were denied to him by force (steals them), and even women do not escape this approach.

masses clearly started to demand political, social and cultural recognition and well as re-distribution through the (agrarian) reform (Yépez 2003).

3.3.3. Irrigation development

As mentioned in previous paragraphs, the engineers of the Technical Commissions, established by Law 2672 (in 1917), led the Peruvian water history into an era of modern and technocratic irrigation development on the Coast. Engineers supported the idea of modernizing agriculture, as part of the larger political project of developing the Nation-State. As part of this idea, they also advocated the transformation of the feudal system[68] of production into a modern and more productive system. Their thinking reflected the idea of a 'hydraulic mission' (see 1.5.2), best expressed through the construction of large-scale irrigation projects in desert areas. Thus, the first technical proposals to irrigate desert areas along the coast were launched around the 1920s. These proposals entailed the ambitious plan of transferring water from the springs high up in the Andes to the Pacific watersheds.

The period (1920-1950) is also referred to as the age of Sutton, a North-American hydraulic engineer, who was employed by the Peruvian government to make hydrological studies of all the inter-coastal watersheds (Oré 2005, de Vos 2002, also see Chapter 4). Sutton's proposals envisaged many large-scale irrigation schemes along the coast, which entailed transferring and diverting rivers from the Andean mountains. These irrigation proposals did not take into consideration existing irrigated farming systems of Andean communities located in the upper headwaters and mid-watershed regions, nor did they consider their needs for water. These plans, therefore, seriously threatened the water rights and security of those communities. The construction of large-scale irrigation only began around 1950 on the North-Coast, transferring water from the Quiroz River to the Piura River (in Piura), and from the Chotano River to the Chancay River (in Lambayeque). The main beneficiaries of this irrigation scheme were relatively large cotton and sugar producers on the coast. The construction of large-scale irrigation schemes continued in the 1960s and reached its peak during the period of the Agrarian Reform, with (among others) the Majes Irrigation Project in Arequipa (see next chapter).

It is clearly evident that the Nation-State political project of modernization and development of agriculture focused exclusively on the coastal region, while much less thought and energy was spent on the development of the Andean region. All over the Andes, violent conflicts flared up between indigenous communities and landlords. Agrarian Reform was inevitable, not only due to pressure by the masses, but also because other Latin American countries (Mexico, Bolivia, Chile, Colombia, Guatemala and Venezuela) were already implementing it. However, yet again, history denied the indigenous people an opportunity to lead the reform, because the reformist intellectuals and leftist politicians took over the indigenous struggle for land and water. The process of the reform was guided and controlled by the military State, according to the prevalent State-Nation building mission of those years, characterized by an affirmative redistribution and recognition politics, as analysed in the next section.

[68] In the beginning landlords strongly resisted the modernist ideas and projects of water engineers, feeling they could lose control over water. On many occasions, they got the chance (through political influence) to resist change and ignore the Technical Commissions' administrators.

3.4. Affirmative politics of recognition and redistribution: The Agrarian Reform (1969-1990)

In 1969, the military regime of Velazco Alvarado proclaimed the Agrarian Reform. Three strong premises guided the reformers' actions: 1) redistribution of the land (and hence water) of former *haciendas*; 2) inclusion of the indigenous population – as beneficiaries – in this project (of redistribution), no longer as Indians but as 'peasants'; and 3) modernization of agriculture as a basis to achieving economic development.

Though there was redistribution of *hacienda* land, the new beneficiaries of the reform could not control the adjudicated land yet, because the intellectuals of the Agrarian Reform convinced them to organize and manage it in the form of cooperatives (in irrigated areas), and agricultural societies with social interests (SAIS) (in pasture lands). Cooperatives and SAIS had to be administered by government bureaucrats, most of them sons of the former landlords (and often male engineers). The idea of establishing cooperatives and SAIS was inspired by Marxist ideologies, and its objective was to manage the land productively and spread benefits equitably. Although the reformists attempted to intervene to promote socio-cultural justice, they did so without taking into account existing local forms of organization and production within indigenous communities, or existing local culture and leadership capacities. This is partly why the model failed (Seligman 1992, Boelens 2008a,b, Cadena 2004, Yépez 2003).

Thus, the intellectuals of the Agrarian Reform defined not only the rules of land management (in Agrarian Cooperatives or SAIS), but also the training (or disciplining) of the new beneficiaries. SINAMOS (*Sistema Nacional de Apoyo a la Movilización Social)* was created to take charge of teaching peasants the objectives of the Revolutionary Government. SIN-AMOS, which also signifies without a 'chief', should liaise between the military government and the population for this purpose.

The land reform went accompanied with the water reform, which resulted in the enactment of the General Water Law 17752, signalling a new era for the development of a water agency for indigenous people of the Andes.

3.4.1. Water regulations.

In fact, the new General Water Law-17752, enacted as part of the 1969 Agrarian Reform, did not take the Andean communities' water management systems into account, nor the existing pluri-local water regulation. It underrated traditional authorities, local water knowledge and practices of indigenous water users. For this reason some scholars (such as Boelens 2008a) refer to these kinds of policy regulation as a 'mono-legal' system.

Although the legal ruling of the Law-17752 was diametrically opposed to the privatising content[69] of the former Water Code, it still infringed on the water rights and security of many rural communities. Firstly, the Law nominated the State's water authorities, represented by the *Administración Técnica de Distritos de Riego* (ATDR) (Technical

[69]Article 1º (of Law 17752) indicates: 'Water, without any exception whatsoever, is State property, and this ownership is inalienable and imprescriptible. There is no private property of water, or entitlement to water. Justified and rational use of water can be granted only in harmony with the societal interest and development of the country.

Administration of the Irrigation Districts), as the only ones to decide upon ways and means of granting and allocating water use rights[70]; thus dispensing with the existing traditional water authorities and community regulations to grant water rights (Oré 2005). Secondly, according to the State ranking of priorities for use, water supply for large cities and irrigation for modern agriculture were ranked much higher than the present and future needs of people in rural communities (Guerra et al 1986). In this legal context, and in addition to the prioritization of irrigation development along de coast, many communities (such as those in the Colca Valley) felt vulnerable. They observed relatively helplessly how the water sources located in their territories were being transferred to irrigate desert areas, depriving them of the possibility to use these sources and develop their own irrigation projects. I return to this point in the next chapter.

In 1979, ten years after the Water Reform 17752, the State enacted the D.S. 005 79-AA to regulate water user organizations. It states that water users have to group under the *Comisión de Regantes* (*C. Regantes*)[71], and each *C. Regantes* under the *Junta de Usuarios* (*J. Usuarios*) pertaining to a specific irrigation district. The *J. Usuarios* had to be administered by the ATDR, whose technicians even had the authority to approve or disapprove the *J. Usuarios* authorities elected by the irrigators. The aim of the law was to promote a more active participation by users in the management of water, and to ensure the availability of funds for the maintenance of irrigation infrastructures. This new norm impacted more on (and was in fact designed for) the coastal water organizations than on those of the Andean communities, where it was interpreted in different ways.

In the following sections I present some examples of how the General Water Law 17752 was interpreted and implemented at the field level, both by irrigation development intervention organizations and by users themselves. There are explanations on how this law in some cases clashed into local practices of organizing and managing water, and in other cases was integrated within local normative systems, without much resistance. It also presents the gender dimensions of the process.

A. Resistance to integrate official water authorities with local community systems: The PRODERM example

The *Proyecto de Desarrollo Micro-regional* (PRODERM[72]) intervened in the communities of Paruro, Rondocam, and Anta (province of Cusco) between 1984 and 1992. When its technicians made the diagnostic study of the area, they came to the conclusion that no (official) water organizations existed in the communities. The local people, in turn, were not aware of the existence of State water laws and norms. In consequence, PRODERM attempted to organize the users within newly formed *C. Regantes* as ordained by the official water law. New water authorities were elected, and trained to perform their duties.

[70] Article 3 (of Law 17752) states: 'Investment plans involving or requiring water as a development factor will involve the [State]Water Authority, in coordination with the other bodies of the Public Sector, to set forth the order of priorities for hydrographical systems, basins, valleys and irrigation districts, taking into account principally the programmes and actions of the Agrarian Reform, the economic and social problems and overall development policy'

[71] Small communities (less than 300 users) are usually organized in one *C. Regantes* and some nummers of *Comités de Riego;* but communities with more than 350 users are organized in more than one *C. Regantes.* In Colca Valley, sometimes, the numbers of C. Regantes are organized accorging to the local partition in moieties.

[72]PRODERM worked in various provinces of Cusco, developing different agricultural and irrigation projects. In 1992, PRODERM transferred the project to IMA (*Instituto de Agua y Medio Ambiente*), where I worked from 1994 until 1997.

PRODERM also paid attention to gender when organizing the *C. Regantes*, allowing the election of some women as general treasurers. These women were trained alongside their male counterparts not only to exert authority, but also in the techniques of irrigation.

Subsequent research in 1995 (7 years later) reported that most authorities within the *C. Regantes* had rarely been active. In many cases, nominated or elected office-bearers remained in their positions nominally from the very moment they were elected. When the *comuneros(as)* were asked why this was so, they explained that they had formed the *C. Regantes* to comply with the requirements of the development organization, who were constructing a new reservoir for the community. Elected women also mentioned that their male counterparts did not allow them to exert authority, even when they attempted to fulfilling their roles. The research also revealed that communities already had water authorities (*Qollanas,* meaning the principals), who performed different duties: water distribution, the mobilization of labour for maintenance of the canals, and celebrating water rituals. This role of water principal could be held by either men or women and was in actual practice a shared responsibility. However, these traditional authorities were ignored by PRODERM technicians. Some communities who confronted deficiencies in maintaining their infrastructure discovered that there was a widespread discontent with the new water authority's performance. This situation forced communities to revert to their former traditional authorities (see also Vera, 2004).

B. Integration of official water authority with the local water authority system. The example of the Colca Valley, Arequipa.

Other Andean communities did not offer much resistance to the newly-established water authorities which were set up in accordance with the official water law. Instead they integrated these new authorities into their existing local system of water management. Office bearers of the new and the old system worked hand-in-hand. This was also the case with the communities in the Colca Valley (see also chapter 6), and can perhaps be explained by the fact that the local water user organization had already been guided by both traditional and official water authorities since the Water Regulation 2674, issued in 1917. Although the 'mono-legal' water law 17752 did not recognize the traditional water authorities and regulations, the *comuneros* of Colca Valley persisted in maintaining and protecting these authorities (water mayors) and their customary institutions. The water mayors have played an important role in preserving the local water culture and identity since time immemorial. This traditional system of authorities offers possibilities to every *comunero* and *comunera* to serve the collective, as part of the traditional system of *cargos*[73]. This is because all water users (male and female), formally listed in the *C. Regantes* registers, are committed to assuming the traditional water charge on a rotational basis (see more details in chapter VI).

[73]In the Andes the *cargo* is a religious institution, by means of which a person is committed to serving a local deity (in this case the water deity) and the community, organizing and celebrating different rituals and festivals.

C. The gender biased interpretation of the water law.

When the *Instituto de Agua y Medio Ambiente* (IMA) implemented its programme[74] ´Integrated Participatory Water Management' in Llullucha (an Andean community in Paucartambo, Cusco), their professionals also aimed at establishing a *Comisión de Regantes,* in accordance with the water law 17752. IMA's technicians were convinced of the truly participatory character of their interventions, and were sure that every community member had benefited from the project. When an evaluation was carried out to study the impact of the intervention on gender relations, it nevertheless showed that the position of women had worsened. There were numerous reasons for this. When the community established its *C. Regantes*, only the male members of the community were registered as members, on the basis of the fact that they were the official landholders, and (more importantly) because they were considered the 'heads of the household'. No women were allowed membership rights. Even widows were excluded, because they were not landholders.

All the official members of the community and of the *C. Regantes*, as well as the engineers and technicians of IMA were men. They developed their 'participatory' project only communicating, consulting, planning and training with the 'heads of households' (as technicians explained during interviews). This resulted in the empowerment of only men, while women remained behind or even shyer than at the beginning of the intervention (See Vera 2005:109-122). Women considered themselves ignorant, even though they had learned a lot in actual practice by just watching their husbands. However, they were not convinced of their knowledge, something that undermined their self-esteem. One crucial factor in building self-esteem was access to land. Community rules and norms had denied women in Llullucha access to land (even through inheritance), because the community had little land. Ironically, one indispensable requirement to qualify for the 'Integrated Participatory Water Management' project, along with the training provided by the advisory institution, was to be an official *comunero* or landholder.

In spite of their low self-esteem, the women of Llullucha did not passively accept the fact that they received no direct benefits from the community or from the advisory institution. Knowing that community rules and norms would do nothing to grant them individual access to land and therefore to water for irrigation, they organized (through the *Club de Madres*) to collectively get a piece of community land. After they had succeeded in obtaining this community land, they were also able to insist on also having access to water to irrigate their crops. Once they obtained these two resources, they did not stop until they had become direct beneficiaries in the IMA project. More importantly, the leader of the *Club de Madres* started to participate in the community and *C. Regantes* assemblies, something unthinkable in former years. The women of Llullucha learned to build and develop their agency and capacity for action.

These different examples demonstrate that the application and implementation of the official water law sometimes went against local traditions of managing water. The case of the Llullucha community illustrates how the *C. Regantes* was perceived as a male domain by both technicians and users. The official water norm did not specify that only men

[74]The programme also consisted of water and soil conservation projects, livestock and pasture management, forestation, organic agriculture; complemented by training and credit (for irrigation equipment, agricultural-related infrastructures and tools).

could be title-holders. Instead the Law is gender neutral and states that water rights can be granted, by licensed authority, or valid user permits, to (water) users who are individuals or corporate bodies. It does nevertheless say that such users must be landholders (DS No. 57-2000-AG). In spite of this gender-neutrality, the implementers (the water bureaucracy) and water users interpret the law in a gender-biased way, following their own cultural orientations when applying legal norms. Hence, licences for water usage were granted to and registered in the names of the 'heads of household', instead of landholders. According to legal and bureaucratic culture in Peru, and in the Andean countries in general, the man is automatically and naturally considered to be the representative of the domestic unit (Vera 2006a,b). Households headed by widows are considered an exception.

A similar occasion of a gender-biased interpretation of the law was noted by Kome (2002), who found that in the Chancay-Lambayeque irrigation system (on the North Coast of Peru) only men were entitled to become users in the *C. Regantes* registers. This was justified on the basis of their land ownership, even though 41% of the land under irrigation was, in actual fact, jointly owned. That is, either both spouses had 'contributed' land when they were married, or both had acquired the land during land parcelling following the Agrarian Reform of 1969. In the case of Chancay-Lambayeque, the predominant male membership in the *C. Regantes* had its roots in how the land was distributed during the land parcelling of Cooperatives (instigated during the Agrarian Reform). The land was parcelled and given as property in the name of the 'heads of household'.[75]

As it can be seen, although the intention of the Agrarian Reform was to eliminate the water injustices of the previous 1902 Water Code, it created a new hierarchical structure that continued to threaten the water rights and security of Andean users, affecting women in particular. This injustice, in part, can be explained by the way in which implementers and users interpret(ed) and represent(ed) the identities of Andean users vis a vis others, and men vis à vis women. I elaborate this in the following section.

3.4.2. The politics of recognition: No more 'Indios', but 'campesinos'

The promoters of the Agrarian Reform not only sought to make structural changes in the distribution of wealth and property, but also aspired to bring about a change in the feelings and identities of the indigenous and mestizo population. They wanted to eliminate the racist connotation of ethnic identity attributions in rural areas, changing the label commonly used for indigenous people *Indians* into the more neutral *campesinos*. The idea was that this new 'identity' would equalize different farmers from rural areas. From now on, all farmers – Indians, *mestizos*, *cholos*, and even the *Mistis* (white farmers, '*señores*' in Spanish) would be called by the same name, and therefore be considered as equal before the law. Together with the Agrarian Reform, the education system was also reformed, with the surprising declaration of the Indian language (*Runa Simi*) as an official language, and with the inclusion of the traditions and culture as important issues in the educational curricula.

[75] Peru was no exception to such a gender-biased (re-)distribution of land. Programmes in countries such as Venezuela, Costa Rica and Chile also explicitly stipulated that the beneficiaries of the Agrarian Reform were to be '*preferably the heads of household*'; considering the head of household to be any male living in the home (Zapata et al. 1994).

In principle, the indigenous population did not object to the newly ascribed identity. On the contrary, they swiftly adopted and even welcomed it. The term *campesinos* neutrally identified them as people working on the land, or as people from the countryside. The term also allowed an indigenous farmer or water user, at least nominally, to interact with 'white' farmers as peers and equals. In everyday practice, however, the change of terms did not change much. *Misti* and white *mestizo* people continued looking down on the identity and practices of indigenous people, and continued treating them as ignorant and backward. And in spite of the recognition of *Runa Simi* as an official language, it was still forbidden to converse in this languaje in schools, as I experienced during my time in primary school (1969-1973). Also, although the Military Government of Velazco Alvarado tried to bring about structural and cultural changes, the illiterate *campesinos* could not exert their rights to citizenship as yet, because they did not have identification cards[76] - the military and electoral card (nowadays the national identification card – DNI). They had to follow a complicated bureaucratic procedure to obtain these, which was daunting especially for illiterate women. In addition, the community lands were still governed by the Constitution of 1920, which although it affirmed 'recognition' and 'protection' of the indigenous community lands, did not provide legal support to prevent the appropriation and accumulation of these lands by third parties.

Hence even though the legal and policy changes of this period seemed promising, they did not result in a fundamental cultural assertion of indigenous people. Some scholars even suggest that use of the term *campesino* may have simply swept ethnic and cultural demands off the agenda of rural organizations (Boelens 2008a, Cadena 2004, Gelles 2002, Guevara 2002), thereby debilitating rather than lending support to demands for more justice. All things indigenous and ethnic had been relegated to minority groups isolated in the Amazon jungle (Albó 2002 b), while the only identity label left for indigenous people of the Andes and the Coast that of *campesinos* (Gelles 2002). This policy of 'equalization' is one of the likely reasons that the Andes of Peru, unlike Ecuador and Bolivia, had no social movement that identified itself as 'indigenous' or 'indigenous-campesino', at least not until the end of 20th century. In Ecuador and Bolivia indigenous movements were well organized (even in political parties), playing an active and significant political role in pursuing the politics of redistribution and recognition, as well as in the project of the construction of the Nation-State.

The Constitution of 1979 marked the end of 'equalization', by granting indigenous people and communities special recognition. For instance article 161[0] declared: '*The Peasant and Native Communities have legal residence. They have autonomous rights in their organization, communal work, and land usage, as well as economic and administrative rights within the confines of the [*State] *Law. The State respects and protects the traditions of the Peasant and Native Communities [...]'.* Moreover, this Constitution granted citizenship to the illiterate female and male indigenous population older than 18 years, for the first time in Republican history. Also, it declared (in its article 163[0]) that the land of the peasant communities were indivisible, non-prescriptible, and inalienable. The last

[76]In case of Peru, to obtain the citizenship identification card (DNI), a young person of 17 years needs to obtain the military card first, which is issued after fulfilling (obligatory) one or two year of 'military service'. Most wealthy family sons were excluded from this service, while most sons of poor people, especially in rural areas had to fulfil it. In most cases women were excluded from 'military service', due to severe bureaucratic procedures. This was one of the reasons, why indigenous illiterate women had no right to a citizenship identification card. Since 2009 the military service has been changed from a compulsory to a voluntary one.

condition (inalienable) was conditional; land could be transferred when two thirds of the community members decided in favour of it, or when the State expropriated some lands for public use.

Despite this, the legal recognition of 'peasant' communities still met with some difficulties. For one, the recognition of their lands and properties as communal came a bit after the fact, as much of the land allotted under the cooperative system (i.e. irrigated land) had already been parcelled out individually among members of each cooperative, whilst most pasture lands remained communal. Secondly, it proved very difficult to define the boundaries of community lands. There were conflicts about many of these lands, because former landlords and *gamonales* had appropriated plots from neighbouring communities and set new boundaries of their private properties without taking into account the existing boundaries between communities. At the time of land redistribution (during Agrarian Reform), communities had demanded that their lands be given back to them, resulting in many disputes about the original boundaries. Especially the lands with water sources (such as springs, small lakes, fenland, etc.) were the subject of conflicts. For instance the community of Coporaque was engaged in long-standing disputes with several of its neighbouring communities (Yanque, Chivay, and Tuti), preventing Coporaque from getting recognition as a peasant community until 2007.

Given the fact that communities were facing difficulties, the State enacted the *'Ley de Deslinde y Titulación de Comunidades Campesinas' No* 24656 (Law of demarcation and entitlement of Peasant Community lands) in 1987, which granted the communities legal backing and security of their lands, including the right to manage the natural resources within their territories according to their customary norms. Although water continued to be regulated under the coastal-based water law 17752, most communities felt reassured that they could continue to manage water according to their own customs and traditions. Ironically, all these favourable legal panoramas that granted Andean communities' autonomy to manage the communal resources lasted only a short while (approximately 3-5 years), because the 1990s saw the first wave of neo-liberal reforms and programmes which un-did many of these positive (at least on paper) changes.

The next section explains how policies and processes of irrigation development occurred during the mono-legal period, further deepening the water injustices against the population of the Andes.

3.4.3. Irrigation development

During the mono-legal period, discourses on modernization of agriculture and irrigation development reached their peak. Agricultural, hydraulic, and civil engineers who engaged in the construction of large-scale irrigation projects gained a great reputation. Many of such projects were implemented along the coast: Chira-Piura, Tinajones, Majes, Jequetepeque-Zaña, and Chavi-Mochic, among others. These large-scale irrigation projects all followed basically the same design pattern as the one proposed by the famous American engineer Sutton (see also Apaclla et al. 1993). This consisted of damming and diverting water from Andean rivers or lakes to arid and desert areas of the coast. As indicated above, Andean communities did not have the legal backing to defend or claim their rights to the water thus transferred, because – as stipulated in the General Water Law 17752 – the State had supreme control over water. As a result, also the different community laws established in favour of the *comunidades campesinas* could do little to prevent water being taken away from Andean communities.

The economic growth generated by the newly constructed large-scale irrigation projects, and the accompanying Green Revolution technological package, did not benefit those Andean communities in whose territory the water originated. On the contrary, because of the transfers of water to the coast, these communities started to experience many negative impacts on their environment and social life (the drying up of local water sources, the decline in fish populations in rivers downstream, etc). Such impacts had not been predicted by the designers and water experts of the large- scale irrigation projects. The communities in question began protesting, but most of their protests and written claims were ignored or filed by the different regional political authorities (Vera and Zwarteveen 2008, see also chapters 4 and 5).

With the advent of the 1990s, new events came onto the scene with respect to water politics and Andean communities. Neo-liberal and structural adjustment policies pressured the Peruvian government to adopt many changes in order to establish the necessary conditions for the free market to do its work. The next section describes and analyses how these neo-liberal policies affected collective indigenous water and land rights, while simultaneously introducing affirmative politics of recognition.

3.5. The period of formalizing individual water rights with affirmative recognition (1990 until the period of this study (2010)

The socio-political events that occurred after the implementation of neoliberal programmes generally threatened collective water (and land) rights of communities by opening legal ways to accumulate water rights to those farmers and agro-business enterprises who could afford to pay for them. This period marked the beginning of what I call the period of agrarian counter-reforms, which started with the political decision to change the existing water regulations (General Water Law 17752).

3.5.1. Water regulations

In 1991, the government of the democratically elected Alberto Fujimori decided to revise the General Water Law 17752, and proposed a new water law and a revision of the community land regulations. The new proposed law was largely a copy of Chile's 1981 Water Code, which allows the privatization of water. However, its approval did not get far, basically because of legal formalities: the proposed law was incompatible with the 1979 Constitution, which declared that natural resources were national heritage and that therefore water and community land could not be privatized. In spite of these constitutional limitations, the State still found ways to introduce changes that would open up land and water to the free market. For instance in 1991, the State enacted the so-called 'Law to Promote Investments in the Agrarian Sector' (Legislative Decree or D.L. No. 653), repealing the Agrarian Reform Law (D.L. Nº 17716). Additionally, the Law on Registering Rural Properties (D.L. Nº 667, and G.LNº 25902) set the procedure for formalizing rural properties (public or private), through the *Proyecto Especial de Titulación de Tierras y Catastro Rural (PETT[77])*. The explicit intention of both laws was to

[77]PETT was created to promote and perfect the granting of titles of ownership and the registration of rural properties expropriated and awarded during the Agrarian Reform, and to grant title to government property. PETT finished in 2007.

stimulate the land market in general. However, water and land privatizing efforts still had to overcome the prevailing constitutional mandates of 1979. Two years later, that barrier was broken down by Fujimori's de-facto government[78] which cancelled the 1979 Constitution, replacing it with a 1993 version.

The new Constitution of 1993, along with other changes, overruled the earlier restriction of the 1979 Constitution that prohibited the buying and selling of community land. It recognized the legal existence of communities, but it did not recognize the indivisible and inalienable character of communal lands as did the previous Constitution. It only recognized its non-prescriptive condition, as Artº89 indicates: *The Peasant and Native communities have legal existence [....]. Their lands are non-prescriptive [...]';* thus opening a new legal floodgate that threatened all forms of collective access, organization and management of natural resources. Although Artº66 of the same Constitution reaffirmed the public character of natural resources, it clearly granted legitimate rights to those users (referred to by the law as 'particulars' or *titulares*) who are entitled to use water, as the article in question states: '*The natural resources, removable and non-removable, are National heritage. The State has sovereign rights on its use. The respective regulation stipulates the conditions for its use and how it will be granted to particulars. The* [legal] *concession grants the indivual entitled a legitimate right under the law'.*

Finally in 1997, President Fujimori legalized the respective regulation to incorporate the article known as the *Ley Orgánica para el Aprovechamiento Sostenible de los Recursos Naturales,* -Ley 26821- (Regulation for the sustainable use of natural resources), which indicates in Artº4: *'The natural resources located in their original surroundings whether removable or non-removable, are the heritage of the Nation-State. Products generated by these resources, and established by this regulation, belong to the entitled individuals who have the [legitimate] rights over these (resources)' (JVD).* Thus water became temporarily the heritage of the State, but as soon as it was diverted, dammed, or captured through infrastructures away from its original sources, it would belongs to those entitled individuals who have legitimate rights over it, according the Constitution of 1993.

In the meantime, the same politicians and water bureaucrats who had tried to overcome the constitutional restriction of buying and selling land, and who had paved the way to make water subject to private property, also worked hard to bring about the same changes to (privatize) the water law 17752. However, different water sectors and users began to oppose the idea of privatization, and many of them collaborated in the years that followed in preparing a participatory water law proposal. For the first time in history, in 2004, these water users presented their proposal to Congress, through their national body, the *Junta National de Usuarios de los Distritos de Riego-JNUDRP*[79] (National Water Board of User Associations). This proposal was discussed by a multi-sectorial commission, who then shelved it. In the following years, members of Congress from different parties got back to drafting proposed laws on the basis of previous work, this

[78]In April of 1992, the democratically-elected president Alberto Fujimori broke the Constitution of 1979, by an 'auto-golpe' (coup), dissolving Congress, and setting up a new 'provisional' parliament. He did this, because the Congress opposed Fujimori's efforts to adopt the policies advocated by the IMF (International Monetary Fund) and the World Bank.

[79] The JNUDRP actually represents (until 2008) 1,600,000 farmers from the Coast, the Andes, and the Amazon regions of Peru; organized in 1,488 *comisiones de regantes*. The JNUDRP is supported by the National Agrarian Confederation (CNA), and the National Convention for Peruvian Agriculture (CONVEAGRO). Supreme Decree No. 057-2000-AG regulates all the functions of the JNUDRP.

time with greater involvement by water management stakeholders in all three regions of Peru (see Oré et al. 2009). It is interesting to note here that the new proposed water laws have attempted emphatically to include recognition of and respect for ancestral rights exercised according to the *Usos y Costumbres* (uses and customs) of rural and native communities (Draft Law No. 386/2006-CR, Draft Law No. 604/2006-CR).

Discussions to improve and readapt the different water law proposals did not reach a consensus, and the debate went on (occasionally tediously) for a long period. Under these circumstances, the government of Alan García unilaterally approved (in 2008) three legislative decrees: DL 997, DL 1081 and DL 1083 and established the National Water Authority (DL 997), the National Water Resource System (DL 1081), and a law to promote efficient utilization and conservation of water resources (DL 1083). These laws, among others, clearly created the conditions to open up water and indigenous community land to the market. However, and unlike in former years, water users from the Coast, the Andes, and the Amazon regions strongly objected to these decrees. In their opinion, these laws threatened the collective rights and water security of *comuneros,* medium and small farmers. The law, they argued, favoured rich farmers and export oriented agribusiness (JNUDRP, 2008). Again the JNUDRP leaders demanded a repeal of the decrees, and instead asked for prompt approval of the water law they had proposed. They argued that different actors had worked together towards its development for over ten years and wanted it: water users, agricultural organizations, indigenous-peasant organizations and communities, and NGOs of the three Peruvian regions.

While the different stakeholders focused their attention on discussing the controversial contents of proposals for a new water law, Peru's politicians had already paved the way towards privatizing water, without much resistance by indigenous peasant communities or indigenous movement leaders. In 2004, the government of A. Toledo subscribed to the *Pacto Agrario Nacional* (PAN), the so-called 'Green Charter' (a pre-requisite for the controversial Free Trade Agreement between Peru and the United States), in which the new agricultural policies of Peru were outlined. The PAN defined eight central issues, the dominant one being: ´the sustainable use of natural resources and environmental protection´. Under this suggested title, the policy created the *Programa de Formalización de Derechos de Agua* (PROFODUA). PROFODUA was designed to grant and formalize the use of water rights individually and in blocks, avoiding use of the term collective rights. This 'formalization', although not explicitly set forth in legal wording, included (among other administrative procedures) public registration of usage rights to certain volumes of water. Such rights could be traded or exchanged by their holders, which in practice meant that conditions were in place for a market in water rights to emerge. By August 2007, some 278,199 licences had been granted (Guerrero 2007), of which approximately 98% were granted individually. These titles mainly concerned the Coast, as the interests of PROFODUA[80] were centred on the Coast and not on the Andes or the Jungle.

Finally, after 19 years of continuous struggle, the Agrarian Commission of Congress passed a new Water Law, on 15 January 2009. However, several weeks later this law – called *Ley de Recursos Hídricos* (Water Resource Law) – was amended when subjected to the President's opinion and approval. Basically, the politicians then in power (APRA in

[80]PROFODUA justifies its actions by claiming it provides legal security for agricultural users and brings order to use of water in agriculture. The Program is totally implemented by ATDR technicians and supervised by the INRENA Intendancy of Water Resources.

alliance with the right-wing political parties), changed some 'fundamental' issues in the law which had been approved by Congress, in their attempt to make it possible for water to be privatized (CCP et al. 2009). Again the enacted law met with resistance from the water users. Finally, on 30 March of the same year, the *Ley de Recursos Hídricos* (Law 29338) was officially approved by the government (APRA). There are three key features in this new law:

1) Water is considered to be a national heritage, and cannot therefore be privately owned (Articles 2 and 3); however,
2) Much of the text is copied from DL 1081, and to a lesser degree from DL 1083 (Urteaga 2009), so the legal arguments to enable water privatization are in place;
3) This law recognizes and respects customary organizational forms of peasant and native communities regarding water, and acknowledges (Art^{0} 32) that these organizations have the same rights as the official users' organizations (such as *C. Regantes*). It explicitly recognizes and respects a community's right to use their water according to each community's ancestral usage and customs. As Art^{0} 64 informs: *Rights of Peasant and Native Communities: 'The State respects the right of Rural Communities and Native Communities to use water existing or running through their land; and to the basins where this water originates, for economic purposes, for transport, for livelihood and cultural purposes, pursuant to the Constitution, norms on communities and the law. This right is non-prescriptive, prevalent and is exercised in accordance with the ancestral customs of each community".* The Law also includes: "*no Article of the Law shall be interpreted to the detriment of the rights recognized for indigenous peoples in International Labour Organization Resolution 169*'. This Article supports communities' right to be consulted, for example, in the event of third-party threats (concessionaires) to access and control water sources located in indigenous communities' territories.

By the time of the enactment of the new water law *Ley de Recursos Hídricos*-29338 (April 2009), ten large-scale irrigation[81] projects (see also Apaclla et al. 1993) along the coast, had already effectively dispossessed Andean users of their rights to local water sources. Although water is still considered a Nation-State heritage and of public interest, the State's legal and technical (infrastructure) instruments had gradually and subtly appropriated and accumulated this resource. Even though the current Constitution of 1993, vis-à-vis the new water law (*Ley de Recuros Hídricos),* recognizes the lands, the water rights, the culture and the local authorities of peasant indigenous communities, it did not prevent this appropriation taking place. Current water policy discourses do not question the existing imbalances already generated by the foregoing Art^{o} 66 of the Constitution (as referred to above) nor by programs such as PROFODUA.

PROFODUA basically favoured the farmers of the coastal irrigation region, whose collective (in 'blocks') and individual water rights (also defined in terms of volumes of water) are now legally classified in Public Registers. Guerrero (2007) reported that this programme granted 278,199 individual licences on the Coast, as of August 2007 (see table 3.3). Coincidently, as soon as PROFODUA started its work in the Andes, the funds

[81]The large-scale irrigation systems referred to are: Puyango-Tumbes (48,000 ha), Chira-Piura (119,244 ha), Jequetepeque-Zaña (66,000 ha), Olmos (112,000 ha), Tinajones (86,000 ha), Chavimochic (147,000 ha), Chinecas (44,220 ha), Majes (62,410 ha), Pasto Grande (9,304 ha), and Tacna (21,253 ha). The figures correspond to the projected irrigated area (INADE 1994).

ran out, leaving the Andean water users without the possibility to get their collective water rights recognized (legally). This may (have) negatively affect(ed) the collective rights of Andean communities to their water sources. For instance when third parties and interests (such as mining companies) demand legal concessions to these water sources, communities do not have any legal grounds to fall back on. Presently, when Andean communities look for the recognition and entitlement of their collective water rights, they have to do with their own[82], being pressured by endlessly heavy bureaucratic procedures.

The individual entitlement of water rights formalized by PROFODUA also generated gender imbalances, given that the titling process favoured mainly men. For instance, Guerrero (2007) reported that from the granted licenses, 78% were granted to male users and 22% to female users. The bias increases step by step moving from southern Peru northward, as shown by Table 3.3.

The first effects of PROFODUA are already being noticed in every day water distribution. For instance, during the First National Meeting of Female Water User Leaders[83] in Trujillo (2007), one of the presidents (a female leader) of the *C. Regantes* told about the different quarrels occurring among users because all of them try to claim the water volume fixed by PROFODUA (and to which they have a legal right), when in practice there was less water (volume) to distribute.

Table 3.3: Individual water licenses issued by PROFODUA. Distribution by gender (on the Coast)

Region	*Total Licences*	*Sample*	*men*	*%*	*women*	*%*
Subtotal North	184771	162207	132443	81.65	29764	18.35
Subtotal Centre	65477	51922	37195	71.64	14727	28.36
Subtotal South	27951	22868	15304	66.92	7564	33.08
Total	**278199**	**236997**	**184942**	**78.04**	**52055**	**21.96**

Source: INRENA (Guerrero, 2007)

Before implementing PROFODUA, the government of Peru started preparing to execute this programme without much resistance from farmers. It successfully carried out the *Programa Especial de Titulación de Tierras y Catastro Rural* (PETT), referred to at the beginning of this section. I say successfully, because the landholders felt that they had a legal right to use and control their land and nobody could take it away. PETT was a project jointly promoted by the Government of Peru and the Inter-American Development Bank (IDB). It aimed to lay the groundwork for the development of a rural land market in Peru, deemed necessary to foster productive investments in agriculture. In practice, the project consisted of 'regularizing' private ownership of rural properties,

[82] In relation to this case, I followed the process of collective water rights recognition of my own community (Silco-Mollebamba). Since the encroachment by mining companies in the communities of Mollebamba-Apurímac after 2005, the local leaders (and one of them my own brother) started to mobilize to protect and defend their water sources. In their efforts, they looked for support in the offices of the ALA and *J. Usuarios*, travelling (trekking) hours and hours to the main city Abancay. All in vain, because the water engineers denied to support these communities, unless they paid significant amounts of money.

[83] The event, also called the Third Meeting of Women Irrigation Water Users of the Chancay-Lambayeque Valley, was attended by over 300 users from different regions of Peru (mostly from the north) with the slogan: "Food security and water governance: Water Policies from a Gender Approach" (see 'Water and Irrigation' magazine No. 22, 2007 by IPROGA).

gathering rural property records, and establishing a single, automated Rural Property registration system. Only communal (mainly pastures) land was beyond the reach of PETT.

PETT also legally institutionalized gender imbalances, even when its designers did not consider gender as a component in the programme, either explicitly or implicitly. Available statistical reports obtained from COFOPRI[84] confirm this, indicating that nationwide 63% male farmers and 37% female farmers have benefited from title deeds to land in rural areas, taking effect from December 2008 onwards. The process of implementation of PETT generated many controversies, as the case of the Colca Valley illustrates.

When PETT was implemented in the Colca Valley in 2004, it was accepted with apprehension by some peasants. Others were happy, especially those who were using the land belonging to families residing in the big cities. People who were part of the community had more chance of receiving titles[85] to become owners. The process generated many conflicts among families. In spite of many who declare that there are no intra-household disputes over material resources – such as land or water – in Andean households (because Andean culture is supposed to be based on harmony and complementarity between husband and wife) (Grillo 1994, Gutierrez and Arratia 2009, Nina-Pacari mentioned by Deere and León 1998), conflicts sometimes also happened between spouses. I give one example of this below.

To start the process of land titling in the Colca Valley, the PETT engineers and technicians requested possible beneficiaries to submit: a letter from the respective Municipality[86] certifying possession of the land and a written statement by the authorities of the *Comité de Regantes* endorsing the (land) holder's registration in the Irrigators' Register. Initially most husbands, being registered as official members, were deemed eligible to register as the ones to be granted title deeds to land. In practice, however, there were difficulties which were partly due to the way the PETT forms were designed. In principle, the legal mandate indicated that if a piece of property (land) was being used by a couple, the property was to be registered in the names of both spouses. That is, both were considered eligible as owners, with equal rights to own the land. However, for bureaucratic reasons, the PETT form read: 'First Title-holder' and 'Second Title-holder'; and according to the mind-set of PETT technicians, the 'First Title-holder' was automatically considered to be the spouse registered in the Irrigators' Register, and the Second Title-holder the other spouse. This gave rise to disagreements, because many wives were the legal owners of the land, having inherited it, or having purchased it while single. In such cases, PETT registered the women as the first title-holders, even though in

[84]COFOPRI (Informal Property Formalizing Agency) is the agency currently doing the work of PETT, which was deactivated by Supreme Decree. Beneficiary data was recorded by gender from 2006 onwards, so all data is only referential.

[85]The requirements stipulated by PETT to begin the registration of titles, among other things, were: proof of using the land issued by the local authorities of the respective Municipality, accompanied by a sworn statement and signed by two witnesses, attesting to the possession or utilization of the property in question. If available, proof of ownership or documents regarding inheritance, purchase or a sworn statement about the property(ies) to be registered. Property in dispute (regarding boundaries, or with dual owners) was not registered.

[86] In case of Coporaque the community could not accredit landholders, because it did not have legal recognition at the time of PETT implementation in 2004. The community only gained such recognition in 2007.

legal and technical terms there is no difference between registration as 'first title-holder' or 'second title-holder' (to the land) and equal property rights are granted to both.

The beneficiaries of PETT, however, interpreted it differently. An involuntary (administrative) error by PETT registration staff revealed this. PETT staff had registered practically all `first title-holders' to the property rights as women. The list of the draft titles of ownership was sent to Coporaque for field validation; it was posted on the *C. Regantes* bulletin boards so that all community members could check that their names appeared on the list. The (male) Coporaqueños were astonished to find the names of their female spouses in the register (as first title-holders), rather than their own names. They found this deeply humiliating and upsetting, and it led to much sarcastic derision. They immediately demanded for the *C. Regantes* management to call a special meeting to discuss this, as the *C. Regantes* President tells:

"*Uyy, they almost lynched me […], they told me: this is unfair – how can PETT do this to us? Then let's have just women in all the positions of authority, they can just attend the meetings, do community work and all the paperwork – we men are not needed here, because the ladies appear to be 'heads of household'. […] We are going to ask you* [the President] *to resign, too* (because your wife is also listed as the legitimate owner). Therefore, *because you are no longer an official member, we are going to denounce you to the ATDR […]"*

The authorities of the *C. Regantes* had to go to the city of Arequipa (capital of the region), to ask PETT to correct these errors. When this happened, PETT technicians and attorneys tried (in vain) to convince the people of Coporaque that the terms 'first title-holder' and 'second title-holder' were mere bureaucratic formalities having no legal significance, and that under the Law both spouses had the same co-ownership rights. One said: '*the order of the factors does not change the product*'. Coporaque people didn't understand the mathematical term '*order of the factors',* and they didn't stop complaining until the final PETT registrations listed the husbands as the 'first title-holders'. Again, the lists were displayed publicly at the CR office in the main square of the town. That same day, many women, especially those already separated but (not divorced) from their husbands, protested and even swore that *'over their dead bodies, their ex-husbands would continue using their land*'.

After this incident, Coporaqueño water users, both male and female, realized the importance of being registered as 'entitled users' in the records of the *C.Regantes*. From that year onwards, many of the women who possessed land tried to gain entrance into the *C. Regantes* and in the community registers as members, especially those women married to men outside the community. When a married woman decided to do this, the official water authorities, including the community, often raised objections. For them, it went without saying that the 'head' of the household – read the man – would be registered as the official member. At the same time, members of the extended family often were of the opinion (even occasionally demanded) that women should respect their husband's status as 'head of the household' (de facto), by allowing him to be on the users' register. If a woman still insisted on her right to be the member, she ran the risk of being

labelled *machista*[87], a negative term indicating that she displayed unwomanly behaviour. Despite these barriers, many married women who owned land persisted with their demand. In fact, many women in Coporaque with partners ran the risk of being called *machistas* by succeeding to become registered as water users. By October 2006, 30% of the total members (320) of the *C. Regantes* were women. Although the percentage of women registered may seem low, 30% is quite high as compared to other regions of the country, where it is sometimes totally forbidden to accept women, even widows, as members of the irrigation organization (Zwarteveen et al. 2008, Vera 2005).

Some authors have suggested that the neo-liberal reforms create opportunities for women to individually own land (and water), increasing their bargaining power (Deere and León 1998, 2002). In Peru however, and because of how the land registration process was interpreted and implemented (based on official registration in the *C. Regantes*) by agricultural professionals, neo-liberal policies and the titling process often institutionalized existing land right disparities, favouring male users. The reports of COFOPRI (mentioned above) illustrate this.

Coincidentally, during the period of this study (2006-2008), PROFODUA (in charge of titling water) began its activities[88] in the Colca Valley, and Coporaque (along with Tuti) was one of the first Andean communities where the programme started. At the beginning, despite some suspicion, users agreed to PROFODUA, which offered to formalize their water rights in 'block'. However, when technicians began interviewing users individually and measuring their agricultural plots, users started strongly opposing PROFODUA's work. They asked their authorities to take actions to stop the program, because they were afraid that 'from then on, water fees would be higher'. ATDR engineers from Colca-Majes-Sihuas, and loyal to PROFODUA, tried to convince the leaders of the *J. Usuarios* – who are also the leaders representing each of the 36 *C.Regantes* of the Valley – to implement the programme. The local leaders of the Colca Valley communities nevertheless succeeded in paralyzing the PROFODUA activities shortly thereafter. After a process of negotiation, the local leaders and PROFODUA technicians agreed to continue the work, which would mainly focus on formalizing the collective rights of the communities to their water sources. However, a short period later (in the beginning of 2008) PROFODUA stopped, because of lack of funds.

Having described and analysed the water regulations trajectory, and after having explained how it was interpreted and implemented in practice, I move now to a discussion of the politics of recognition introduced after the implementation of neo-liberal policies in Peru.

3.5.2. The politics of recognition

The politicians in charge of implementing the neo-liberal reforms in the 1990s were also concerned about questions of cultural diversity and identity. The new Constitution of 1993, for instance, recognized the multi-ethnic identity of the country for the first time, as

[87]Residents of the community of Coporaque, as well as those of Colca Valley, use the term *machista* to refer to a woman with a tough, man-like character. Such a character is not appreciated or prized in a woman, but rather considered as a deviation from what is considered proper feminine behaviour.

[88] The activities consisted of: assessing of water flow rates, carrying out the census of users and interviews, making the inventory of the irrigation infrastructure and of the agricultural plots, among others.

Artº2.19 states: '*All persons are entitled to their ethnic and cultural identity. The State recognizes and protects the Nation's ethnic and cultural plurality".* Further, Artº89 indicates: *The Peasant and Native communities have legal and judicial rights as individuals. They have autonomous rights in their organization, their communal work, and have the freedom as to how they dispose of their lands [...]'.* Moreover, article 149 states that "*Authorities in rural and native communities, having the support of Peasant Patrols, may exercise jurisdiction and hold functions within their territory according to their customary law, as long as people's fundamental rights are not violated [...]'.*

Indeed, the Constitution of 1993, which had a clear neo-liberal flavour, for the first time, dedicated much attention to cultural diversity. Many articles dealt with the recognition of cultural difference, the right of of every Peruvian to their own ethnic and cultural identity, and with the respect for indigenous communities' autonomy, norms and traditions. However, these standards for integrating and respecting the rights of multi-ethnic indigenous-rural communities went accompanied with the establishment of the necessary conditions (article 66 and 89) to expropriate their resources, as was discussed in 3.5.1. Although the expropriation of Andean communities' land and water rights has been an on-going historical process, during the neo-liberal period this process was legally institutionalized. Thus, while the 1993 Constitution aims granting more rights and autonomy to indigenous communities, it does so without questioning (let alone altering) existing water and land injustices. This is why authors like Assies (2005: 2-3) call this form of recognition *managed multiculturalism*[89], while Fraser (1997) calls it *mainstream multiculturalism*: the celebration and recognition of cultural difference without questioning the existing structures and distribution of resources and power. The effect of this form of cultural recognition is that indigenous people, their position and culture remain marginalized. Their demands are only accepted when they are compatible with the neo-liberal project of development and capital accumulation (Urrutia 2009).

In spite of the limitations of these affirmative policies to pursue socio-cultural and economic justice, they constituted a landmark in reviving and resurrecting different indigenous peasant movements and leaders. They had begun reclaiming their indigenous lifestyles, cultural identity, and the right to be different, along with other demands. This revival has had profound effects on the political representation and participation of indigenous people in public politics. Since 2005, indigenous leaders (both male and female) have been elected in Congress. Their entrance into formal politics implied they had to cross symbolic barriers and boundaries, because of the still prevailing cultural pattern of interpretation of their identity. For instance, when indigenous legislators expressed their views in *Runasimi* (the official language) in Congress the 'white' legislators protested and tried to make it clear that Spanish had to be retained as the official language. Especially indigenous women legislators were (and still are) the target of xenophobic treatment, because (in contrast to their male counterparts) they decided to keep their own identity by wearing traditional clothes (see Photo I and II in the Annexe), and addressing Congress in *Runasimi*. By doing so, these women also demonstrated that their indigenous identity was the basis of their political agency. Congress women like Paulina Arpasi (2001-2006), Hilaria Supa, María Sumiri (2006-2011) thus firmly defended their rights to self-identification.

[89]By contrast, *transformative multiculturalism* aims to redistribute power (see also Boelens 2008 a,b).

Lending support to this revival of indigenous demands was the international environment with for instance the International Labour Organization (ILO) Convention 169 playing an important role in encouraging different countries, like Peru, to include recognition of cultural difference in their national constitutions. The indigenous movements of neighbouring countries, such as Ecuador and Bolivia, also had a decisive influence in this process. By 1995, many indigenous movements and organizations were already consolidating their political agenda within Peru. It cannot be denied that the political stability reached after the downfall of the guerrilla movements *Sendero Luminoso* (Shining Path) and *Movimiento Tupac Amaru,* allowed the (re)emergence of indigenous and peasant movements such as CONACAMI (*Confederación Nacional de Comunidades del Perú afectadas por la Minería*), AIDESEP (*Asociación Interétnica de Desarrollo de la Selva Peruana)*, CONAP (*Confederación de Nacionalidades Amazónicas del Perú*), CCP (*Confederación Campesina del Perú*), and CNA (*Confederación Nacional Agrícola*). The leaders of these movements played an active role during the discussions of different proposals of the last water law (LRH-29338) (CONACAMI 2005, AIDESEP et al. 2004).

I present an overview of the different periods of indigenous water rights' recognition and redistribution as discussed in this chapter in Table 3.4. (nex page). I use this overview in the discussion of the concluding section.

3.6. Conclusions: the currents and counter-currents of water rights redistribution and identity recognition.

This chapter has shown how in the 20th century Peruvian policy discourses on water rights and identity recognition – in combination with the predominant cultural pattern of interpretation, representation and valuation of culture and identity – have worked to subtly protect and conceal the interests of groups in power.

Official water laws and regulatory norms have, in general, been made for coastal irrigation realities, denying Andean water rights, and the existing *usos y costumbres* of indigenous communities. Though State Constitutions have offered different possibilities to indigenous communities to use and govern their lands and natural resources, the coastal water legislations in practice governed water distribution and irrigation policies in the country. At times, the water law was in contradiction with the Constitutional mandate, as was the case of the General Water Law 17752 and the Constitution of 1979. While the Constitution recognized the autonomy of communities to manage their resources according to their own traditions, the water law 17752 only recognized official water authorities, whilst water could be governed only on the basis of technical criteria.

Whatever the intentions of policies, predominant cultural patterns of interpretation and valuation of culture and identity continued to strongly influence the materialization of water rights in every day practice. The dominant pattern differentiated and separated society into superior, intermediate, inferior, etc., groups of people on the basis of ethnic, gender and cultural attributes. This, in turn, prevented those seen and labelled as inferior from governing and managing their natural resources and territory, while justifying the right of those deemed superior to govern and control it.

Andean water users, both and female and male, have always responded to State or external interventions, by adopting and adapting, confronting, and sometimes reversing

official regulations or dominant patterns of cultural representation and valuation. Ruling groups have continually changed the ways in which they articulate and legitimize their interests according to changing societal forces.

For instance, when the water politicians enacted the Water Code of 1902, the stereotype of indigenous people as being 'miserable', 'lazy', 'ignorant', 'apathetic', 'unable to work the land productively' and 'without possessing the required masculine traits to determine their own destiny', was still dominant, and even survived the Agrarian Reform (Cadena 2004, Álvarez-Calderón 2005). In consequence, landlords saw it as their moral obligation to govern and lead the *Indians*. They also continued accumulating ever-larger areas of land, needing plenty of access and control over water to productively manage them. They continued doing this even when the Constitution of 1920 granted indigenous communities the rights over their communal lands. In the case of the Colca Valley, as in the rest of high-plateau regions in the south of the Andes, the landlords' (or *gamonales)* ambitions extended to communal pasture lands with privileged water sources (*bofedales*) so that they could exploit alpaca wool. The proclaimed 'productivity' of the landlords did not contribute to the economic development or the progress of Andean regions (Manrique 1985).

Indigenous intellectuals (like President A. Leguía) and movements of the first half of the 20th century tried to redeem the 'miserable' Indians from their 'backwardness' and include them in Nation-State projects of civilization. Their efforts only resulted in minor successes, because their strategy of equalization aimed at bringing about change without restructuring the existing unequal relations of production between landlords or *gamonales* and *Indios* (or patron-client). Indigenous people demanded both the devolution and redistribution of the lands and territories expropriated by *gamonales,* and also their rights to citizenship*.* However, the politicians in charge chose to ignore these demands. As a consequence, indigenous leaders took justice into their own hands. As soon as the 'miserable' Indians with their supposedly 'effeminate character' took the initiative to reclaim their own lands, they were considered to be 'savage' and 'unruly', disobedient people who were disrupting the peace of the established socio-political order (Álvarez-Calderón 2005).

The politics of recognition implemented during the Agrarian Reform was based on equalizing principles. These denied the fundamental rights of illiterate indigenous people to citizenship, while also failing to recognize the existing practices and norms that governed their use of communal resources (like water and land). It was only 10 years after the Agrarian Reform that the Constitution of 1979 started opening up possibilities to illiterate Indians, recognizing their universal rights to citizenship. Although respectful to the indigenous population by recognizing their native language and culture, this respect was based on making their ethnic difference invisible by ascribing a new identity to them, that of peasants. This concealed existing cultural and socio-economic injustices. At the same time, the dominant patterns of valuation of culture and identity continued categorising Andean indigenous people as 'Indian-peasants' or simply as 'Indians', who were thought to be 'backward' and 'ignorant'. It continued to be considered disgraceful to converse in *Runa Simi* in schools, or in other public debates.

Table 3.4: Overview of water rights regimes and of cultural and identity rights during Liberal State (1902-2010)				
Regimes of Water Rights	**Water regulations**	**Democracy and politics of recognition**	**Identity attributions (stereotypes)**	**Indigenous water agency**
Official nominal water rights, without redistribution and without recognition 1902-1968	Water Code of 1902 (copy of Spanish Water Legislation of 1879). Private and public property of water. Nominal recognition of indigenous water regulations and authorities Water regulation-2674 of 1917. Engineers in charge of managing water. Beginning of modernization and the 'hydraulic mission' with large-scale irrigation.	Predominant masculine alphabet democracy Constitution of 1920 recognizes indigenous communities, and protects the 'Indian race' 'Indian' men and women, and illiterate mestizos without rights to citizenship Women in general, including literate ones, without rights to citizenship until 1955	Indians considered 'lazy' and 'apathetic'. Education can redeem Indians and change their status into *mestizos* Illiterate indigenous (women) are more Indian than men. Hungry and unruly Indians asking and invading the private land of *hacendados*	Traditional water authorities subordinated to landlords Indigenous (*Alpaqueros*) leaders asking for land, education and citizenship Start of Indigenous movements, in support of '*indigenistas'* movement
Affirmative redistribution and recognition 1969-1990	Agrarian Reform 1969 General Water Law (GWL) 17752 State only owner of water. Continuation of large-scale irrigation on the coast Regulation of WUA (D.S 005-79 AA) in 1979 to promote users' participation in water management Law of Peasant Communities in 1987, protecting communal resources but not water	Mixed democracy (military and democratic) Constitution of 1979 protects the land of peasant and native communities. It also grants citizenship to illiterate peasants (women and men) Quechua is declared an official language Land is allocated to males as the 'head' of the household Head of the household subscribed as members of the WUA	No longer Indians but peasants The land is for those who work on it Parcelling of the land Land and water must be managed productively. (continue with large-scale irrigation)	Traditional water authorities and customary norms are not recognized by the General Water Law, but they continue acting behind the official Law Local norms incorporate official water regulations and authorities
Formalizing individual water rights with affirmative recognition (or managed multiculturalism) 1993-untill today (2010)	The GWL 17752 is still valid until 2009 Proposals to change the 17752 since 1990 Espacial Project of land entitlement (PETT) PROFODUA, registration and titling of water rights *Ley de Recursos Hídricos* 29338. Water is still public interest	Mixed democracy (de facto and democracy) Constitution of 1993 recognizes ethnic and cultural diversity. It also recognizes traditional [water] authorities of the communities in general Constitution of 1993 opens up communal lands to the market Legal water rights registration only on the coast (favouring large-scale irrigation)	Peasants do not work the land productively, they are not entrepreneurial Communal lands can be sold	Both official and traditional (still nominal) authorities rule water distribution Indigenous women and men elected as *congresistas*

Although the professionalization and technification of agricultural production occurred, the pattern of relation of production did not change significantly. Basicly the hacienda production system and the prevailing relations of production based on the *gamonal-indio* were gradually replaced by the *gerente-campesino* model. The *gerente* was the engineer manager of agrarian cooperatives or SAIS, and he was in charge of 'educating' (disciplining) the *campesino.* The campesino was a worker (wage labourer) or member of the cooperative, without much room to control the destiny of the new cooperative. The objective of the Agrarian Reform to bring social justice by re-distributing land and water did not materialize, which is why the cooperative lands had to be parcelled out to individuals.

Female Indians were rarely included in the 'civilization' projects of the Nation-State. They were even obscured by male indigenous leaders, despite the fact that they were actively participating in the *toma de tierras* (land grabbing) process. This situation was also strongly influenced by the cultural pattern of interpretation and valuation of female identity, which confined women to the domestic realm, preventing them from participating in public realms, and hence in politics. Even literate Aristocratic women were denied citizenship status until the second half of the 20th century. However, the cases mentioned in this chapter illustrate how marginalized women took actions to gain the courage to get involved in the country's political life, eventually even acquiring positions as members of Congress.

The new neo-liberal era of economic development in the 1990s saw the strategic promotion of the recognition of cultural and ethnic difference by neoliberal politicians and intellectuals. In this framework, the neo-liberal State not only recognized the rights of indigenous people and their culture, but largely re-constructed them in accordance with its own aims and development objectives. That is, their cultural difference was affirmed but this recognition happened without a re-distribution of resources and economic benefits to redress the effects of their prior historical marginalisation. Fraser refers to this form of justice as 'mainstream multiculturalism', while Assies called it 'managed multiculturalism'.

To achieve social justice in Peru, what is needed is not just the recognition of difference (based on both ethnicity and gender), but also a transformative redistribution of land and water. Demands for these two goals (recognition and redistribution) may call for different, and even contradictory, strategies. Claims for fundamental human rights, like rights to citizenship, security, education, etc., and for re-distribution are often based on a proclamation that all are equal (what Fraser calls the 'universal recognition' of rights), whatever the social, ethnic or gender identity of a group or individual. Such proclamations of equality seem to contradict calls for the recognition of difference. However a careful distinction between fundamental rights and rights to be different is useful to assess the (effects of) strategies for claiming justice. When applied to water (security), strategies to achieve more justice involve both the recognition of the existence of plural water norms and rules (of the existing *usos y costumbres* to manage water) and the reallocation of water, or of water-related powers, rights, and public funds (Zwarteveen et al. 2005). Additionally, it also requires a critical change in dominant cultural patterns of interpretation, representation, valuation, and communication that justify and help establish cultural hierarchies. Hence, although the water reform 17752 sought to redistribute water among peasants and former landlords, it did so by ignoring the existing local arrangements to manage water, the traditional authorities, and the legal plurality in Andean and Amazonian society. The State, who had exclusive rights over

water, was the only legislative body that could define the rules to allocate water, as well as listing the priorities for its use. Communities were left without the legal backing to defend their rights to local water sources in reservoirs, and were therefore helpless in front of the diversions of water to large-scale irrigation systems of the Coast.

In contrast, the recently approved *Ley de Recursos Hídricos* recognizes the water culture and traditions of Andean and Amazonian communities. Yet, this recognition is a 'mainstream multiculturalism', because it went accompanied with the active promotion of individual property allowing powerful groups, such as agro-business companies, to accumulate water and land. PETT and PROFODUA had already laid the foundations to create private water rights, paving the way for a liberal capitalist society to emerge. Some authors, such as Swyngedouw (2005:82), suggest that the official water policy that sets out to make water rights susceptible to privatization, is a policy that aims to promote a water market, and that this leads to processes of accumulation by dispossession. According this author privatization is a process through which resources which have been collectively owned, managed or organized, are taken away from whomever or whatever owned them before, and transferred to a new property configuration based on the rules of the 'free' market. This is why Swyngedouw provocatively claims that privatization is nothing else than a legally, institutionally condoned, if not encouraged, form of theft.

What is clear is that the new water policy entails and promotes transfers of water to its 'most productive' uses, that is to uses that are most highly rewarded by the market. This market ideology, along with a continued negative cultural pattern of interpretation and valuation of culture and identity (including of place, knowledge and technology), is a recipe for further entrenching existing social injustices. For instance, it awards the diversion to and accumulation of water in the Coast, marginalizing the Andean region. This, together with a continued faith of water politicians and experts in particular forms of large-scale irrigation as a strategy for achieving progress and economic development, threatens Andean water security. The next chapter describes and analyses the case of one such large-scale irrigation project, the Majes Irrigation Project, which has threatened the water security of many Andean communities, causing not only water scarcity, but also adverse social, environmental, and economic impacts.

Chapter 4
Manufacturing 'modern' irrigation development:
The Majes irrigation project

'*The languages of development constantly visualize landscape, territory, area, location, distance, boundaries […]. Spatial and organic images and metaphors have always been used to define what development is and does*'.
Slater (1993, cited by Crush 1995: 7)

4.1. Introduction

Having described and analysed how consecutive laws and policy discourses offered different possibilities to indigenous people to claim and defend their rights to water and to citizenship, this chapter describes a specific case of how these water policies affected the water security of Andean communities of the watershed of Colca. The State favoured the development of market-oriented irrigation on the coastal region over support to existing mountain irrigation systems in the Andes. This explains the construction of the large-scale irrigation systems along the coast, among which is the Majes Irrigation Project (MIP). I argue in this chapter that the development model that was thus promoted was based on an extractive system of production, with the appropriation and accumulation of resources and capital in the hands of a few.

The chapter first describes how this mission has proceeded, spatially and temporally, in the catchment of Colca-Majes-Camaná, and the historical and geo-political scenario in which the Majes Irrigation Project (MIP) was launched. The politicians and hydraulic engineers discursively constructed images and 'truths' about water scarcity – for instance based on distinctions between barren and fertile lands, between modernity and progress, or between commercial versus subsistence farmers – to justify the complete diversion and transfer of water from the Colca River (the upper part of the catchment) to the desert areas located at the lower part of the catchment. The project consisted of two stages: Majes-I to irrigate the *Pampas de Majes,* and Majes-II to irrigate the *Pampas de Sihuas.* However, the MIP did not take into consideration the irrigation necessities of the agricultural lands of sixteen communities of the Colca Valley, situated alongside the Colca River. The position of the indigenous peasants of the valley, vis-à-vis the MIP, was therefore one of marginality and invisibility.

The second section studies how the transfer of water from the Colca River was made possible. A highly sophisticated infrastructure was designed, consisting among others of four dams, and many inter-Andean tunnels and canals. The Majes Consortium (MACON), with funding of the World Bank and the Inter-American Development Bank, was in charge of constructing the infrastructure of the first stage of the MIP. I explain the design and the power of this hydraulic infrastructure in the third section. In this section, I also discuss how the State created an autonomous authority (known as AUTODEMA) to operate and maintain the irrigation infrastructure of the MIP, and to train farmers to transform the deserts of the *Pampas de Majes* into a green and productive area, based on a package of 'green revolution' technologies.

The third section looks at the changes occurring once the system became operational: many unexpected and undesirable social, economic and environmental effects soon

became apparent. Many water springs for instance started to dry up, because of the drilling of the tunnel-canal of the MIP alongside the left bank of the Colca Valley. In most of the downstream areas of the catchment, the agricultural lands of the inter-coastal valleys became polluted because of the intensive use of agrochemical products in the *Pampas de Majes*. I depict these effects and impacts of the MIP in the fourth part, and use the consequent section to discuss the investments and costs of the manufacturing of modernity and development that the MIP entailed. The Peruvian Ministry of Economy and Finance is aware that this investment is excessive, and that is almost impossible to recover. I compare these excessive public investments in irrigation development in the Coast with those of different communities of the Colca Valley. Finally, the last part presents the conclusions of this chapter.

To understand the manufacturing of modernity and irrigation development in Peru, I draw on the concepts of hydraulic mission and modernity introduced in section 1.5, which I complement with the concept of 'Empire'. The Majes project, conceived in the first quarter of the 20th century was fundamentally linked to ideas about modernity and development, scientific technology, and productivity. Although the history of irrigation development in Peru has shown different nuances, from engineering projects (infrastructure period) to more integrated projects (social-engineering period), they have followed a common pattern of top-down, standardized, public planning. In general, a sense of superiority, reason, objectivity and hence authority characterized the water bureaucrats responsible for this project. Specific discursive representations of reality used by water engineers have been instrumental to maintaining their authority, as for instance manifested in feasibility studies. The strongly normative character of such documents usually remained implicit, with the presentation of the planned irrigation projects and infrastructure as purely technical procedures, as apolitical, neutral instruments for increasing production and productivity, efficiency and economic development.

Large-scale irrigation systems, such as those fed by the Majes canal, have often generated extractive systems of production, benefiting a small group of powerful people that build up wealth by accumulating land, extracting water, and other local resources. Van der Ploeg (2006b, 2008) refers to such an extractive system as 'Empire', and his analysis shows that Empire may be based in the control of particular commodities (such as food processing), or indeed water, or agricultural (irrigation) equipment, and construction materials (such as cement). Such an 'Empire' system accumulates wealth without investing too much capital and grows at the expense of people's poverty, appropriating resources (labour, land, water, etc.) eliminating local farming systems, and weakening the local cultural identity. 'Empire' also generates water and land scarcity so that people need to 'sell' their labour cheaply. The concept shows how spaces of poverty are linked to (and indeed exist because of) spaces of richness. (Public) investments in the latter and extraction of local resources in the former thus create and maintain a specific social and political order. It is this ordering which is introduced in this chapter, and Chapter 5 looks at struggles within and around it.

4.2. The Colca watershed: a geopolitical scenario for the making and un-making of development

As explained in chapter one, the area of this study comprises three sub-catchments of the Colca-Majes-Camaná (CMC) catchment: the Colca, the Sihuas and the Molles, all of them

situated in the western Andes and part of the coastal region of Arequipa, in the South of Peru (see map 1.1). Each sub-catchment presents its own climat and hydrological conditions, varying from a very humid and cold regime in the upper part to a very dry and tropical regime in the bottom of the catchment. The Colca sub-catchment is considered to be the most important fresh water reserve of the CMC catchment because of the abundance of different sources of water in the upper part with snow-capped mountains (Mismi, Hualcahualca, Huarancante, Ampato, etc), Andean *paramos* (or tundra), and lakes. These sources of water have allowed the people living in the Colca Valley to develop a highly productive irrigated agriculture.

Before explaining the making of the Majes Irrigation Project (MIP), I consider it relevant to elucidate the images created that shaped the history of irrigation development, also explaining the importance of water in the Colca Valley, the place from where water is diverted to MIP.

4.2.1. The Colca Valley: a place of 'barren' lands and 'scarce' water? A historical context

As already described in Chapter 1 and 2, the inhabitants of the Colca Valley (which pertains to the province of Caylloma) affiliate their ethnic (water-based) identity with the two snow-capped mountains existing in the province: the Collaguata and the Hualca-Hualca. They consider these mountains as the place of origin of their ancestors of the Collagua and Cabana cultures which existed in the valley before the Inkas. There is evidence to suggest that indigenous people have practiced irrigated agriculture in the valley for centuries, with some studies tracing irrigation back to around 300 years A.D. (Malpass and Vera 1990, Treacy 1994). People belonging to the different civilizations which inhabited this valley constructed sophisticated agricultural infrastructure – around 12,000 hectares of terraces, canals, reservoirs, *qolqas (*granaries), etc. – and developed a complex organization to govern and manage water.

Thanks to its sophisticated agriculture and irrigation technology and water organization, the Collaguas and Cabanas became one of the rich[90] kingdoms of the Southern Andes (1200-1476 A.D). Their wealth attracted the interest of the Inkas, who strategically (even before starting to conquer the different regional states of the Southern Andes) planned to control the Collaguas and Cabanas through a marriage covenant. Through this covenant, the Inkas were assured of the food, water, and labour (among others) they needed to carry out their conquest plans safely. Although the Inkas established their administrative centre in Coporaque, they governed the Callaguas and Cabanas for only 58 years (1476-1554 A.D), until the Spanish arrived in the Valley in 1554 (Málaga 1977, Orihuela 1994).

As soon as the Spanish colonizers arrived in Cusco (the main city of Inkas), they learnt about the wealth of the Collaguas and Cabanas region (Málaga 1977). This is probably the reason why Francisco Pizarro (the main chief of Spanish colonizers) gave the *Encomienda* or *Repartimiento*[91] of *Yanque-Collaguas* to his own brother Gonzalo Pizarro (Manrique

[90] Wealth in ancient Peru was mainly equated with the abundance of food and wage labour, the reason why the construction of agricultural infrastructure and granaries (*qolqas)* were essential.

[91] Encomienda or repartimiento consisted in allocating a number of indigenous people and territories to a Spanish governor (*encomendero)* by the Spanish crown. Indigenous people had to pay a tribute (labor force, food, clothes, livestock, etc) to this governor.

1985, Pease 1997). When the first Europeans arrived in the Colca Valley, they were positively surprised by the high level of development of its agriculture and water management, and about the abundance of food. The Spanish found around 60-70,000 people living in the valley, whose food security was based on irrigated agriculture and Andean camels' livestock (Pease 1977, Treacy 1994). However, 30 years after the Spanish invasion (1570 A.D), the Callagua population had dramatically decreased to 33,900. This decline continued in the coming years[92], reaching 23,869 inhabitants in 1586. This human mortality, in addition to the capture of wage labour for mining activities, had immediate negative effects on agricultural activities (Málaga 1977, Manrique 1985, Pease 1977). Especially the maintenance of irrigation infrastructures was neglected, creating a drastic lack of water for irrigation. Something similar is likely to have happened throughout the Andes (Boelens, 2008a). As a consequence, the indigenous people of the Colca Valley abandoned almost two thirds of their agricultural area or terraces (Guillet 1990), such that when one of the Spanish chroniclers (Ulloa de Mogollón) arrived in this valley in 1586 he considered it to be unproductive and dry. As he explained in his own words: '*[…] downstream* [of Colca River] *where it seems a valley is populated by the rest of the Collaguas Indians, […]; and it is very thin* [infertile] *land that does not yield crops […] and sterile lands and scarce water[…]*' (Ulloa de Mogollón [1586], mentioned by Orihuela 1994).

The Spanish picturing of the Colca Valley as being sterile and unproductive influenced how the landlords of the Republic saw it. This is probably why a hacienda system was never established in the valley. However, as mentioned in the previous chapter, the high profitability of alpaca livestock changed the appreciation of the valley lands. The abundant wetlands and paramos of the watershed of the Colca started attracting the attention and greed of landlords, not only to exploit alpaca wool, but also to use these water sources for irrigation proposes. Hence, since the early 1890s 'white' Arequipeños saw the valley as a reservoir of water, that would make possible the development of market oriented agriculture in its desert areas, located in the downstream lowlands of the CMC, like those of *Pampas de Majes* and *Pampas de Sihuas*.

4.2.2. The Pampas de Majes and Sihuas: 'green' and 'fertile' land

The *Pampas de Majes* and *Pampas de Sihuas* extend between the Colca-Majes River and the Sihuas River, between 800 and 1200 metres above sea-level. These pampas represent a vast desert area[93], without much possibility to develop agriculture, because both rivers cut deeply through these arid lands, forming a 'U'-shaped valley (around 100-1000 metres from side to side) (see also map 1.1). The alluvial soils of this valley are fertile, which in combination with the tropical climate (maximum 30^{o}C and minimum 12^{o}C), creates ideal conditions for the development of highly-productive agriculture. When the first Spaniards arrived in this valley, they recognized its productive value, and strategically appropriated these lands to be used under the hacienda system, which was prolonged until the Agrarian Reform.

[92] The census of 1604, according to Vazquez de Espinosa (mentioned by Treacy 1994: 165-167), reported a catastrophic collapse of the female population in relation to the male population. In some *Encomiendas*, like Collaguas, female mortality was 42 % higher than male mortality.
[93] The Pampas de Majes was cultivated from 1983 onwards.

Next to the beneficial productive conditions of these narrow valleys, what added to their attractiveness was their strategic geographical location close to the Pacific Ocean (presently alongside the main coastal road the Panamericana Highway), and almost within one hundred kilometres (120-180 km) from the main 'white' city of Arequipa. Because of this strategic location, both pampas became part of the projects of the *criollo* society of Arequipa, who saw possibilities to turn these pampas into green gardens. Cultivating the pampas would also expand and reinforce their geopolitical strength along the coast, which in turn would favour easy access and ready connections to different markets in important coastal cities in the South: Moquegua, Tacna, Mollendo, including Lima (the capital of Peru). In this way the *Pampas de Majes* and the *Pampas de Sihuas* became the object of development of a powerful group of Arequipeños, whose political ambitions were linked with those of the bureaucracy and the State's politicians. They realized this ambitious development through the Majes Irrigation Project (MIP).

4.3. The Majes Irrigation Project: its powers and effects

In the previous chapter (point 3.3.3) I explained that the construction of the first large-scale irrigation projects in Peru (after the 1920s) was guided by a then predominant mind-set of State politicians and water engineers who strongly believed that developing water resources would spur productivity and economic development and thus provide the backbone of the larger project of building the Nation-State. The engineers of the Technical Commissions (established by Law 2672 in 1917) thus embarked on the mission to study the water development potential of Peru, and came up with proposals to develop the existing water resources. Their ideas were inspired by, and reflected, the so called 'hydraulic mission'.

The MIP is a large-scale irrigation system that aimed to turn 22,000 hectares of the desert area of the *Pampas de Majes* and 34,000 hectares of the *Pampas de Sihuas* into agricultural land. To this end, the MIP diverts water from the Colca River to the *Pampas de Majes,* through a complex system of dams, tunnels and canals. The construction of the project started in 1971, and it began operating in 1983. Plans to bring water from the Andean rivers to irrigate Arequipa's arid coast have existed since 1894. However, transporting water posed technical difficulties that were not easily solved. It was not until the 1940s that a first realistic plan was made, when (in 1946) engineer Sutton drafted a concrete proposal to use water from the Colca River (formerly called *Hatun Mayu*) to irrigate both pampas.

4.3.1. The main protagonist of the Majes Irrigation Project: Engineer Sutton

As mentioned in the previous chapter, Charles Woods Sutton was a North-American engineer, who was contracted to study and prepare proposals to develop irrigation along the Peruvian Coast. Sutton was highly respected as an engineer, and his ideas and proposals were considered as authoritative and scientifically sound by water bureaucrats and politicians in general. He promoted the modernization of the existing Peruvian pattern of agriculture (the haciendas) on the coast, and wanted to transform this into a medium scale market-oriented agricultural system (Oré 2005, Vos 2006). Basically, he proposed public investments in large-scale irrigation projects to make new areas suitable for agriculture. His attention was strongly focused on the desert areas of the coast, with thousands of hectares of sandy soil that could potentially become productive through irrigation. The main necessary work would be to capture and store the waters of the

narrow inter-coastal rivers, by constructing dams, and transporting this water to the coastal deserts. The MIP would also make water and land available to a vast poor population in the Arequipa region, turning them into productive and modern farmers, which in turn could drive the economic development of the region.

During the first pre-feasibility studies, Sutton and his group changed the original name of the river *Hatum Mayu* (or Big River in *Runa Simi*) to Colca River. This name referred to the origin of the river located at the *Q'ollqa Huallata* highland, at 4200 metres of altitude (Orihuela 1994, see also chapter 2). When the Cayllominos first heard that the *Hatun Mayu* was called by a different name by public water bureaucrats , they did not realize that this change would mark the beginning of a series of water injustices. They could not yet predict the spatial and political reach of the MIP's power, entailing control and management of their local resources, identities and territories.

In 1966, a group of Arequipa politicians and engineers presented the study and proposal of Sutton to the State President Fernando Belaúnde-Terry (also an Arequipeño), in an attempt to find support for beginning the construction of the first stage of the MIP. In those years no one doubted the proposal's scientific and technical validity. Politicians and water bureaucrats were enthusiastic at the prospect that the MIP would be one of the most important modern irrigation projects in the Southern coastal region. Thus, Sutton's study was approved immediately, without much objection. The year after, in 1967, the State and the *Junta de Rehabilitación de Arequipa* secured external funding for the project from the World Bank, the Inter-American Development Bank (IDB) and other international banks. In the same year, they signed an agreement with the Majes Consortium (MACON), in charge of constructing the MIP. The MACON was a subsidiary group of international companies from Sweden, the United Kingdom, Spain, Canada and South Africa. MACON would be in charge not only of the construction, but also of the final design, and the first operation of the hydraulic system. MACON's professional staff were mainly foreigners (Apaclla et al. 1993, AUTODEMA 1996, Málaga 2010, Zegarra 2010)

In 1971, the leftist Peruvian president Juan Velazco-Alvarado gave his legal and economic support to start building the MIP. He decided that the revolutionary project would not employ local people for construction work. Instead, the whole labour force would be hired by the MACON team. This is what Boelens (2008a: 198-199) has called the *mita* expropriation in modern times, or the 'new reciprocity pact': it effectively implied an externalisation of the powers of control and decision making from the people living in the region to outsiders. The old form of *mita* consisted of people contributing free labour to the construction of public works (roads, bridges, irrigation canals, etc.). By doing so; they also gained (future) rights to use these. In the new *mita*, people get paid for their labour and are no longer considered as active participants and decision-makers of the project. They also have no means of constructing any (future) claims to the benefits of the project. This was an important reason why local people later referred to the MIP infrastructure (until the present day) as the canal of *MACON*.

The MACON project did not include the different communities located alongside the Colca River as beneficiaries of the MIP, even though they also depended on (the same) water for their agricultural activities. When Sutton started the hydrological study of the Colca River, he perhaps reached the same diagnosis as Denevan in 1986. Denevan calculated (using aerial photographs at the scale of 1:17,000) that 61% of the terraces of the Colca Valley were abandoned because of water shortage (Denevan 1986). Perhaps because of this, and because of the 'low' productivity on the terraces, the engineers were not

interested in the agricultural potential of the valley. They may have had the same appreciation of the Valley as the Spanish chronicler Mogollón in 1586, qualifying it as a place of 'sterile' lands, and 'scarce' water. In any case, the engineers agreed with the Arequipa planners to turn their gaze away from the valley to realize their dreams of irrigation development in an 'ideal' geographical location: the almost barren desert area on the coast, in the *Pampas de Majes and Sihuas.* The planners and engineers intended to convert this desert – at almost any cost – into a vast green tropical paradise.

When the 16 communities of the Colca Valley (32,000 inhabitants, according to INEI 1960) realized their exclusion from the MIP, they immediately started protesting and with effect: the State promised to include them in the project. It was on the basis of these promises that the local communities agreed to collaborate with the MIP. They allowed the destruction of their arable lands and terraces to open roads; they supplied water needed to mix tons of cement (even instead of watering their crops), as well as food, labour, and horses or donkeys (for transporting materials) (Gelles 2002).

When the main hydraulic infrastructure was finished in 1983, and when the first flow of water was transferred from the Colca River to Sihuas (in just 11 years), it commanded respect and admiration from the Arequipeños and from everybody who could see what they called this 'monumental, grandiose' infrastructure. Yet this new monument did not offer any possibility for local communities to access the water it transferred. On the contrary, the design aimed to transport all the water to the desert area and did not allow for water to be diverted to communities in the Valley. The infrastructure was even constructed to minimize the possibility of human interference, by making it 'tamper-free'.

4.3.2. The 'neutral', 'invisible' power of the hydraulic structure design of MIP

The hydraulic design of the MIP project consists of a sophisticated network of dams, tunnels, aqueducts and canals. In total, there are three dams. The first one, called *Embalse de Condoroma*, captures water from the Colca watershed (3,360 km^2) almost at the beginning of the trajectory of the *Hatun Mayu*. The reservoir behind the dam is situated on the river bed, at 4,058 and 4,158 metres altitude, while the river itself originates at 4,850 metres in the wetlands of *Qollqa Huallata*, as already mentioned in chapter 2. The storage capacity of the *Condorama* dam is around 285 MCM (million cubic meters) of water. In practice it stores between 180-250 MCM, depending on rainfall and runoff.

The stored water is released (through a regulated flow of around 8 m^3/sec) into the Colca River, and 70 km downstream the water is captured in another dam-intake, named *Bocatoma de Tuti* (see also map 1.1. in chapter 1). This intake was also constructed on the bed of the Colca River. The intake of *Tuti* is situated at 3,730 metres altitude and lies 700 meters upstream from the community of Tuti, one of the first agricultural villages of the Colca Valley. It was designed not only to capture water from the *Condoroma* dam (and in the future from the *Angostura Dam)*, but also to capture all the water flow (276 MCM) from the upper-intermediate part of the Colca watershed. At the *Bocatoma de Tuti*, the complete flow of water (see photo 4.1) is transferred to the Sihuas River (located in another watershed, the Sihuas) through a system of canals and tunnels. By diverting all the flow of water at this point, around 300 km of the river downstream remains dry, at least during seven to eight months of the year (dry season).

The system of tunnels and canals consists of 17 tunnels (the longest one is around 15 km) totalling more than 88 km in length, which crosses the rocky, massive Andes on the left

bank of the Colca River until almost the last village of the Colca Valley (Pinchollo). Here, the water is channelled into 13 km of open canal, almost one quarter of which flows through artificial tunnels. This system reaches the upper part of the Sihuas watershed, in the gully of *Huasamayo*. At this point water is released into the Sihuas River.

Photo 4.1: Reservoir-intake of MIP: Bocatoma de Tuti

Source: Juana Vera, field research, August 2006

In principle, the tunnels and canals are designed to convey 34 m^3/sec of water. They will however only be transporting this amount when the Angostura project is realized, also named Majes II. Presently, only 10-15 m^3/sec of water is transferred. Alongside the tunnels, some 'hidden intakes' have been constructed in order to capture water from the different springs alongside the left bank of the Colca Valley (Testimony of the president of the *J. Usuarios* of Colca, 2006). These springs were the sources of irrigation or drinking water supply of different communities situated on this part of the bank.

The third dam, *Presa de Tipay,* has been constructed 30 km after *Huasamayo* on the Sihuas River, close to the villages of *Tipay* and *Lluclla* (at 1,665 metres of altitude). From there, water is conveyed to the *Pampas de Majes* through a 5 km long open canal and 10.5 km of artificial tunnel (pre-fabricated from cement). At the end of the MIP main canal, different secondary and tertiary canals, reservoirs and other complementary hydraulic infrastructure have been constructed in order to capture, deliver and distribute water among the 2,587 new water users.

Finally, the fourth dam, *Represa de Angostura*, will be constructed in the near future, on the rich wetlands of Angostura, which are part of the Apurímac catchment[94] and are located within the territory of Espinar in Cusco. This dam is designed[95] in such a way that

[94] As is well known, the *Apurímac* watershed is the headwater of one of the biggest catchments in the world, the Amazon Basin, covering 6,145,186 km2.

[95] The complete hydraulic design includes the construction of 16.5 km of tunnels, divided into two sections: the *Pucará* tunnel of 7.1 km and the *Trasandino* tunnel of 9.4 km (see also map I in the Annexe).

it captures water from the *Angostura* watershed (1,290 km^2, at 4,200 metres altitude) to transfer it, through inter-Andean tunnels (See Map I in Annexe), to the Challhuanca River, which joins the Colca River 35 km downstream from the dam of Condoroma, almost halfway upstream from the dam-intake of *Tuti*. At this point, water is diverted to *Pampas de Sihuas,* using the same infrastructure of the MIP (see Map 1.1). The planned storage capacity of the *Angostura Dam* is 1,290 MCM, and it will release 30 m^3/sec of water to the Colca River. The *Angostura Dam* has not been constructed yet, because it faced many political and economic obstacles[96]; however it is due for construction in the next few years, because powerful interests are behind it, especially big agro-industries and trans-national companies.

The MIP included in its design the development of roads, bridges, the generation of electricity, as well as the resettlement of the direct (land and water holders) and indirect beneficiaries (agricultural traders, bankers, technicians and engineers, etc.). The layout and size of irrigated plots, the prescribed cropping patterns and all agricultural support and credit services were geared towards an ideal-type of 'modern' farmer. People eligible to become settlers on the newly irrigated lands were selected to most closely match this ideal-type (see Zwarteveen 2006).

To turn its modernist dreams into a reality, the State created a legal institution with autonomous powers of authority, called *Autoridad Autónoma de Majes* – AUTODEMA (Autonomous Majes Authority). AUTODEMA is in charge of the maintenance of the hydraulic system of the MIP, along with promoting the agricultural package designed for farmers. In relation to this point I agree with Escobar (1995a), who states that the main 'trick' for modernization and development is to create modern institutions as an effective, efficient 'machine' to establish and maintain the desired and designed development dream.

4.3.3. The technical advisor authority of MIP, AUTODEMA

The autonomous authority of Majes or AUTODEMA has been assigned to maintain the major infrastructure, allocate and regulate water distribution, and control the efficient management of water in the *parcelas* (plots) according to the designed irrigation module. This last task is being assumed together with the official water technicians and the newly created State water organizations, the *Comisión de Regantes* and the *Junta de Usuarios of Majes*. AUTODEMA has also been in charge of organizing the allocation of newly irrigable plots to new farmers. In addition, AUTODEMA is responsible for promoting market-oriented agriculture based on the 'green revolution' model.

When the first beneficiaries of the MIP started to cultivate the newly allocated desert lands, it turned out to be a mammoth task to turn the salty arid, stony soils of the *Pampas de Majes* – classified as *Entisols*[97] by agronomists – into irrigable and fertile farm land. As

[96] One of the regional newspapers, 'El Gran Sur/La República', published (the 29th of June, 2006) an article with the sensitive title: '*Represa de Angostura podría generar nueva guerra del agua entre Cusco y Arequipa'.* (Angostura Dam could trigger new water war between Cusco and Arequipa). This article outlines the different official actions taken by Cusco's regional authorities to protect the interests of the communities that will be affected, and to avoid possible future water conflicts with the Arequipeños.

[97] Entisols in general are very 'young' soils, which have not developed any cultivable horizon yet. When these soils are in arid, dry areas, they do not contain any organic material, silt, or clay at all, which are main indicators of soil fertility.

soon as water entered a plot, it seeped away and disappeared among the sand and stones in a matter of seconds. Farmers had to work for many years to clean the soil from salt, get rid of the stones and thus obtain arable land. In this initial period, almost the only crop these first farmers could grow was alfalfa (*Medicago sativa)*, used as fodder for dairy cattle. In fact, dairy farming became a 'gold mine' for the trans-national milk company 'Leche Gloria'.

The MIP farmers were a very heterogeneous group, with some coming from Andean communities (a small part), some *criollo* farmers from the coastal valleys, some agricultural technicians and agricultural engineers, and a large group of professionals (middle class people) from the city who had the economic means to buy a *parcela.* Every water user had a very different background and different water knowledge and culture. Most of the new right-holders hired skilled people to help them to irrigate. These were called *Kamayoq,* who use to irrigate in the *campiñas*[98] of Arequipa. The *Kamayoqs* did what they could to manage water in the arid *Pampas de Majes*, but they could succeed only by using huge amounts of water. The initially designed irrigation module for the MIP was 0.54 l/s/ha. However, because of the physical conditions of the arid soil, in practice farmers used double or triple that amount. Water availability was never a problem in the *Pampas de Majes,* not in the first years at least. Thus, the MIP farmers and *Kamayoq* could use as much water as they wanted. The AUTODEMA technicians turned a blind eye, and ignored this breaking of norms, allowing farmers to use water on demand. This practice had, and still has, many unintended negative consequences on the surrounding environment, such as salinization and sand inundation of the agricultural land of Sihuas and Quilca Valley (I return to this point in section 4.4.2).

When the AUTODEMA technicians wanted to 'get firm', obliging farmers to follow the designed irrigation module, it proved difficult to change established practices. Full training and module control barely reduced the average irrigation module from 0.92 l/s/ha to 0.82 l/s/ha during the years from 1994 to 2000 (see Table 4.1). Before the 1990s, irrigation modules had exceeded 1.2 l/s/ha, because the first irrigated plots were quite stony and free-draining. These disappointing results were partly because the AUTODEMA technicians were training plot holders, when in practice the *kamayoqs* were the ones who irrigated the *parcelas.* The assumption that full training in modern water management would achieve full modern agriculture thus proved wrong.

As could be anticipated, the affected farmers in the Sihuas and Quilca valleys started to protest and mobilize against the MIP and AUTODEMA, demanding immediate re-orientation and 'adjustment' of their 'highly' modern, efficient technology in order to avoid future disasters in the entire valley (more details about these farmers' struggles are described in the next chapter). However, the AUTODEMA technicians, obedient to the regional politicians, paid no attention to these protests, nor to the ecological and environmental vulnerability of these valleys. On the contrary, they tried to minimise and render invisible, the negative impact of the MIP since they were simultaneously acting as evaluators and as judges of the environmental effects of the project. They had the technical authority and power to construct a 'reliable', 'objective' reality to try and obscure the MIP effects and its impacts

[98] The Arequipeños use the word *campiñas* to denote the green and fertile lands and terraces surrounding the 'white' City. The common characteristic of these soils is that they mainly originated from both volcanic lava and arid soils of the coast. The *Kamayoqs* are masters in irrigating (surface irrigation) this kind of soil.

Table 4.1: Evolution of irrigation module values in the Pampas de Majes							
	1994	***1995***	***1996***	***1997***	***1998***	***1999***	***2000***
Regulated total[1] Water availability (l/s)	9771	9973	9587	9449	9770	10390	11477
Irrigated area (ha)s	10604	12262	11971	12000	12450	13342	15012
Irrigation module(l/s/ha)[2]	0.92	0.81	0.80	0.79	0.78	0.78	0.82

Source: AUTODEMA, 2001
[1] Water volume regulated at the *Bocatoma de Tuti.*[99]
[2] Average annual value

4.4. The effects and impacts of the MIP

The beginning of the MIP was also the beginning of a series of water injustices and socio-cultural disruptions of the inhabitants of the Colca, Sihuas and Quilca watersheds. In the words of van der Ploeg (2006a, 2008), it was the beginning of the usurpation of the people's resources. This was clear from the very moment the first technicians started the hydrological study of the Colca River, when they changed its name from *Hatun Mayu* into Colca River.

4.4.1. The first effects

The moment that the construction of the MIP infrastructure started, the indigenous peasant people from the Colca Valley felt that many of their rights had been violated: their water security, food security, land rights, and their cultural and human rights.

Once the MIP tunnel and canal were constructed, many springs, situated on the left bank of the Colca River, started to dry up. This happened because water was captured through many 'hidden' intakes into the tunnels, stopping the subterranean seepage feeding these springs. The peasants in the eight villages[100], who relied on those sources to irrigate their crops, suddenly had to confront and deal with water shortages. At first, they tried to endure these difficulties, because the politicians and also the MACON promised to restore the lost water flow, and also to give them access to additional water. At that moment (in March 1983) when the Colca River water flow was completely diverted at the *Bocatoma of Tuti,* and they had no possibilities to access that water, the Colca population started to understand that the State had neglected them completely. They felt disenfranchised; according to a water user from Tuti:

> *'The MACON lied to us. They told us that they would construct a big reservoir for us, but it was for diverting water from our river to the Pampas of Majes […]. Our grandparents called this river Hatun Mayu* [big river]*, because it brought abundant*

[99] More recent records document that the flow at the third reservoir-intake of Tipay thus also includes water diverted from the Sihuas River (as well as the Colca River). This is almost twice what is recorded at Tuti and along the canal course. As this discharge supplies new settlements as well as irrigators, the irrigation module cannot be calculated directly as before.
[100] These villages, beginning from the upper part, are: Canocota, Chivay, Yanque, Achoma, Maca, Pinchollo, Cabanaconde, and Huambo.

> *water all year round; that is why they started to construct canals to use this water for our fields. But now, we cannot use it anymore'.* (Testimony of A. Mamani-Cutipa, community of Tuti, June, 2006)

The entire valley started to experience the downstream effects of the water flow deviation at the *Bocatoma de Tuti.* More than three hundred kilometres of the river regularly run dry during eight or nine months of the year, only achieving its normal flow level during the rainy season (January-March). When this happens frequently, the area may turn into a closed watershed. As a consequence of the drying of the downstream part of the river, also the fish population has seriously declined. Fish was an important source of food in the valley, but fishing possibilities have been negatively affected by the MIP. There are also further ecological impacts on the river's flora and fauna. For instance, the ecological health of the river worsened downstream of Chivay, the capital of the province of Caylloma, because of the sewage and garbage of Chivay. This pollution, coupled with the insufficient water flow, generates a rich breeding ground for different vectors of diseases, which is a real threat to the local population (including tourists). The river contamination will be worse in the future since Chivay's population is growing exponentially, because of the steep rise in tourist activity[101]. Over the last 15 years (1993-2008) the population of Chivay has grown by around 40% (INEI 2007).

On the other hand, the villages situated downstream of the *Bocatoma de Tuti* cannot materialize their irrigation project dreams at all, or pursue other productive activities, such as raising fish. For instance, the communities of Coporaque, Ichupampa and Lari, situated on the right bank of the river, planned to construct a multi-communal irrigation project to bring water from the Colca River to irrigate existing terraces, but they confronted many difficulties. They tried to negotiate with AUTODEMA to ask that more water be released downstream of the *Bocatoma de Tuti.* Although AUTODEMA promised to release at least 650 l/s, in practice this never happened. This demoralised local leaders, who gave up. Only the community of Coporaque continued with its endeavour and was able to use the remaining downstream water flow to irrigate their terraces. However, the Coporaqueños had to continually put pressure on the MIP bureaucrats to get some water into their canal (see also the next chapter).

The effects of the MIP construction were not only material. Historically, as already described, the indigenous peasants from this valley revered the different sources of water, and the different mountains. These sources and mountains were profaned during the construction of the MIP, something that was especially hard to endure when people found that the State irrigation project did not benefit them. As a nun from Chivay pointed out: '*Many of these peasants lost land that was bought up by the project* [MACON] *or had one of their animals killed by the heavy traffic of MACON machinery and cars. They see their small fields drying up and hear Colca water running through MACON canals down to the desert and they feel cheated'.* [Antonia Keyser, mentioned by Femenias (2005)].

[101] Colca Valley was declared the second natural wonder of Peru. It was already mentioned that this valley is highly appreciated and visited by hundreds of tourists every day, which in turn drives different emerging economic activities related with tourism. This activity has attracted many migrants, not only from the nearest communities, but also from other regions, such as Puno. Nowadays, almost half of the Chivay population are from other regions.

The Colca communities reacted almost immediately, at the very beginning (1975) of the MIP construction. For instance, the people of Canocota, the first community after the *Bocatoma of Tuti,* and the first one to be affected by the MIP intervention, wanted to destroy their local bridge (constructed by the people's own efforts to cross the Colca River) as a way to stop the brutal incursion of the big MIP trucks and tractors into the community, and the arbitrary dispossession of their lands for construction purposes. Every day and almost every minute, this heavy machinery was transporting different materials (cement, sand, iron, etc.), intensively using the only existing bridge, blocking the transportation of *comuneros* and their livestock. The community obliged the MIP engineers to construct their own bridge.

In the same way, communities located alongside the left bank of the Valley (the zone through which the tunnel-canal of the MIP passes) started to react, asking for the devolution of the water taken by the MIP canal. They also mobilized to be included in the MIP as beneficiaries. However, the government and AUTODEMA authorities either did not care about these claims, or they promised to consider them, but in practice never showed any intention to do so. When confronted by this situation, people from Colca Valley were forced to use other means to achieve their objerctives. Some even went as far to blow up the MIP canal with dynamite to get heard (see next chapter).

The negative effects of the MIP not only started to become visible in the Colca Valley. The farmers of six villages (Lluclla, Caracharma, Ocoña, Santa Isabel, San Juan de Sihuas and Quilqa) situated in the other catchment also started to experience the first effects of the inter-basin transfer of water. Once all the water flow (15-20 m^3/sec) was transferred from the Colca River to the Sihuas River (August 1983), it caused many unexpected effects. First, the capacity of the Sihuas River could not withstand the additional water flow, causing the riverside protections to be destroyed. Also existing lateral main intakes and irrigation infrastructure were destroyed alongside the river because of the additional water. Moreover, significant areas of agricultural land close to this infrastructure were affected by flooding and the consequent deposition of sand and stones. In a matter of seconds, the entire valley was almost in ruins. In their desperation, farmers did not know where to go to demand justice. Their first reaction was to denounce this abuse with local police commissaries (P.G.C. El Tambillo, March 1984). When these farmers organised to mobilize and protest against the MIP and AUTODEMA, they could never imagine that this action marked the beginning of an endless struggle and mistreatment of their different rights.

4.4.2. The impacts

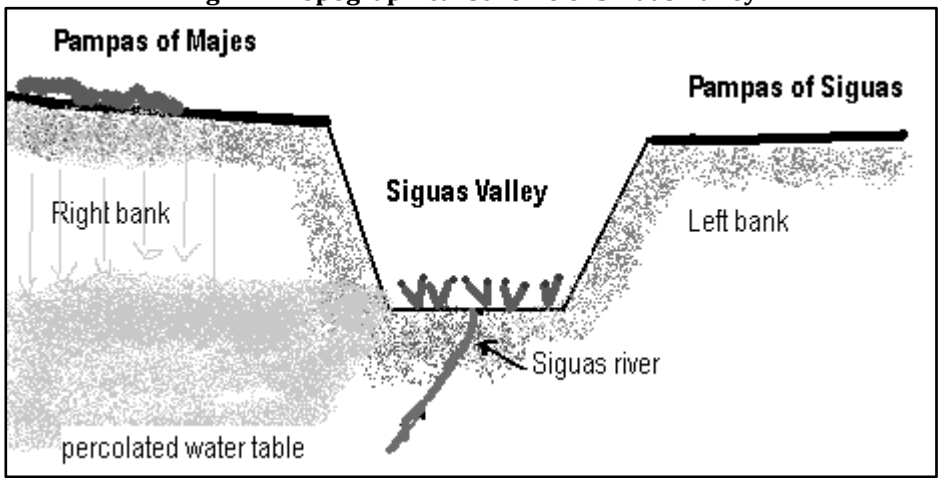
In fact, in the following years the MIP continued damaging the irrigation infrastructure of Sihuas Valley, covering many parts with sand. This happened (and still happens) every time that the MIP technicians clean the reservoir of Tipay, by depositing sand into the river. Farmers have to clean and maintain the intake and the co-lateral main canals of their irrigation infrastructure every month, sometimes every two weeks. Before the MIP was established, the farmers of this valley used to clean and maintain their canals once or twice a year.

A noticeable impact of the MIP, in the life world of these farmers, was that they lost the basic resource that sustained their food security and income generation activities. One thousand hectares of fertile land became saline because of the intensive use of synthetic fertilizers and pesticides in the newly irrigated *Pampas de Majes*. The once highly

productive Sihuas Valley started to decline, not only because of a decrease in agricultural production, but also because of decreased internal (including regional) market dynamics. Sihuas Valley's farmers used to provide different agricultural products to the market: fresh vegetables, different fruits, potatoes, tomatoes, milk, and cheese, among others. The Sihuas River (in addition to the warm climate conditions) was also ideal for shrimp, which provided additional income for villagers. The MIP also negatively affected the crustacean growth in the river.

During subsequent years, the sandy bank of this valley started to collapse, because of the permanent percolation of the excessive water (of irrigation) in *Pampas de Majes.* As referred to in previous paragraphs, the physical conditions of the stony and sandy soils of the Majes desert obliged farmers to use two or three times more water than prescribed by the MIP water experts. These quantities of water percolated and saturated the ground water table at 86 meters below the upper surface[102] . This water started to seep to the lower part of the *Pampas de Majes,* at *Sihuas and Quilca Valley*, causing the soils to become saline. On the other hand, the agricultural lands of Sihuas, located in the 'U' valley some metres below (50-100m) the contour line of *Pampas de Majes (*see figure 4.1), were buried under sand. This happened because the percolated water also started to leak on the base of the sandy banks (slopes) of the Sihuas's valley, destabilizing it and causing its collapse (see photo 4.2).

Fig. 4.1: Topographical scheme of Sihuas Valley

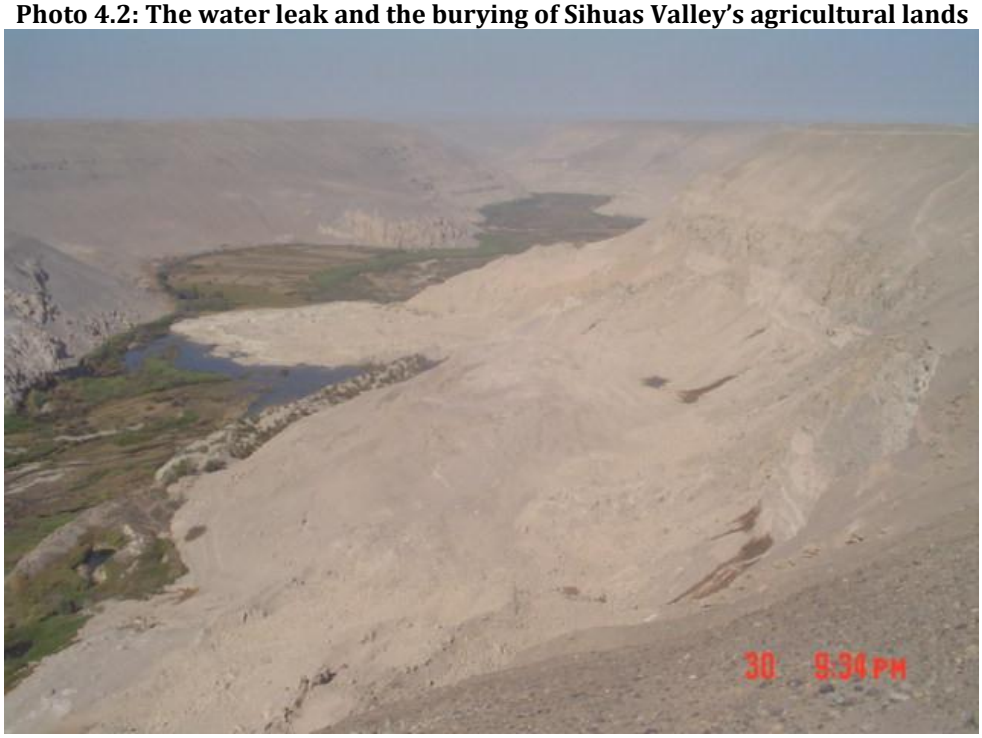


At the time of my research (December 2006) the Sihuas valley had already lost around 1500 hectares of highly fertile land. This quantity may not represent a serious loss, but when seeing it through an agronomist's lens, the hectares of buried land matter. For instance, the production of one hectare of Sihuas fertile land represents the production of five hectares of the *Pampas de Majes,* when cultivated under the same technological conditions*.* Agronomists know that the sandy, stony land of the MIP cannot produce anything without high, intensive use of chemical agricultural inputs, and water (in terms of volume and irrigation frequency). Meanwhile, the soil of Sihuas can produce acceptable harvests with minimal use of external inputs, because this soil is alluvial, and has a high physical-chemical and biological fertility (Ibañez and Manriquez, 2011). Besides, this soil also needs less frequent irrigation. The Sihuas soil can therefore be

[102] For security reasons, I cannot reveal the name of the technician who carried out this study.

considered (from an agronomic perspective) as more valuable than that of the *Pampas de Majes*. Nevertheless, calculations of the benefits of the MIP just take into account the area of infertile lands incorporated into modern agriculture, this is 15,000 hectares. When incorporating the loss of productive lands into the calculation, the achievement of the MIP looks much less impressive, reducing the net area of land brought under productive agriculture to 13,500 ha. (I am not including the hectares of land lost in the Colca Valley in this calculation, because there are no reliable assessments of this).

Photo 4.2: The water leak and the burying of Sihuas Valley's agricultural lands



As a result of all this, most farmers from the Sihuas valley have been forced to leave their land and migrate either to the city of Arequipa or to the *Pampas de Majes*, where they were left with little other option than providing cheap labour. The impact of the MIP on local dynamics also extended to local schools, with three schools that closed in the last five years in San Juan de Sihuas, because of a lack of students. The once flourishing and very dynamic Sihuas is now no more than a ghost town.

The different effects and impacts of the MIP have not been made public or studied. The regional authorities and AUTODEMA have tried to minimize them, by highlighting what the project has achieved until present. They present the MIP as one of the centres of economic development of the region, claiming that it contributes 7.8% of the total regional Gross Domestic Product (GDP), along with generating 23,315 jobs (AUTODEMA, 1996).

4.4.3. Other effects and benefits of the MIP

As described above, in the 25 years of its existence (1983-2008) the MIP has turned 15,000 hectares of desert area into agriculture. From this area, 78.6 % is dedicated to

alfalfa[103] (*Medicago sativa),* 9.6 % to potatoes (*Solanum tuberosum*), 3.1 % to forage maize (*Zea maiz*), and the rest to different crops like sweet pepper, onion, and garlic. It has benefited 2,583 farmers (until 2006), who have migrated from different regions in the South of Peru (AUTODEMA, 1996). The total availability of water in MIP reaches between 10-13.5 m^3/sec of water.

According to the reports of AUTODEMA, the Colca Valley communities have also benefited from the MIP. Along the main canal, which crosses the left bank of the Colca Valley, the MIP has opened 23 intake-valves to deliver 1.5 m^3 of water to eight communities. However, the MIP did this only after the population of Colca strongly protested and mobilized to ask that their water be returned to them (see next chapter). Because there were no hydrological studies about the water availability of this valley before the MIP, it is difficult to assess precisely how much water the communities lost after the construction of the MIP tunnel-canal. Nevertheless, I think it can be assumed that the formerly available water volume was almost the same (around 4,000 l/s) as what these communities have today (after they got water from the MIP). Table 4.2 shows the actual water availability of every community, according to the ATDR reports of 2006. On the basis of these values, the irrigation modules for each community are calculated, taking into account the actual irrigated area. As the figures show these values differ (sometimes greatly) from the values of the irrigation modules of the MIP (Table 4.1). Especially the communities of Cabanaconde, Canocota, Yanque and Huambo suffer from water shortages.

It needs to be noted that in these official ATDR data, the values of cultivable and irrigable areas are underestimated, while water availability per community (except for the community of *Ichupampa*, probably a typing error) is inflated. For instance, Coporaque has a total of 684 hectares of cultivable land (according to the *Padrón de Usuarios de Coporaque*), while ATDR only reports 487 hectares of total cultivable land. Our own calculations suggest that the total available water available in Coporaque during the irrigation period, which is from September-December (including January during dry seasons), ranges from 210 to 280 l/s (Valdivia 2007), while ATDR reports average values of 386 l/s. I assume that ATDR technicians calculated this water flow based on the full capacity (300 l/s) of the newly constructed *Canal Coporaque,* when in reality it only gets between 150-200 l/s (see next chapter) The same happens in relation to the total cultivated area in the entire valley. According to ATDR data, the total arable area is 10,220 hectares of terraced land, while researchers such as Treacy (1994) calculated it to be around 15,000 hectares. In the case of Chivay, it appears to have enough water. This was true until 2006, the year in which the Municipality of Chivay re-allocated around 30 l/s of water from agriculture to the tourist sector.

What is important to mention here is that the main canal of the MIP after the *presa de Tipay* conveys around 26 m^3/s of water to the *Pampas de Majes*. This volume of water is the sum of diverted water from the Colca watershed and from the Sihuas River. From this total volume between 10-15 m^3/s is destined for irrigation, while the additional water is destined for consumption and industrial purposes (interview with the president of the *J.Usuarios of Pampas de Majes*, July 2006).

[103] Alfalfa (*Medicago sativa)* is an ideal plant to colonize sandy and stony soil, and turn it into agricultural land. For the first 10 years *Pampas de Majes* produced only this crop.

In fact, different agro-industries and agri-business enterprises settled in *Pampas de Majes*, such as agro-veterinarian factories and shops, sellers of irrigation equipment and hardware factories. All of them owe their existence to the green revolution model of the MIP. Especially the agro-industry of *Leche Gloria*, the big main milk company of the south of Peru, has been favoured by the MIP. The prosperity of this company was made possible thanks to the intensive cultivation of *alfalfa* in almost the entire area of the MIP. Once *Leche Gloria* settled in *Pampas de Majes*, it established a monopoly of buying milk (at very low prices) produced not only in the new irrigation system but also in the surrounding valleys of the Coast and the Andes. It can be argued that the State investment in the MIP has largely benefited *Leche Gloria*, along with some agro-veterinarian factories. The MIP thus supported the emergence of agro-business 'empires', at the costs of the livelihoods of Andean peasants.

Table 4.2: Values of water availability and cultivated area in Colca Valley's communities (2007)

Communities	*Total Cultivable area*	*Irrigated Area (Ha)*	*Non irrigated Area (Ha)*	*Total Water Availability (L/s)*	*Irrigation Module* (L/s/ha)*
Achoma[1]	1363	1239	124	600	0.48
Cabanaconde[1]	1766	1605	161	617	0.38
Callalli	66	60	6	30	0.50
Canocota	204	185	19	59	0.32
Chivay[1]	601	546	55	398	0.73
Coporaque[2]	487	443	44	386	0.70
Ichupampa	488	444	44	not available	¿?
Lari	583	530	53	220	0.41
Maca[1]	1041	946	95	535	0.56
Madrigal	407	370	37	250	0.67
Pinchollo[1]	649	590	59	200	0.34
Tapay	88	80	8	20	0.25
Tuti	396	360	36	60	0.17
Huambo[1]	1016	638	102	250	0.39
Yanque[1]	1043	948	95	353	0.37
total	**10220**	**8540**	**940**	**[3]3,978**	[3]0.40

* Calculations made on the basis of ATDR Colca-Sihuas-Chivay data (2005). I have not included Sibayo in this table, because this community only recently started to irrigate some 20 ha.
[1] These communities got water from the MIP canal
[2] According to my field data (2005-06), collected from the *C. Regantes* of Coporaque, the total arable land in this community was 684 ha, while under irrigation it reached 490 ha (see also Desco-Chivay 2005). Water availability ranged from 210 to 280 l/s during the irrigation season. Thus, the actual average irrigation module would be around 0.48 l/s/ha.
[3] Average value taking into account the 0.48 l/s/ha of Coporaque and without including *Ichupampa.*

Indeed, most agro-business companies – including *Leche Gloria* – that started business in the different large-scale irrigation systems along the Coast share characteristics of 'Empire' as described by van der Ploeg (2006b, 2008). For instance, the asparagus agro-export enterprises *Sociedad Agrícola Virú,* Damper Trujillo and Green Peru in the irrigation system of Chavimochic (La Libertad), or *Camposol* in Olmos (Lambayeque), could accumulate wealth by extracting water, diverting rivers, appropriating (or stealing) local resources, polluting fertile lands, and eliminating the locally produced farming system (see also: http://www.izquierdaperu.org/category/agroexportacion-agroexplotacion-esparragos-sindicato-trabajadores-camposol-sitecasa-sociedad-agricola-viru-redge-aurora-vivar-tlc-peru-eeuu/.) These enterprises used different

strategies to manufacture the social, spatial, legal and political conditions to pursue their endless capital accumulation (Harvey 1996, 2003).

The diversion of rivers and later the appropriation of their water flow elsewhere, also described by some authors (Gelles 2002, van der Ploeg 2006a) as the stealing of water, has been a common practice dating from the former colonizers (or empires) and continued by the post-colonizers until our days. While some empires diverted water for food security purposes, others did it for war purposes, and some others to satisfy their own profit anxieties (van der Ploeg 2008, 2006a,b, Oré 2005, Vos 2006). Whatever the purposes of river flow diversions were or are, in general this practice has constituted a powerful means to create or reinforce Empire, which could grow at the cost of people's poverty and hunger, since their fundamental livelihood resources were expropriated and appropriated[104]

The pattern of extraction of water and other local resources initiated by the MIP in its first stage will intensify in its second stage (Majes-II). This time the state-employed engineers set out to construct the dam of Angostura to irrigate the *Pampas de Sihuas.* According to the Ministry of Agriculture, the estimated costs for constructing this dam reach 235 million US$. (see also: http://www.construccionyvivienda.com/edicionesanteriores/EDICION150.pdf). As already explained in 4.3.2, Majes-II attempts to transfer 30 m^3/s of water from the watershed of Apurimac to the watershed of Colca (or Colca River) at the upper part, which will be possible through a system of trans-Andean tunnels (16.5 km). From the Colca River, water will be diverted to the *Pampas de Sihuas* using the same infrastructure (the main canal or *Canal madre*) of the MIP. It is expected that around 40,000 hectares of desert will thus be gained for agriculture. The plan includes the construction of three hydro-electric stations (Lluta, Lluclla, and Sihuas), which would generate 786 megawatts (MW) of electricity. Everything will be controlled and predicted in Majes-II, and 'free riding' will not be allowed in the *Pampas de Sihuas*. Poor farmers will not be considered as beneficiaries in the second stage of the MIP, because they are difficult to discipline and control (Boelens 2009). In this second stage, the allocated plots will be over one hundred ha/beneficiary. It is expected that the gross value of the agricultural production will reach 147 million US$ per year (base year 2006), while other services will generate around 100 million US$, and exports will reach 120 million per year (Vera Ballón 2006). Currently, powerful agro-business companies are already securing their plots in Majes-II.

Ironically, the State investments and the scales of production and progress generated by the MIP, just as the rest of large-scale irrigation systems along the Coast, have not resulted in any investments for farmers in the surrounding areas like the middle or upper watershed where the water comes from, such as Colca or Sihuas. On the contrary, the water security and water and environmental rights of those zones have been unceasingly

[104] For instance, van der Ploeg (2006a) describes how the *terratenientes* of Pabur in Piura (in the northern coast of Peru) appropriated water by diverting the flow from the *Chira* River to the Piura River They also obliged the community members and the small *hacendados* to sell their lands downstream of the river. This marked the beginning of the emergence of agricultural empires, or as the author remarks, it was the beginning of a series of robberies. This same pattern of water appropriation and creation of water scarcity is very well explained by Oré (2005), for the case of *Canal la Achirana* in Ica-Peru, and by Boelens (2008a, 2001) for the case of *Licto-Guargualla* in Ecuador.

threatened, which is why I consider these kinds of rationalities of modernity and development intervention as objectionable. I argue this in more detail below.

4.5. The costs of modernity and development

The costs of the overall impacts of the MIP on the livelihood and water security of the population of Colca, Sihuas and Quilca sub-catchments have not been evaluated yet. Although the bureaucrats of the Ministry of Economics and Finance are aware that the investments, as well as the actual maintenance costs, of the MIP are excessive in comparison to the costs of other irrigation investments (Ministry of Economics 2006), they do not mention that achieving a reasonable IRR (Internal Rate of Return) of the MIP within the coming decades will be difficult if not impossible. In order to have some idea of the monumental costs of this project of manufactured modernity and development, I made some calculations on the MIP investment. First of all, the Peruvian government invested an amount of 1,320 million US Dollars in the construction of the first stage of the MIP (interview Feb. 2006, when the Dollar/Soles currency exchange rate was 3.5). From this amount, 980 million will never be recovered, constituting the so called *fondo perdido* (lost funds) that become part of the external debt that must be paid by the Peruvian people. Secondly, every year the Peruvian government spends 33 million US Dollars to manage and maintain the MIP System (at least up to 2006, AUTODEMA 1996).

Although the MIP plans promised to take 22 thousand ha of land into irrigated agriculture, in actual fact (Dec. 2007) only 15 thousand hectare have benefited so far. This means that the government has invested more than 88 thousand US Dollars/ha to turn the arid, unproductive land of the *Pampas de Majes* into arable soil. That this is excessive becomes immediately clear when realizing that the real costs (or factual costs) of irrigation investment in the most highly productive agricultural lands in the coastal area of Peru are around 6,500 US Dollars/ha (Ministry of Economics 2006). This means, and as the Peruvian Ministry of Economics (2006) evaluated, that with the same amount of budget as spent on the MIP, the State could have brought more than 200 thousand hectares of new coastal lands into agriculture. If the same amount were invested[105] in small scale irrigation systems[106] in the Andes, more than one million hectares of arable lands (taking as a reference the public expenditures in Coporaque: US $1031/ha, the highest investment of the Colca Valley) could have been brought into production. Comparing the MIP investment with the most expensive and 'poorly-planned' irrigation projects in the world, in Sub-Sahara Africa[107], the MIP cost almost three times as much (Williams 1995).

Comparing government investments in the *Pampas de Majes* irrigation infrastructure with those in the Colca Valley clearly reveals how Peruvian policies favoured a very

[105] The same Ministry of Economy (2006) reports indicate, for instance, that investments to increase the drinking water and sewerage service (in Lima) would be around US $ 428/inhabitant; which means that with the investment made in the MIP, the Peruvian state would have been able to provide more than 3 million inhabitants with this service.

[106] There are many advantages in investing in small-scale irrigation systems: less costly, more quickly operational, less environmental degradation. Different works have proven small scale irrigation to be an effective means to expand or improve irrigated area, increase food production and rise producer incomes (Coward et al. 1988).

[107] According to the report of the World Bank (Williams 1995) the planned costs of Sub-Sahara irrigation systems was around $ 18,269/ha, but by the end actual costs reached $ 31,238/ha. The average worldwide planned cost in large-scale irrigation has been $ 7,740/ha, while the average actual costs have reached $ 12,915/ha.

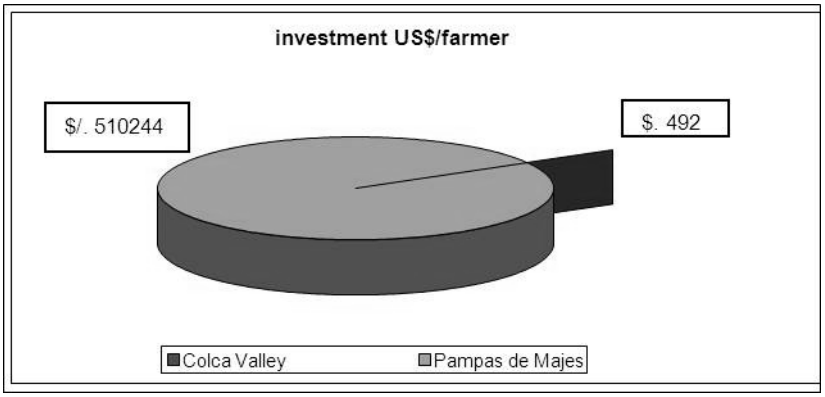
specific type of development, one that is premised on a specific ideal of modernity and of the 'modern farmer'. Table 4.3 shows what the government invested in the 16 communities of the Colca Valley, reaching a total amount of only around 2.91 million US Dollars in the last 15 years (according the data of ATDR Chivay, 2006). This means a mere 311 US dollars/ha, which is a fraction (0.2%) of the total amount of money invested per ha in the MIP. Given that there are 2,587 farmers or water users who received a *parcela* in the *Pampas de Majes*, the investment per farmer of the MIP reached 510,244 US (up to Dec. 2007). During this same period, the Government has invested 492 US$ /farmer in the Colca Valley (0.09% in comparison to the MIP), given that there are 5,923 water users officially listed in the registers of the 32 *Comisión de Regantes* of Colca Valley (ATDR 2006). The actual difference is even higher, as the number of irrigators is much higher than is reflected in these official registers. Water may also be supplied to domestic uses and industrial development in these *Pampas*, areas in which there has also been little investment in the Colca Valley.

Table 4.3: Comparative investment by the State in irrigation in the MIP and the Colca Valley

System	No. of users	Irrigated land (Ha)	Investment in infrastruc. (US$*)	Investment US$/ water user)	Dollars US$/ha	Annual maintenance Cost (US$)
Colca Valley	5923	9382	2917143	492	311	----------
Pampas de Majes	2587	15000	1320000000	510244	88000	33000000

Source, made on the basis of ATDR Colca-Sihuas-Majes and AUTODEMAS's information (2006)
Currency exchange rate (Feb. 2006), Dollar/Soles: 3.5

Fig. 4.2: Representation of the investment imbalances per farmer



Also when looking at the public investments in each individual community of the Colca Valley (Table 4.4), the imbalances are glaring. For instance, in Canocota, the State has only invested the insignificant amount of US$ 47 Dollars/ha. The irony of this is immediately evident when realising that this village is located close to the *Bocatoma of Tuti*, with its potentially arable areas being situated just a couple of meters below the contour lines of the MIP tunnel-canal.

Public expenditures in large-scale irrigation system do not stop once the construction of the infrastructure has been concluded. Unlike many irrigation systems which have been created or built by people themselves, the MIP depends completely on external (generally public) funds for its operation and management. This includes not only the cleaning and maintenance of the system, but also a series of technical packages (the so called

'integrated' technology) needed to keep the system working. This 'integrated' technology includes, among others, complementary irrigation infrastructure to regulate water deliveries, sophisticated irrigation equipment, implementation of the *cédulas de cultivo* (a uniform cropping pattern), and intensive use of fertilizers and biocides. All these packages must work in unison to obtain the projected production, at a specific planned time. As already mentioned, to do this work, the Peruvian State invests 33 million US$ (at 2006 exchange rates) every year (Interview with manager of AUTODEMA, 2006): 8 million US$ to cover the expenditures of the MIP infrastructure maintenance and insurance, and 25 million US$ to pay for the salaries of AUTODEMA's professionals and technicians. This amount stands in stark contrast to the almost negligible public expenditure on most Andean irrigation systems and extension advice[108]. Maintenance of local irrigation systems is mainly handled by local water users through a system of customary collective work, the *faenas*, embedded in ancestral ceremonies and water rituals, such as the *Harqa Haspiy* and the *Mallku Chaskiy* feasts, as explained in chapter 6.

Table 4.4: Public irrigation investment in communities of Colca Valley

Villages	*No of users*	*irrigated area*	*irrigation Investment (Soles)*	*Investment (Dollars*)*	*investment/ hectare*	*Investment/ user*
Achoma	*600*	*1239*	*900000*	*257142.86*	*207.54*	*428.57*
Cabanaconde	*750*	*1605*	*1500000*	*428571.43*	*267.02*	*571.43*
Callalli	*80*	*60*	*40000*	*11428.57*	*190.48*	*142.86*
Canocota	*180*	*185*	*30000*	*8571.43*	*46.33*	*47.62*
Chivay	*860*	*546*	*600000*	*171428.57*	*313.97*	*199.34*
Coporaque	*323*	*443*	*1600000*	*457142.86*	*1031.93*	*1415.30*
Ichupampa	*360*	*444*	*500000*	*142857.14*	*321.75*	*396.83*
Lari	*300*	*530*	*700000*	*200000.00*	*377.36*	*666.67*
Maca	*420*	*946*	*800000*	*228571.43*	*241.62*	*544.22*
Madrigal	*261*	*370*	*500000*	*142857.14*	*386.10*	*547.35*
Pinchollo	*170*	*590*	*500000*	*142857.14*	*242.13*	*840.34*
Sibayo	*94*	*20*	*50000*	*14285.71*	*714.29*	*151.98*
Tapay	*111*	*80*	*40000*	*11428.57*	*142.86*	*102.96*
Tuti	*298*	*360*	*650000*	*185714.29*	*515.87*	*623.20*
Huambo	*536*	*1016*	*800000*	*228571.43*	*224.97*	*426.44*
Yanque	*580*	*948*	*1000000*	*285714.29*	*301.39*	*492.61*
total	***5923***	***9382***	***10210000***	***2917142.86***	***310.930***	***492.51***

Source : ATDR Colca-Sihuas-Chivay

* Currency exchange US Dollars/Soles: 3.5 (Dec. 2005)

[108] The data of tables 4.2 and 4.3 and a preliminary analysis were presented in one of the annual irrigators' meetings organized by the *J. Usuarios* in Tuti (September 2006). AUTODEMA and ATDR (including the president and engineer of the *J.Usuarios*) were furious about my presentation (they even tried to prevent it), because they considered these data as potentially subversive. However the leaders of the *C. Regantes* encouraged me to present it, and the water users were thankful, but also taken aback. As one of the participants said: *'we are thankful for your presentation, it opened our eyes and we can see the truth now, after so many years of being uninformed. Why is this situation so?? […]'*

Public investments to manufacture agriculture modernization and development based on techno-science and large-scale irrigation would not be possible without the support of international funds, such as those from the World Bank or the International Monetary Fund (IMF). For instance, in the 1960s and 1970s, 7% of total World Bank loans were used to finance worldwide irrigation projects (Williams 1995). Also at the national level, the construction of irrigation systems such as the MIP, Tinajones and Chira-Piura (constructed from 1968-78) absorbed 85.2 % of the total capital expenditure budget of the Ministry of Agriculture. In this period, public capital expenditures in agriculture amounted to 12.3 % of the total national budget, surpassing the planned goal of 9% for 1971-75 and 7.9% for 1975-78 (Portocarrero 1982).

Table 4.4. shows that, even though much less than the MIP, the communities of Coporaque and Cabanaconde received more public support than the other communities in the Colca Valley. As I explain in more detail in the next chapter, this is partly the result of their persistence in actively demanding and claiming this support, and therefore was the outcome of many years of struggle. NGOs (like Desco, CAPRODA) and special government projects (like COPASA[109]) played an important role in supporting these struggles for water. These organizations offered technical assistance and funds to help construct irrigation infrastructure (intake-valves, canals, and reservoirs) whether to capture water from the MIP canal (after official approval), or from other local sources. They also facilitated the creation of spaces (public events, farmers' schools, etc) to discuss, create awareness about and confront the water scarcity problems in the Valley. They promoted participatory research, training and monitoring to raise awareness, as well as to encourage local leadership of both men and women (Vera 1993). After a fruitful period, COPASA and CAPRODA had to leave the Valley in 1998, because of a shortage of funding, only Desco stayed until 2008.

4.6. Conclusions

The hydraulic mission, modernity, and empire (an extractive system of water and land use) reinforce each other in the manufacturing of a specific form of irrigation development, with many intended and unintended consequences in the social life of the people involved, and at different levels of geographical space. The analysis of the construction of the MIP of this chapter has revealed how a particular form of interpreting modernity and development, based on the ideas of the hydraulic mission, is working to the detriment and neglect of the water security and livelihoods of Andean community farmers and in favour of profit-making capitalist enterprises. Three aspects can be highlighted from this paradoxical process: a) it proceeded by creating abnormal situations which then needed to be corrected, b) there seems to be no limit to the amount of public investments available for correcting these anomalous situations, and c) it created an extractive system of production that was based on the appropriation and accumulation of resources by a few.

In principle, the MIP was devised and designed to solve the lack of access to land and water of a vast poor population of the Arequipa region. The idea was that the inclusion of

[109] I also worked for COPASA (after working in CAPRODA) from 1992-1994. One of my tasks was the design of training modules for technicians and water users in water management and governance. I was also in charge of the Farmer's School *Pirachapampa* in Cabanaconde.

poor people in modern market oriented agriculture, with the help of technical assistance, would generate high productivity, and hence stimulate the economy. Although a number of poor people were included in the first years of land allocation of the MIP, most beneficiaries were in fact middle class farmers (who could buy a parcel of land), agricultural professionals, and agribusiness companies. The indigenous peasants from the 16 communities of the Colca Valley, and their land were not included in the MIP, in spite of their evident situation of poverty. In the MIP model of modernity, there was no discursive or political space for the indigenous peasants of the Colca Valley, nor was there any recognition of the fact that their fertile land also needed water to produce, or of the existing ancestral knowledge to manage water. Instead, when any consideration was at all accorded to them, they were considered an obstacle to modernization. Since the farmers of the Colca Valley were 'Indians' and because they have their own water traditions, they were (sometimes implicitly) considered by the proponents of the hydraulic mission as 'backward' and as difficult to discipline and align to the new modern system. The MIP thus justified its preference for investing in the desert and empty land of the *pampas* by discursively constructing the communities located alongside the Colca Valley as backward, and as anomalous and abnormal. They depicted this valley as having poor and infertile land without water, as a cold and dry area, and as difficult to access. Besides, the fact that it was inhabited by illiterate people who were tied to their traditions, made the valley unsuitable for development. This explains why not much time, effort and money were invested to correct or remedy the 'abnormal' and 'anomalous' situation and conditions of the Valley: civilizing the Valley would (in the eyes of the MIP proponents) be a much more difficult if not impossible task than civilizing the still empty desert. Thus ignoring and excluding indigenous peasants, their lands and knowledge is a typical way of thinking and acting of the hydraulic mission, with engineers seeing themselves as belonging to a privileged culture. Their behaviour is based not only on the technological control of water, but also on control over people's needs, perceptions, identities and cultural practices.

The huge public investments in the MIP described here raise serious questions about the economic rationality of State politicians and engineers. How is it possible that one hectare of the MIP-I (first stage) costs ten times (60,000 US$) more than the average (6,000 US$/ha) investment in other coastal irrigation systems? This cost is even on the low side, because it is based on the 22,000 hectares that the MIP-I is planning to incorporate into agriculture. So far, only 15,000 hectares have been brought into production. To judge the real costs of investment of the MIP, and the cost recovery or internal rate of return (IRR), it is necessary to calculate the economic revenues that the project is generating, including the social and environmental benefits and impacts. Until now (2010) the negative impacts of the MIP on the environment and the lives of people have been intentionally concealed or undervalued by regional politicians and official water authorities.

I assume that the State water experts and politicians are well aware of the positive and negative impacts of the large-scale irrigation systems constructed along the coast. However, in spite of the issues listed here, they still are promoting other new irrigation systems, like Angostura or Majes II in Arequipa. The discourse around large irrigation on the coast presenting it as the 'best technological' and development alternative apparently is a persistent and convincing one. This shows that water professionals indeed have the power to produce realities and knowledge, and that they can even produce the way in which 'truth is made true'. The larger and more stable the social-material network in

which such facts are place and defined, the stronger their truth-claims (Boelens 2008: 231).

The State's favouring of large-scale irrigation in the coastal areas clearly demonstrates what kind of development is deemed valid in the present day. This form is actively promoted by the State's water professionals and politicians, in alliance with international capital. Various studies have suggested that this way of manufacturing modernity and irrigation development is embedded in (and indeed an intrinsic part of) a wider socio-cultural and political project which is based on (and produces) the dispossession of resources and the accumulation of profits (Bebbington 2009, Gosh 2007, Harvey 2003, Shiva 2010). More than twenty-seven (1983-2010) years of the MIP operations show that it has indeed mostly favoured agri-business enterprises. The most visible creation of the MIP is the milk company *Leche Gloria*, which can be seen as an 'empire' that has been made possible with public money, at the costs of the environment and the livelihoods of many communities.

However, dispossession of resources and accumulation of surplus do not happen easily or smoothly, even under the aggressive and powerful rule of a modern capitalist system. The 'othered' and dispossessed people do not passively accept the theft of their resources and future. They are active and knowledgeable actors who continuously resist the hegemonic re-making of the world. The next chapter describes how women and men of the communities from the Colca Valley have confronted (sometimes violently) the powerful system, not only by demanding what they considered to be rightfully theirs, but also by asking for more attention from central government and water bureaucrats to their necessities and potentialities.

Chapter 5
Struggles for alternative irrigation development in the Colca Valley

'Every act of development is at least potentially an act of counter-development, and every act of counter-development is potentially an alternative modernity – a modernity from below' (Arce and Long 2000:21)

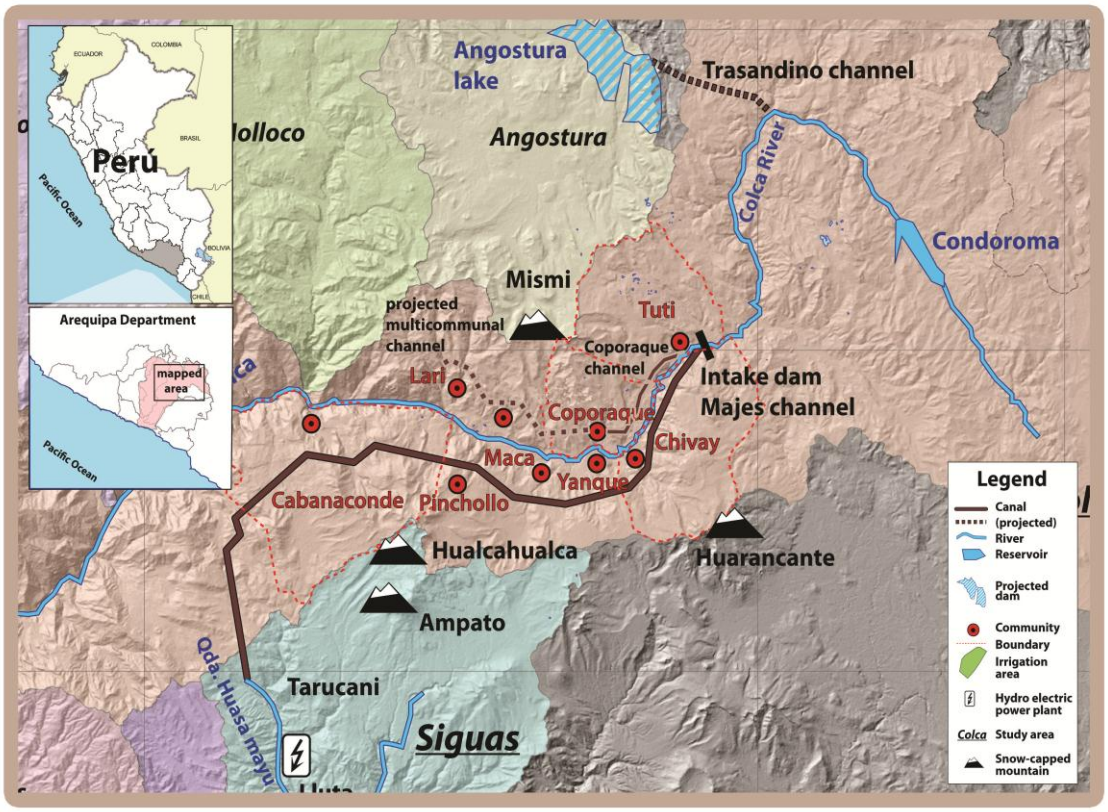
5.1. Introduction.

The Majes Irrigation Project (MIP) undermined the water security of more than 20 communities located in the Colca-Majes-Camana watershed. This chapter describes and analyses people's responses to the MIP, discussing how people reacted to water scarcity and environmental damage. These responses and reactions varied from peaceful mobilizations and open contestations to violent demonstrations. However, these actions also manifested themselves in the development of proposals for alternative irrigation projects parallel to the construction of the MIP, what I call here people's irrigation projects (or simply the people's projects). These projects, in contrast to the extensive support for the MIP, evolved despite the fact that the valley and its inhabitants were continuously marginalized from public support. The first section shows the efforts and local practices to efficiently use scarce water, and documents the efforts of a number of communities from the right bank of the Colca Valley to develop a multi-communal irrigation project. The second section studies the initiatives by communities from the left bank of the valley to deal with water scarcity by demanding their right to access the water of the MIP. The third section studies the effort of Coporaque to build a new canal (*Canal Coporaque*). Finally, the last section describes the experience of the communities of the Sihuas Valley, in the most downstream zone of the Colca Valley. It documents their attempt to find justice after the MIP salinized and buried their fertile agricultural lands. This chapter thus looks at four efforts to create new forms of water security, or to create alternatives to the water scarcity emerging from the MIP.

To understand these initiatives I use the perspective of *counter-development* and *alternative modernities* as introduced in the theoretical introduction of chapter 1. This perspective allows seeing not only people's capacity and power to resist against 'totalized civilized modernity', but also their creative capacity to appropriate, recreate and reposition it in local dynamics, thereby creating an alternative to modernity (Arce and Long 2000, Boelens 2008a, Escobar 2008). The concepts of counter-development and resistance allow the understanding of local people's actions in confronting or re-shaping modernity as heterogeneous and multidirectional, which is a distinctive feature of a politics of difference. This distinctiveness is rooted in local practices and traditions, in local ways to construct projects, authority and autonomy. *Alternative modernities* are grounded in particular locations or *places*, connected to every day experiences and practices, as well as to local history, culture and traditions. They are thus place-based. *Place* refers both to a geographical space as well as a political construction that constitutes an essential point of reference from which it is possible to resist hegemonic constructions of modernity (Dirlik 2001, Escobar 2007, Parajuli 2004). From the local perspective, *place* is equated to the community and its territory. Communities are not uniform and completely integrated entities; there exist power relationships coloured by social, ethnic, and gender differences and hierarchies. Different interests, sometimes divergent, are confronted and negotiated in different domains of interaction (household,

field, water user organization, or other local organizations). The effort and capacity of local people to overcome differences and construct alternatives to modernity is called by Blaser (2004) *people's projects.* These place-based alternatives emerge from local people's dreams, knowledges, and experiences, which are translated into reality or concrete projects that are managed and controlled by them. The author also remarks that people's projects are actually 'life projects', since they sustain people's present and future forms of livelihood and subsistence. This chapter attempts to show how these 'people's efforts' have also drawn on cultural practices already described in earlier chapters (and further analysed in the next chapter), in which ethnicity and gender play a role, and are also reshaped by them. In my descriptions of local practices to cope with water scarcity, I focus particularly on Coporaque, a choice inspired by their success to construct a parallel project (*Canal Coporaque)* to the MIP (see map 5.1).

Map 5.1: Design of Canal Coporaque in front of the MIP tunnel-canal (including the multicommunal projected channel)



5.2. Local initiatives to deal with water scarcity across the Colca Valley

As discussed earlier, manifestations of water scarcity in the Colca Valley probably changed shortly after the Spanish colonized this region. This happened because irrigation infrastructures were no longer properly maintained, due to the high mortality of the indigenous population. Even with less people, communities tried to continue with their annual rituals of infrastructure maintenance (see next chapter). However, over time not only lack of labour, but also lack of support from central government, forced communities to abandon the maintenance of the many canals that transported water from the snow-capped mountains to their terraces. This situation remained as it did for decades, until the MIP disturbed the relative peace of the Valley.

Before the construction of the infrastructure of the MIP, only four communities from the sixteen in the Valley were able to more or less meet their irrigation needs. These communities were Chivay, Achoma and Maca on the left bank of the Valley and Ichupamapa on the right bank. These communities had abundant sources of water, like springs and wetlands. However, after the drilling of the tunnel-canal of the MIP, the three communities of the left bank also began suffering from water shortages, just as the rest of the Valley.

The water scarcity obliged water users to resort to different measures. For instance, they decided to cultivate less area, avoid the cultivation of water demanding crops, or wait for the rainy season to cultivate shorter period crops. Water authorities had to impose a stronger discipline among users in order to use water efficiently and distribute it fairly. Water shortages also led to conflicts among users and between communities. For instance, Cabanaconde had a longstanding conflict with the community of Lluta (Gelles 2002); Coporaque had a bloody war with Yanque during one week (in 1971); Chivay had a quarrel with Yanque; Lari with Madrigal; and Tuti with Coporaque. Such tensions still exist to this day, and are here to stay until a solution is found for the water problems.

Coporaque was one of the communities most affected by water scarcity together with Lari and Madrigal (from the right bank) and Yanque, Pinchollo, and Cabanaconde from the left bank. In some communities like Cabanaconde and Lari, the irrigation frequency was between 90-120 days (in Lari this frequency still persists). A *comunero* or water user in Coporaque could only cultivate three *topos* (about one hectare), because the available water (100-120 l/s) had to satisfy the water demands of around 300 users. Coporaqueños had more than 650 hectares of fertile lands, nicely distributed in terraces and ready to cultivate, but they had to settle to cultivating a maximum of only 300 hectares. The water problem pushed the Coporaqueños to search for solutions, and in the end they constructed the *Canal Coporaque*. To appreciate what this canal represents for Coporaqueños, in terms of effort and as an alternative to modernity, below I first describe in more detail how this community organized to manage their irrigation before constructing this canal.

5.2.1. Dealing with water scarcity at community level

As I explained above, before the construction of the *Canal Coporaque*, people had to respect the collective agreement in cultivating only one hectare of land[110] per user. However, *mayoristas* (people who had more than 3 hectares) tried to cultivate more than this rule permitted, and they also tried to exert their influence and power to get more water. The local water authorities had be firm, because they wanted everybody to have access to water, as the following testimony indicates: 'W*ater had to reach everybody, [...] although mayoristas had 10 or 20 topos, they had to respect the agreements of the Assembly* [of the water user association]*. Our regidores* [traditional water mayors] *had to have a strong hand and character […]. There were some authoritarian people, like the governor or the judge, who used to take advantage of their authority and position and tried to impose*

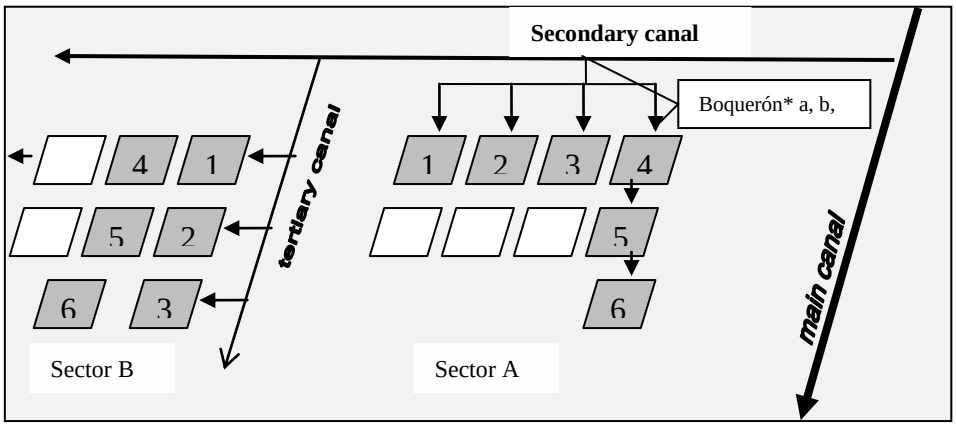
[110] Before the construction of the *Canal Coporaque*, the community distributed existing abandoned terraces among members, in different periods. However, because of the lack of water, the *comuneros* could not cultivate these lands, abandoning them in the end.

their own rules by force and get more water, but we learned to get respected' (field research, September 2006).

Respecting and fulfilling local norms of water distribution was extremely important among users, in order to avoid conflicts or public punishment. The collective control over users and water authorities was a matter of every day politics. When an authoritarian user, usually a *mayorista,* tried to impose his own rule, the Assembly strongly raised their voice and expressed their disagreement, as they continue to do currently. Women were known to be particularly fierce when protesting and defending the irrigation schedule: An ex-mayor explained…'*when women start to complain collectively, their voice is so strong, that it is almost impossible to deny them, it is like confronting angry pumas*' (fieldwork, October, 2005).

Another important local agreement to distribute the scarce water efficiently was to implement the so called *mita* system instead of the *saya* system. The *mita* system consists of irrigating from edge to edge (*riego de canto a canto,* see fig. 5.1) continuously, while the *saya* system is a form of irrigation without any order (*riego desordenado,* see fig.5.2). In former times (previous to the Agrarian Reform), the *saya* system favoured the *mayoristas* (usually a group of literate white mestizos[111]), who used to rule the community. This group of people tried to arrange first the irrigation turn for themselves, and to irrigate all their plots distributed in different areas. The ruling group even used to hurt (with *reata* or lasso) or punish (imprisonment) the traditional water authorities when they refused to favour them with the first irrigation turn or with more water.

Fig. 5.1: The design of the mita irrigation system



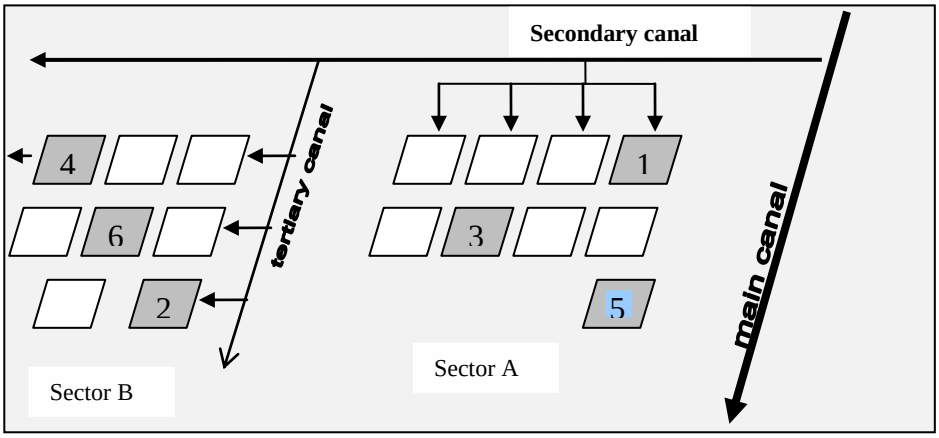
- Boquerón = distribution valves
- 1,2,3.. = the order of the irrigation turn

When facing injustices of the *saya* system, the *minoristas* (the largestt indigenous group of the community) decided to confront the *mayoristas.* This took place after the Agrarian Reform, when indigenous people felt more confident to raise their voice. Interestingly, the engineers of the ATDR played an important role in this process of changing the distribution system, because they supported and explained the technical logic of the efficiency of the *mita* system. Most Coporaqueños agreed to implement it, since water

[111] Over time this group lost power, because they had many heirs and the lands became smallholdings. Moreover, the heirs started to marry with the indigenous people of Coporaque, and social and ethnic differentiation became less visible.

was scarce, even though *mayoristas* resisted. Even nowadays, with the *Canal Coporaque* providing a relative abundance of water, the *mita* system persists. Intensive agriculture[112] nevertheless is starting to disrupt the *mita* system, because new crops require more frequent irrigation. Coporaqueños are still trying to keep the system, and users who want to grow water demanding crops first have to ask permission from the *C. Regantes'* Assembly to avoid confrontations and conflicts with water authorities and users. This is how Coporaqueños construct local water security practices in everyday reality, emphasizing that 'water must reach everybody'.

Fig. 5.2: The design of the saya irrigation system



In spite of these different measures to assure water for every *comunero,* agricultural production was usually too limited to sustain the livelihood necessities of families (consisting on average of 6 members). Coporaqueños were continuously searching for solutions for their water problem. For years, they planned to re-build the ancient inter-basin *Qarhuasanta*[113] canal that brought abundant water from the Apurímac catchment, which also has its origin in the snow-capped Mount Mismi (see also Treacy 1994). However this alternative entailed huge investments in terms of money, time, and wage labour. It also involved people having to travel two days on foot to a very distant place, practically to another catchment. Besides that, the project needed the united effort of all communities located on the right bank of the valley (at least 6 communities). This is why this plan was abandoned. In the end, Coporaqueños, in agreement with two villages of the right bank of the watershed of Colca, decided to build an inter-communal canal to capture the water of the Colca River, on the right bank of the river, just opposite of the left bank where the MIP canal crosses (see map 5.1).

5.2.2. Trying to deal with water scarcity at multi-communal level

After the MIP diverted the Colca River to the *Pampas de Majes,* and seeing how MACON – using high technology – realized the construction of a canal and tunnels across the rocky Andes, the leaders of Coporaque, Lari and Madrigal joined forces in an attempt to construct a multi-communal irrigation project. To convince regional politicians and

[112] Intensive agriculture is increasing rapidly in the Colca Valley because of tourism (hotels, restaurants, lodges, etc.). The State's modern agriculture promoters are trying to introduce new varieties of crops, but most fail to fit in the local way of managing and ensuring water.
[113] According to local testimonies, the *Qarhuasanta* canal had not operated since ancient times, because of a lack of maintenance.

planners about their project, these leaders made clear that the infrastructure would be constructed with the effort of local people, through their customary way of working collectively, in communal *faenas.* In that sense, the project would not require much public funds. Although regional politicians found the proposal interesting, it still required the approval of the central government.

The proposed irrigation project basically planned to construct an intake-canal downstream from the *Bocatoma de Tuti,* in the place where the main reservoir-intake of the MIP is situated. This canal would run alongside the left bank, crossing the territories of the three communities along 40 kilometres. To cover the water demand of the three communities, the capacity of the canal would have to be $1m^3/s$ of water.

The materialization of this project relied on permanent water availability in the Colca River, especially in the dry season from August to January, when irrigation demand would be highest. Yet, since the MIP began its operation in 1983, no water was available downstream from the *Bocatoma de Tuti*. Therefore, the leaders of the three communities started to negotiate with AUTODEMA and the official water authorities (ATDR) for more water to be released from the dam and thus get access to the water from the Colca River. This negotiation process also included farmers (mainly rice producers) from Camaná village, situated at the bottom part of the Colca-Majes-Camaná catchment. These farmers were also concerned about the upstream diversion of the Colca River by the MIP. After many negotiation meetings, AUTODEMA's engineers finally accepted to release 680 l/s of water flow from the *Bocatoma de Tuti.* The agreement was written and signed by both parties. However, this limited volume of water was not enough to motivate the leaders of the three communities to continue investing their time and effort. Even though their enthusiasm dampened, they still tried to join efforts.

Obtaining the approval from the central government for the project was already quite a difficult issue, but obtaining the funds to commence the project proved an even worse headache. The leaders had to travel to Lima several times (which in those years required almost 3 or 4 days of travelling by trucks), spend a lot of community or personal money, and all without receiving a positive answer from the State engineers. Once in Lima, they had to wait days and once even more than a week before being listened to in a government office. In the end, these leaders became discouraged and gave up on their plan. Between them, they also had different opinions about how to best mobilize communal labour to start the work. All these external and internal hurdles together abated people's enthusiasm for the project. Only the people of Coporaque (the second village after Tuti) persisted in their efforts (see section 5.4).

5.3. Left bank struggles to be included as beneficiaries of the Majes Irrigation Project

Water struggles were initiated by the communities from the left bank of the Colca River at the start of the construction of the MIP, 10 years before the communities from the right bank proposed their multi-communal irrigation project. As mentioned in the previous chapter, Canocota was one of the first communities affected by the MIP, and the *comuneros* mobilized to prevent that the bridge they had built with their own labour would be used, appropriated and destroyed by the MIP constructors. Finally, the project accepted to construct a new big bridge. Cabanaconde was the second community which

strongly mobilized and protested for water justice. Later on Pinchollo joined, followed by the rest of the communities.

5.3.1. The strong reaction of Cabanas' communities

The population of Cabanaconde and of Pinchollo consider themselves descendants of the *Cabanas* culture, who attribute their origin to the snow-capped mountain *Apu Hualca-Hualca*, the main provider of water for these communities[114]. Around this *Apu*, who is said to be female, both communities share the same history, water identity and practices, which still prevail to this day.

When the MIP canal started to cross through the lands of Pinchollo and Cabanaconde, both communities (as well as the rest of the Valley) had expectations that this canal would also benefit them. Although in the pre-feasibility project Cabanaconde was considered a beneficiary of the MIP (Ministry of Development and Public Works 1967), MACON neglected them. Yet, and because of State promises that they would benefit, the communities collaborated with MACON during the construction of the MIP infrastructure (canals, roads, paths, etc.). They even tolerated the destruction of hundreds of their terraces, of their own irrigation infrastructure, and of local water sanctuaries. They endured the drying up of their water sources (fed by *Apu Hualca-Hualca)*, as well as many other social injustices[115]. All this because the community members were hopeful that they would eventually receive water from the MIP, so that they would be able to continue irrigating their current terraces, the ones they inherited from their *Cabanas* ancestors (for a more detailed description sees Gelles 2000, 2002). However, once the MIP canal or *canal madre* was constructed, it became clear that MACON had no intention of fulfilling the State's promises to include these communities in the project.

Early in 1980, before the *canal madre* was finished, the Cabaneños started to mobilize to demand their inclusion in the MIP. The local water authorities, communal authorities, and the Mayor of the district sent a memorandum to the Ministry of Agriculture and to the President of the Peruvian State claiming their right to the Majes' water. One year later (1981) the Cabaneños sent a letter to MACON asking to be compensated for the water they lost because of the MIP construction. They made it clear that they were determined to take action if their claims would be ignored. In the subsequent period, people continued with numerous letters, memorandums, regional newspaper reports, and delegations asking for water and justice. The situation even turned dramatic during 1981-1983, when a severe drought affected the entire Colca Valley (Denevan 1986). However, the State, MACON, and the regional authorities did not react to people's pleas.

Finally in January 1983, the Cabaneños, at the end of their patience, saw no alternative other than to move toward the *canal madre* to blow up the infrastructure with dynamite. Once the entire village had gathered there, the local authorities tried to dialogue to convince the furious mass to allow governmental authorities one last chance to implement a concrete solution to their water problem. The people insisted on the

[114] Both communities are located on the left bank of the Colca River, almost at the end of the Valley (see, map 5.1). Actually the famous *Cruz del Condor* is located between these communities. Here, visitors can observe the bottom of the Colca Canyon and the flying of condors.

[115] Women talked about abuse, sexual harassment, and attempted and even actual rape by MACON employees. Fear of this happening prevented women at that time to go to their lands alone, or graze their animals freely, or even going to sell their produce alone; they had to be accompanied by some male relative.

presence of the provincial governor, the priest, and the judge, to help them find real solutions and give legitimacy to any decision taken. The Cabaneños obliged these authorities to immediately call the Nation's President (Belaúnde-Terry) by telephone, to inform him about the people's determination to blow up the canal, in case the President did not give his authorization for the construction of two intake valves, and for the provision of the necessary technical assistance and machines needed to construct the complementary irrigation infrastructures needed to transport water to Cabanaconde. Indeed, an agreement was made and the authorities sent it to the president. However, still nothing happened, and once more the people felt deceived.

Ultimately, a group of Cabaneños decided to take radical action: in March of 1983, eleven Cabaneños were bold enough to drill a hole in the very thick cement lining of the canal, just at the point where it crosses the *Hualca-Hualca* River. As they were not successful in this attempt, they made the dangerous decision to use dynamite. The use of this explosive was legally forbidden in those years, since the terrorist group *Shining Path* was causing much damage using dynamite. However these eleven peasants took the risk of being accused of being *terroristas*. Conscious of this situation, a group of local authorities travelled to Arequipa to inform the authorities about the recent events, and to demand understanding for their struggles for water and justice. The regional authorities nevertheless immediately sent the army to the village to arrest the eleven Cabaneños responsible for the 'terrorist' action. The response from the rest of the Cabaneños was also immediate. They organized and mobilized to confront the military repression. Many women appeared on the frontlines of the protest march to be the first to confront the army. People claimed collective responsibility for the action of their eleven community neighbours. To further pressurize the politicians, they took the machineries of MACON as a sort of hostage. Interestingly, the Cabaneños' migrant associations, in Arequipa, Lima and even in North America, joined in to support their fellow *comuneros*, and to defend the legitimacy of their claims and demands (see, Gelles 2002).

Five months later, the MIP engineers started the construction of the two first valves in Cabanaconde in the presence of all the men, women and even children of the community. The priest, governor and judge were also present, but this time for blessing the opening of the two valves (150 l/s). Later on, this community managed for more valves to be constructed. Together these deliver a total flow of 350 l/s of water.

5.3.2. The 'illegal' response of the Pinchollo Community

The community of Pinchollo also got two valves from AUTODEMA, after joining in the protest of the other Cabanas communities and the rest of the Colca Valley. Each valve delivers around 30 l/s. However, according to local testimonies, this was too little to compensate for the water flow lost because of the MIP. As table 4.4 (in the previous chapter) showed, the total available water in this community only amounts to 200 l/s, including the extra 60 l/s of water flow delivered by the MIP. Although the community possesses more than 749 ha of cultivable and irrigable lands, the *comuneros* could only cultivate around 530 hectares (COPASA 1996).

Faced with these water shortages, the local authorities of Pinchollo continuously demanded more water from the MIP canal to AUTODEMA and ATDR. Numerous requests were thus filed, year after year. When nothing happened, the Pinchollinos felt compelled to act 'illegally', to build and open a valve to take water from the MIP Canal in 2005, 20 years after the first violent action by the Cabaneños. This time, the Pinchollinos did not

resort to violence. Instead they searched for another way, one that would appear more 'civilized'. They appealed to the State's top representative in the region, the president[116] of the Regional Government of Arequipa, who was willing to listen to the demands of the people because he hoped this would bring him political advantages. He ordered the opening of the desired valve and the financing for the construction of the necessary infrastructure. He did this without following the regular procedure, of which he was fully aware, which would have been to ask permission from the official water authorities (ATDR and AUTODEMA). As was to be expected, the illegal action was condemned, and the community had to pay a fine for breaking the State's rules.

5.3.3. The case of FREDIVEC and the firmness of Caylloma's women

The rest of the affected communities (Canocota, Chivay, Yanque, Achoma, Maca, Pinchollo, among others) situated on the left bank of the catchment, felt encouraged and inspired by the Cabaneños example and organized as the *Frente de Defensa de los Intereses del Valle del Colca,* (FREDIVEC – Defence Front for the interests of the Caylloma people). FREDIVEC struggled with AUTODEMA to persuade them[117] to return the water to the communities that was lost because of the construction of the MIP tunnel-canal. After many meetings and negotiations, AUTODEMA signed a resolution in 1989 to allocate water to the different villages of the left bank. However, as was already the water bureaucrats' custom, they did not have any intention to follow up on this resolution.

Because nothing much happened, local communities started to have doubts about the actions of FREDIVEC. They were afraid that their leaders were bought off by the AUTODEMA staff. After three years (in 1991) FREDIVEC attempted to regain the confidence of the people by asking the AUTODEMA technician based in Arequipa City to attend a public multi-community meeting in Chivay, the capital of the Caylloma Province. The engineers of AUTODEMA finally agreed to attend this meeting, but they still tried to delegitimize it by telling the sub-prefect (who is the most important political authority of the province, and whose presence would have granted the meeting its official status) to stay away from it. The sub-prefect complied with this wish, not thinking that the meeting represented anything important. Not deferred by this arrogant attitude, a commission of peasant women went to his house to personally invite him to the meeting. As many had already expected, the governor did not want to receive the commission. The women returned disappointed, but realizing that the meeting would not be valid without the sub-prefect they decided to go to him a second time, this time to bring him by force, pushing him. Thus arriving in the main square where the meeting was to be held, they had become so furious with the sub-prefect that they submerged him in the water tank. Afterwards, the soaked governor had to sit next to the engineers of AUTODEMA on the platform (built for this special meeting) in front of all the people, until the end of the meeting. The firm resolve of the women of Caylloma to teach the sub-prefect a lesson shows the ability and power of women to act collectively. As one of the *comuneros* of Canacota community stated:

[116]Ing. Vera Ballón, of the political party APRA, was in the charge of the regional government. Coincidentally, the regional's president and the National Government were ruled by APRA.

[117] The main argument of AUTODEMA's authorities was that the peasants from the Colca Valley had already benefited with a *parcel* in the *Pampas de Majes*. Although that was true, it benefited only 3 or 4 peasants from each community.

'[…] indeed, the women from this valley are very brave in this kind of situation, nobody can stop them; like the case of the sub-prefect […]. When women's patience is tested, they can act strongly and even defend the men from military repression […]. One time these women even dared to teach a priest a lesson, who had refused to celebrate and bless the people's festival, because it was not in accordance to the church rules. They [women] *rode the priest on a donkey and expelled him from the village'* (Fieldwork, 2006).

After this decisive action by the indigenous women and the *Frente de Defensa,* State and AUTODEMA authorities agreed to open valves alongside the *canal madre.* Eight communities thus got water from the MIP that compensated for the water flow lost because of the MIP. However, the available water still barely met the irrigation needs of the many villages involved.

Whereas communities from the left bank could negotiate their water needs to be met with AUTODEMA, the communities from the right bank could not follow the same procedure, since they were situated on the other side of the river valley from the main canal of the MIP. However, as already explained, they attempted to develop a multi-communal irrigation project, which failed because of a lack of support from central government. Only people from Coporaque had options and also enough stamina to persist in their attempt, and refused to give up on their place-based project. The local authorities explain the resoluteness of Coporaqueños, in their own terms: '*our water necessities were bigger than any problem that we could face on the way'.* To develop this project, Coporaqueños confronted many difficulties, sometimes almost causing people to abandon the project, but after 25 years of continuous struggle they finally succeeded.

5.4. Struggling for a place-based alternative: the 'people's irrigation project' of Coporaque

From the first moment in the early 1980s when the Coporaqueños decided to bring water from the Colca River to their drying lands, they were facing extreme water scarcity, as were the rest of Colca communities (Treacy 1994). Although their ancestors formerly had cultivated around 1000 ha (Valdivia 2007), with the passage of time through the colonial and republican period, they could now only cultivate around 300 ha.

The project of bringing water from the Colca River to the lands of Coporaque represented serious challenges. Firstly, the agricultural terraces, and the village itself, are located on a steep slope, running between five to two hundred metres above the river bed, on the left bank of the Colca River (see photo 5.1). Thus, reaching the location for the canal-offtake from the river and building the main intake required work at a far distance of around 15 km upstream from the river. Secondly, the identified point for the construction of the main intake was located just a few kilometres downstream of the main reservoir-intake of the MIP, at the *Bocatoma de Tuti*. Here the soil is unstable and stony (see photo 5.2) and prone to flooding with the rising of the river during the rainy season (January-March), a period in which the MIP releases water from the dam. Thirdly, during the dry season, which coincides with the period of peak irrigation demand (September-January), most of the water flow was already diverted by the MIP. Therefore, there was usually no water flowing in the river. However, the Coporaqueños remembered the promise of 680 l/sec made by AUTODEMA engineers and believed that water would be released into their canal. Finally, a last obstacle involved the topographical conditions: at least 3 km of

canal was to pass through a very unstable stony terrain, located along steeply sloping rocky hillsides.

Photo 5.1: View of Coporaque's agricultural terraces in relation to the position of the Colca River (bed).

Photo 5.2: The beginning of the Coporaque Canal at the Colca River and the volume of water flowing in the river during dry season.

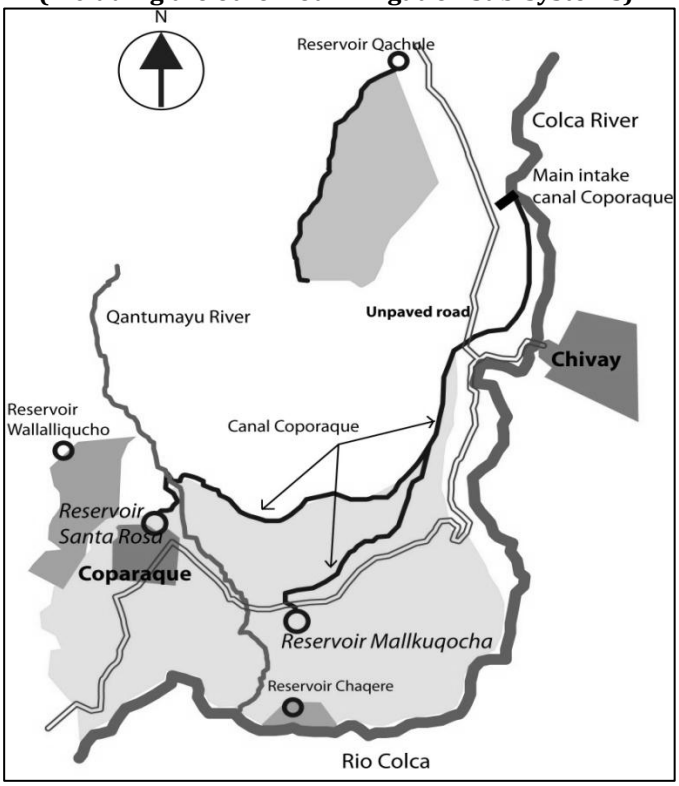
Women and men users working on a canal that collapsed because of a flood, during the rainy season

Coporaqueños believed that these challenges could be overcome with the help of technology. Actually the most serious obstacle in the eyes of the Coporaqueños was the need to convince the regional politicians and State water bureaucrats about the viability of their project, so that they would provide the funds necessary for materializing their water security dreams. This approval became a reality in 1985. However it did not include permission to use water from the Colca River, which required a bureaucratic procedure in which the Coporaqueños had to engage with the ATDR. Because this bureaucratic procedure was rather cumbersome, the leaders of the C. *Regantes* did not receive permission until 2006.

The design of the new irrigation infrastructure was made by engineers of the State organization CORDESA (*Cooperacion Regional de Desarrollo de Arequipa*) based on the plans initially made by the local people (see fig. 5.3). It included the construction of a main intake on the left bank of the Colca River (around 5 km downstream from the main reservoir-intake of Tuti), 10 km of open canal (with a capacity of 300 m^3/s), three tunnels (totalling more than 0.7 km), and a number of distributor valves, including exit gates in case of water overflow in the canal. The canal would feed two of the main ancient reservoirs of Coporaque, the *Mallku Qocha,* located in *Hanansaya's* moiety, and the Santa Rosa in *Urinsaya*.

Though financial support did not arrive, Coporaqueños already started building the main canal platform. They optimistically planned to finish 10 km of the canal in no more than five years. They could not imagine that this construction would take around 25 years until it was completely finished. The reasons why this project took so long are detailed in the next sections.

Fig. 5.3. Design of Canal Coporaque and the irrigated area (including the other four irrigation sub-systems).



5.4.1. The first years of optimism and work

The first years of the construction of the canal's platform, every *comunero* and *comunera* had to work without any difference, as a local leader said: '*[…] when we started,* e*verybody had to work on this canal, […] mayoristas and minoristas, men and women and even our children, without any difference, as a single united group […]*' (ex-president from the *C.Regantes,* April, 2006). Even those young people who did not possess any land (yet), worked on the construction, because the community promised to allocate new communal lands to eligible, potential community members who could earn rights to such land by working on the canal. After some years, water users agreed to invest their wage labour according to each land holder's current area of land. Hence, *minoristas* (landholders with less than one ha) would work less than the *mayoristas*, something they felt was more just. It was agreed that for every three *topos* (one ha) of arable land, people had to work on five metres of canal.

Constructing the main intake and canal implied a titanic effort for the people of Coporaque, not only in terms of labour and time investments, but also in terms of continuous political lobbying and battling with the governmental apparatus, and fighting against corruption and favouritism. And as if this were not enough, some local leaders let themselves be misled by the State's technicians. At the very beginning (1980s), most of the project budget was directly managed from Lima. Leaders had to travel frequently to Lima, spending time (three or four days travelling by trucks, as already mentioned above) and money. Once they arrived at the central office, they were sometimes mistreated by the bureaucrats as second-class citizens. They often had to wait for days until an engineer agreed to see them. When the project budget was finally released by the central office, it was channelled through the regional State organization CORDESA (*Coorporación Regional de Desarrollo*) located in Chivay. Unfortunately, most of this money went into the financing of the feasibility studies. Consequently, the Lima central offices cut off its flow of money, as they did not believe that the irrigation project would actually happen. One local leader records: '*the engineers from the Lima office did not believe that we were busy working hard on our canal. We had to hire a video camera to film and take photographs of our work, and bring those images to Lima to show those engineers the evidence of people's work and the progress of the construction […]*' (testimony of H Suyco, one of the *Comisión de Regantes* leaders, fieldwork September, 2006).

During the construction of the Coporaque canal, some local leaders tried to personally benefit from the project, such us in the case of the Ramosino[118] brothers. At the beginning of the project, they tried to gain the confidence of the users by demonstrating interest in contacting and negotiating with provincial and regional politicians, travelling to Arequipa or Lima, even paying expenses from their own pockets. They also proved their ability to organize and mobilize local people for the *faenas*. As they were persuasive speakers (the local people say *buena labia*) and knowledgeable[119], they succeeded in using their

[118] The Ramosino brothers assumed leadership (as *caudillos*) within the community and also at the provincial level, when they were young. They confronted some powerful, corrupt traders (such as the Lupe family), who had started to accumulate land and water in Coporaque. As the years went by, these brothers constructed strategic networks with local and regional politicians and bureaucrats, creating a fertile field for manoeuvring power and funds.

[119] In fact, one of the Ramosino brothers came to be known as a *tinterillo*, a person who has the ability to manage legal (and also illegal) bureaucratic procedures, to build alliances and networks with influential politicians, and to

influence and got elected as the Mayor (*alcalde*) of the Municipality. In fact, every three years, when there were *alcalde* elections, the potential candidates used the Coporaque canal project as a political banner to become elected as *Alcalde Distrital* of Coporaque.

During one of the periods (1983-1985) when one of the Ramosino brothers was heading the Municipality, construction of the main intake started. The *alcalde* took advantage of his good relationships with the technicians of CORDESA and misused the money allocated for construction. It appeared that there was not enough money to build the main intake at the agreed location, because it was said to be too expensive. Finally, people decided to build another cheaper intake, moving approximately 30 meters downstream from the initial design. They did this both to save money and to be able to continue lining the canal with cement. However, the money saved barely covered 1/8th of the total length of the canal (10 km). When the State required a financial account of the activities, it was clear that the progress of the construction did not match with the money spent[120]. This situation delayed the next release of funds.

People started to feel tired and disenfranchised when they realized that their leaders were using their project for personal profits. Even when they were determined to continue with the work, it was almost impossible to do it without the help of specialized machineries and technical support, for activities such as drilling three tunnels (of 500, 130, and 70 metres respectively) through the rocky mountain.

5.4.2. Up-scaling years of difficulties and discouragement

Precisely during these difficult times, one of the Ramosino brothers proposed an alternative to the Coporaqueños, consisting of an U-pipe (siphon) with one end in the MIP canal, which would cross the Colca River to transport water directly from this canal to the agricultural fields. This alternative would avoid spending too much effort in constructing 10 km of canal and some metres of tunnel, because the main valve would be located just in front of Coporaque's fields. In contrast to the *Canal Coporaque*, it would only require 2 or 3 years to finish the project. Importantly, it would not require the permanent political confrontations with the central government, since there was an NGO (CAPRODA) that was willing to support the project financially and technically.

Indeed, the Ramosino brother who proposed this was one of the founding members of this NGO and had political affinity with its director. He could therefore influence the decision of the board of CAPRODA to build the siphon. For the Coporaqueños the proposal was very tempting, since CAPRODA agreed to build the U-pipe and had funds to do so. They nevertheless rejected the proposal after having carefully analysed its advantages and disadvantages. First of all, they were aware that the moment they would draw water from the MIP canal, they would be completely dependent on AUTODEMA's willingness to regularly release a certain volume of flow into the river. They would also most likely have to pay a water fee to AUTODEMA for receiving this water. Coporaqueños wanted to control their irrigation project themselves, and they did not want to be dependent on outsiders. Secondly, they wanted to keep their rights to the Colca River

convince others by using and combining elaborate moral discourses with official and dominant discourses. In some situations such a person can even act as a lawyer.

[120] As explained, part of the money for construction materials went into the pockets of the CORDESA technicians and the first Ramosino brother who was then acting as Municipality Mayor.

water, a right that they considered legitimate since the river crossed their territory. Thirdly, Coporaqueños wanted to show the State water bureaucrats that their irrigation project was a viable one, as equal to or possibly even more sustainable than the ostentatious infrastructure of the MIP canal. They wanted to hold on to their project and pursue their effort to the end. Thus, to realize their aspirations, local leaders were not concerned if they had to travel many times to Lima, continuously running the risk of being ignored. They had the courage to reject the siphon project.

In the following years, the second Ramosino brother was elected as *alcalde* of the Coporaque district. He also won the elections by using the irrigation project as a banner. He promised to bring water to Coporaque's fields during his administration. The U-pipe re-appeared as a real possibility. The fact that people could have water for their drying fields within a short period, and the fact that CAPRODA had funds to make this dream come true encouraged a group of Coporaqueños to favour this option. The community thus came to be divided into two groups, those who wanted to continue with the *Canal Coporaque* project and those who wanted the siphon project. These differences of opinion once again brought the construction of the canal to a halt.

Finally, a collective decision to continue with the *Canal Coporaque* prevailed over the proposal made by Ramosino. People definitively rejected the U-pipe[121]. This time Ramosino had to carry out what the people had decided, and had to take the lead in continuing to build the canal. Indeed, he took that responsibility, and a large part of the structure of the canal was built. However, when the technical and economic evaluation was done by the central State engineers, many irregularities emerged: the amount of money spent on the construction was seen as inappropriate, since the newly constructed infrastructure would collapse as soon the water would run through, because of the poor quality of the infrastructure and, more specifically, the poor quality of the used cement mix. For Coporaqueños it became evident that the second Ramosino brother had misused the funds, again in alliance with the CORDESA engineers[122]. As a result, the next release of public money was once again stopped, until a consistent account could be given of the money spent. This did not happen. This affected the next *alcalde,* who took the post after Ramosino. When he decided to continue with the construction, he could not mobilize the necessary funds for renting of the machineries to drill the tunnels. The State (and other NGOs) denied supporting the project, until the required accounts were submitted. The new *alcalde* could not present these because he had not handled the former spending of public funds, but only discovered their misuse. This situation was a blow to the local leaders and created animosities among them.

Finally, when the hopes and patience of the Coporaqueños had almost vanished, they decided to make a last effort to finish their irrigation project, provided they would succeed to get State support to rent the necessary machinery. People agreed to implement what they called *operación hormiga* (operation ant), in order to work day and night. According to the testimony of one of the former Municipal Mayor:

[121]Later on (1990-2002), the community of Yanque asked CAPRODA to construct a U-pipe (called *Puente Sifón Chinini*), to bring 80 l/sec of water from the MIP canal to Yanque's *Urinsaya* fields, which are situated on the right bank of the river, in the north-east vicinity of Coporaque's fields.

[122] Interview to one of the *Alcalde* of Coporaque, who had to confront all the irregularities after Ramosino finished his period

> *'At times we had to work like ants. Indeed we organized the operación hormiga' working day and night by shifts, because we had to pay the rent of the rock drilling machine by the day, and not by the hours worked. So, we had to work 24 hours non-stop. We also sacrificed in order to advance with this endless project, because we wanted the water in our fields sooner. We did not want the work to continue for many more years'* (Ex-Municipal Mayor, June, 2006).

The last works would have been impossible without the support of local NGOs, like DESCO[123]. The municipalities of Caylloma province and Coporaque district also played an important role supporting the Coporaqueños.

In 2003, the Coporaqueños were overjoyed and even astonished when the first drops of water reached their drying lands, after almost 20 years of continuous efforts and struggles. *Canal Coporaque* mainly feeds the ancient reservoir *Mallku Qocha,* which was previously fed with water from Aqenta River, (see Fig.5.3). The water is used for irrigation during the day, and is stored during the night. This reservoir mainly provides water for irrigating the fields of Coporaque's *Hanansaya*. People worked for another five years to complete the last two kilometres of the canal that connects the *Canal Coporaque* with the ancient reservoir Santa Rosa, also fed by the Aqenta River, which provides water for the users of the *Urinsaya.* The sub-systems Canal-Coporaque-Mullku Qocha reservoir and the Canal Aqenta-Santa Rosa reservoir are considered most important by Coporaqueños, because they supply water for around 71% of their total irrigated area, benefiting 100% of the water users. Both reservoirs also represent a special cultural symbol within the wider ritualized water practices of Coporaqueños (see next chapter). The community has three more irrigation systems, but they are considered secondary because they only cover small areas, as can be observed in table 5.1.

Table 5.1 also presents the hydrological balance of each sub-system, calculated on the basis of the actual water supply measured in each sub-system and the water requirements of the local cropping pattern throughout the year (see also chapter 1 and the Annexe tables II-VI and graphs I-V, or Valdivia 2007). Each sub-system registers a water surplus during the rainy season (January-March) and in periods when most of the lands are not cultivated during the dry and cold season (April-August). The most important agricultural season starts in September, meaning that the critical water period exist from September through December, and sometimes into January when the rains delay. Precisely during these months most of the irrigation sub-systems register a negative balance. The water necessities are even more critical in the two most important irrigation sub-systems, which reveal a negative balance of water: measuring -1'446,954 m^3 during four months, in Canal Coporaque-Mallku Qocha, and -1,800,060 m^3 during five months in Canal Aqenta-Santa Rosa. The same happens with the other two subsequent systems. The total water deficit in Coporaque is about 3,388,319 m^3 during 4 months (Sept-Dec), which coincide with the period of peak irrigation demand. Only Ch'aqere registers a water surplus, but because this spring is situated at the bottom of Coporaque's land (see fig 5.3), people cannot use this water surplus. This means that the total water supply in four sub-systems does not cover the water necessities of the crops during the

[123] DESCO (*Centro de Estudios y Promoción del Desarrollo*) is an NGO that works in different departments of Peru: Arequipa, Ayacucho, and Puno. This NGO started to work in the Colca Valley in the early eighties on issues of rural agricultural development. Presently DESCO focuses its actions on the local political context (decentralization, good governance, people's participation, etc.).

critical period. This is one of the reasons why there are many conflicts among users during these critical periods. The water authorities have managed this situation creatively to ensure that water can reach everybody, as described in 5.2.1.

Table 5.1: Coporaque's irrigation systems and summary of the hydrological balance[1]

Irrigation systems	No. user	Irrigat. Area (ha)	Water balance/system (m^3/year)				
			Water surplus[2]	Month of surplus	Water deficit[3]	Month of deficit	Water balance
Canal Coporaque-Mallku Qocha reservoir	240	265.15	893860	Jan-Aug	- 1446954	Sep-Dec	-553094
Canal mqenta-Santa Rosa reservoir[4]	320	223.26	300180	Feb-Aug	- 1800060	Sep-Jan	-1499880
Canal WallalliK'uchu-Chilliwitira reservoir[5]	100	42.40	227238	Jan-Oct	- 17681	Nov-Dec	209557
Spring of Qachulle-Ch'usña reservoir[5]	120	123.30	365404	Dec-Set	- 123615	Oct-Nov	241789
Springs of Ch'aqere[5]	25	30.12	830194	Jan-Dec	0		830194
Total		**684.2**	**2616876**		**-3388310**		**-771434**

Source: Valdivia 2007 (research assistant, who made the hydrological study in Coporaque)

[1] Calculated with the method of Hargreaves. See table II-VI and graphs I-V from Annexe for the hydrological balance per month per each sub-system

[2] Sum of water surplus in the referred months (non irrigation period)

[3] Sum of the water deficit of the referred months (irrigation period)

[4] Without the additional flow of the *Canal Coporaque*.

[5] These water sources supply lower areas and cannot supply the main irrigation system.

Facing the higher water scarcity in the sub-system Aqenta-Santa Rosa, Coporaqueños spent great efforts to construct a canal that connects this system with *Canal Coporaque,* to get an additional flow. The hydrological balance calculations presented in table 5.1 do not include this additional flow, because the canal was in construction during the period of field research. Even if it were possible to store all the surplus water from the rainy months, there would still be a negative water balance (-771,434 m^3/year), even after *Canal Coporaque* started to operate.

5.4.3. Success, but still continuously swimming against the current

After the construction of the *Canal Coporaque* the community got 150-200 l/s of water. Although the canal was designed to convey 300 l/s of water, it cannot be used to its full capacity because the system only captures the seepage flow from the Colca River[124]. However, the effect of this additional water was almost immediate in the socio-economic dynamics of Coporaque. The community could re-incorporate around 80 hectares of abandoned ancient terraces into agricultural production and improve irrigation for more than 380 hectares of terraces. The irrigation frequency decreased from 80 days to every 25-30 days. Farmers could also significantly increase yields, soil productivity[125] and cropping intensity by cultivating twice a year. A number of Coporaqueños who had migrated to big cities such as Lima and Arequipa started to return to the community and

[124] To get water into the *Canal Coporaque*, people had constructed a sort of simple bund (1 m high) crossing the riverbed in the direction of the main intake to try to raise the level of seepage water

[125] Physical and chemical analyses of soil fertility for the terraces of Colca Valley by several researchers (Gelles 2002, Treacy 1994, Valdivia 2007) indicate a high fertility (see also Table VII from the Annexe). With additional irrigation, these soils can produce without artificial fertilizers.

intermittent migration dropped. Importantly, management and maintenance of the canal is done according to customary traditions and norms.

Before the *Canal Coporaque* became operational, people mainly cultivated barley (60 % for consumption and brewery), maize (30%), lima beans (*Vicia faba*) (5%) and other cereals (quinua, wheat, etc). Nowadays, the main cropping pattern consists of potatoes (24%), maize (20%), lima beans (19%), and barley (17%). Additional crops cultivated are alfalfa, and vegetables (Valdivia 2007). The production of these crops is both for own consumption and for the market, especially potatoes provide a good cash crop.

Coporaqueños are very proud of their people's project. They feel like the *Macon* experts who built the MIP, as the following text narrates:

> *'We* [Coporaqueños], *feel a little like MACON ourselves, because we constructed this canal and succeeded in bringing water from this river* [the Colca River] *to our fields. This is work that no community had dared to do until now; only we and MACON have done it. MACON used* [for the construction] *those modern and big machines; they had a lot of money and complete support from the State. But this canal is ours; it cost people's sacrifice, it was made with our own effort and blood […]. That is why this canal is like our creation, it asks us for care and attention, and we take care of it with tenderness […]' (*Testimony of H. Suyco, former president of the Comisión de Regantes, Fieldwork November, 2005*)*

Though Coporaqueños got more water with the construction of *Canal Coporaque*, as manifested above, there is still a negative water balance. This imbalance is critical in the two most important irrigation sub-systems, totalling 2,052,974 m^3/year (see table 5.1). Because of the negative balance of water, people are still struggling to bring more water from the Colca River and use the canal to its full capacity of 280 l/s. However, the MIP technicians, in compliance with ATDR's engineers, do not want to fulfil the agreement made at the beginning of the 1980s to deliver 680 l/s of water from the reservoir-intake of *Bocatoma de Tuti*. Their main argument is that the commitment was made when a multi-community project was planned. Since there is now only one community involved in the project, they feel it is not justified to deliver this large volume of water. Ultimately the document in which the agreement and commitment were signed, 'disappeared' among hundreds of documents of AUTODEMA. Coporaqueños now have nothing in writing with which they can appeal to the water authorities and ask for the fulfilment or re-neogotiation of the agreement. The former leaders who participated in the process of negotiation were not mindful enough to keep a copy. As already explained in the preceding chapter, AUTODEMA completely closes the floodgates of the *Bocatomade Tuti* (see also photo 6.2 of pag. 145), especially during the dry season (September-December) and sometimes into January when rainfall is late.

The Coporaqueños have frequently appealed to the *J.Usuarios'* and ATDR's engineers, asking for some interest in their case and for justice to be done. The main request from the people to AUTODEMA is not to drain the river completely at the Tuti intake-reservoir. These engineers have always promised to do their best for Coporaque, but in practice they have ignored their recent petitions. Indeed there has also been an attitude of criticism from some of these professionals, as they publicly accused *Coporaqueños* of

being responsible for negatively affecting the ecological flow[126] of the Colca River (as I witnessed in one occasion, when I was presenting part of this study's results in the Municipality of Caylloma, in Chivay, April 2007). They maintained that Coporaque has no official permission to use water from the river, and thus that the community's access to Colca River water is illegal. This is what the engineers claim, but as mentioned above, Coporaqueños gained this permission recently in 2006. Rightly Craik (mentioned by Blaser 2004) affirms that people's projects are pursued as an uphill battle where the dominant values of development and evolutionary progress not only block the way, but also continually undermine or subordinate them.

The other persistent problem that AUTODEMA causes for Coporaqueños is the damage to the main intake and the flooding at the head of the Canal Corporaque. This happens whenever AUTODEMA does maintenance on the MIP main canal (*canal madre).* On these occasions they close the MIP intake at the *Bocatoma de Tuti* and open all the floodgates, releasing not only a large volume of water into the river, but also the stones and sediment that accumulated in the reservoir-intake of *Bocatoma de Tuti*. Officially AUTODEMA's staff members have the duty to warn communities in advance about their maintenance work, through the *J.Usuarios* or the ATDR staff, who are working in Chivay (the main town of the Valley). Thus Coporaqueños would at least have enough time to close the gate of the main intake to avoid the entrance of sediments and stones into their canal. However, according to the testimony of one of the presidents of the *C. Regantes* (Oct. 2006) the technicians sometimes delay in warning the Coporaqueños, because they are reluctant to travel to the village, even though it is only 7 km from Chivay. In other cases the *J. Usuarios* contact a Coporaqueño who is in Chivay to warn the others about the MIP cleaning activities, but the contacted person may forget to convey the message to the *C. Regantes* leaders. I once witnessed, in a meeting of the *C. Regantes,* how the Assembly punished one of the users who had forgotten to convey the warning from the *J. Usuarios*. Because of this poor communication, the main intake and the canal get frequently damaged. The Coporaqueños have to repair it on their own, contributing with wage labour and fees to buy construction materials, such as cement. The local water authorities have at times asked for economic support from public organizations (Sierra Sur, PRONAMACH, and the provincial Municipality) or from NGOs (such as DESCO). In some cases they were granted some support, but this was not always enough to repair all the damage. This continuous struggle exhausts the Coporaqueños. One water user expressed his frustration with the official water authorities in a meeting of the *C. Regantes* (Oct. 2006).

> *'Who are we […]?. Are we perhaps the stepchildren [of the government]?. Because when something happens with the Majes canal they immediately come running to repair it, but when something happens with our own [Coporaque] canal nobody comes to our assistance and we have to deal with it on our own […] on the contrary, their project [MIP] is responsible for many problems in our canal'.*

This quote has a profound political meaning. It not only contrasts the enormous efforts and troubles the Coporaqueños have endured to receive even minimal support from the

[126] Environmental or Ecological Flow is defined as the quantity and quality of water required for ecosystem conservation and resource protection: this can provide a baseline flow for planning the abstractions from a river for different proposes (irrigation, hydropower generation, or other productive-economic activity). See also Tharme (2003).

government with the enormous amounts of money and energy that the same government is spending every year on the Majes Irrigation Project (see also the previous chapter). It also, importantly, points to the lack of interest and bias of state interventions in the area. This people's water project not only demanded to be included in the State's project of development, but also asked that the *terms* of inclusion be changed, the nature and direction of national development efforts be readdressed (Vera and Zwarteveen 2008). State development efforts strive to bring progress, but can sometimes create everlasting problems, when the views, knowledge and necessities of local people are not taken into account. Such a lack of insight and commitment affected not only the Coporaqueños, but many of the communities of the Colca Valley, including this final example of the villages of the Sihuas Valley.

5.5. The struggles of farmers from Sihuas Valley

As described in the preceding chapter, the MIP also affected the downstream part of the Colca-Sihuas-Majes watershed. The farmers from six villages (Lluclla, Caracharma, Ocoña, Santa Isabel, San Juan de Sihuas and Quilqa) alongside the Sihuas River were affected from the moment that the MIP started to operate in August 1983. These farmers reacted the very next day after the flooding of the Sihuas River (caused by the diversion of the Colca River flow into it) provoked the destruction of their irrigation infrastructure and agricultural lands located alongside both banks of the river.

However, after more than 20 years of continuous struggle, the farmers of this valley no longer know where to go. They have received minimal attention from official authorities for their demands. They have paid visits to different organizations[127], and brought evidences of their plight: papers, photographs and videos. Although many public studies and evaluations have reported the negative impacts of the MIP on the overall socio-economic life of the six villages (INADE 1997 and 2000, Civil Defence 2000, CTAR/ST 2000, AUTODEMA 1997 and 2001), regional politicians have come up with convincing solutions for the problems of the people in these villages. Faced with continuous pressure from the people, AUTODEMA tried to compensate a group of farmers with *parcelas* of 5 hectares, each in the *Pampas de Majes.* However, those people who got a *parcela* were all affiliated to the official political party, while others – including the poorest farmers – were left to their own fate*.* AUTODEMA's staff have also promised to adopt different measures to diminish the negative effects of the MIP, such as: improve irrigation practices in the *Pampas de Majes* to reduce downstream pollution*;* build complementary infrastructure in the *Presa of Tipay* to prevent invasion by sand and stones; and even recover the buried land. However, all these promises have been filed away and forgotten. Every time that a local leader is determined to demand justice, they have been corrupted by AUTODEMA's staff. Each of these leaders has been silenced by giving him a *parcela* in the *Pampas*. The only reliable leader, who was fighting for many years, suspiciously died in a traffic accident.

As a result, most farmers from this valley saw no other option than to leave their land and migrate either to the city of Arequipa or to the *Pampas de Majes*, where they turned into

[127]These include: AUTODEMA, the regional offices of the Ministry of Agriculture, INADE (Instituto Nacional de Desarrollo), INDECI (Instituto Nacional de Defensa Civil), CTAR (Consejo Transitorio de Administración Regional), UNSA (Universidad Nacional San Agustín), the Republican Congress, INC (Instituto Nacional de Cultura), etc.

agricultural labourers earning low wages. The magnitude of the MIP's impact on local dynamics shows in the number of local schools: in the last five years three schools have been closed in San Juan de Sihuas, because of a lack of students. As said earlier, the once flourishing and very dynamic Sihuas village is now no more than a ghost town.

Viewing these injustices, and at the deepest point of his disillusion, a local leader of Sihuas Valley who was president of the WUA, told me: *'[…] this makes me feel like becoming a guerrillero or terrorist, because they do whatever they want to us, they do not listen to us or pay attention to us, on the contrary they corrupt our leaders […]. Politicians only promise and promise, […], they only look for ways to benefit themselves, but they do not serve the people'.* (Personal interview with the president of the J. Usuarios of Ampato-Sihuas-Quilca, Feb. 2006).

This testimony from the irrigation leader reveals the potential of those 'othered' to act 'subversively' when legitimate means to demand justice find no response, and their whishes and arguments are not seriously taken into account by technocrats or politicians. The frustration of such people as those from the Sihuas Valley intensified when they saw how the Arequipa regional government, the national press, and the politicians instantly responded to problems affecting areas of the MIP. For example, there was immediate action taken in 2006-7 when the officials learned that the MIP was affecting the dairy infrastructure of *Leche Gloria* and the Panamericana Highway. In fact, the main paved road on the coast and the infrastructure of *Leche Gloria* began to break down because of excessive water infiltration. Only when these events were fully reported in the regional press and television did the inefficient water management of the MIP become a regional and national concern. The long history of struggles and water injustices of the affected communities never raised the same commotion and remained largely unknown.

In spite of these negative panoramas and injustices, the farmers of the Sihuas Valley remain hopeful and dream to construct their own people's irrigation project. They have made clear that someday, not far in the future, they will go back to their land and recover the production capacity of their Valley. To keep this hope and dream alive, these farmers are still paying the water fee every year, even when they are not using water for irrigation. By keeping their water rights, their water organization, and their water authority, they expect to have some chance to act and mobilize for justice and rights to a place. Water in this case is still a symbol of hope, which runs like a common thread thorugh their everyday struggle.

5.6. Conclusions

When examining and analyzing the different responses and struggles of people from the Colca and Sihuas Valleys to the MIP, one can agree with Arce and Long (2000, quoted at the beginning of this chapter), that every act of development is at least potentially an act of counter-development. Although the predominant and universalistic forms of modernity heralded by the MIP attempted to define the terms of irrigation development, local alternatives have emerged to defend local aspirations, capacities and rights. The local responses manifested themselves through multidirectional forms of resistance, such as: a) peaceful and violent mobilizations, b) the development of an alternative irrigation project, but also in, c) some kind of impotence and 'resignation'.

a) Cabanaconde, Pinchollo and in general the communities of the left bank of the Colca Valley acted firmly to have their claims for water justice listened to. In their struggle for water, they also demanded lawful legitimacy as citizens and they asked to be included in the State development project. They requested the central and regional government to pay some attention to their productive, cultural and organizational potential – a potential that had hitherto not been recognized. To do that, they even dared to blow up the impressive and unbreakable *canal madre* of the MIP. Women and men actively contested and resisted the hydraulic mission, even going as far as to dynamite this newly built grandiose hydraulic infrastructure. People from these communities were forced to take this action for several reasons. One is that engineers did not offer any alternative to people to compensate for the many local water sources that had dried up because of the MIP. Second, the government simply broke many of its promises about including communities as beneficiaries of the MIP. Third, people asked the State's politicians on many occasions and in different ways to pay attention to their water needs, without ever receiving a concrete response. And finally, communities were facing dramatic water shortages, aggravated by the drought of 1983-1990. Water was indeed a question of the right to life and dignity for communities of the Colca Valley. This is the reason why the women from Colca Valley, organized in FREDIVEC, did not hesitate to submerge the local governor in the water of the tank in the square of the main town of the province of Caylloma. His arrogant attitude in dismissing people's requests in front of the MIP authorities (AUTODEMA) simply infuriated them.

b) The irrigation project developed by Coporaqueños consists of acts of appropriation, re-adaptation, and open counter-movements to modernity. This project challenged the knowledge, technology and way of working of a State backed irrigation project. The people from Coporaque wanted to show the hydraulic engineers and water technocrats, represented by the Majes Consortium (MACON), that they were able to construct their own people's irrigation project, rejecting but also adapting the MIP's modern design and technology, constructing their canal with their own customary practices (*faenas and mingas)* and led by local authorities. For instance, where MACON drilled the rocky Andes and constructed the main canal of the MIP with the help of imported modern technology (including laser technology), *Coporaqueños* built their canal platform and drilled the rocks (on the other bank of the valley across from the MIP canal) largely with their own means. Their project, however (and unlike the MIP) did not get much attention from the State in terms of funds or technological support. Instead, Coporaqueños constructed their canal in a context of on-going exclusion and marginalization. This is the reason why one main intake, 10 km of canal and 0.5 km of tunnel took almost 25 years to be finished completely, while nearly 100 km of the MIP canal (88 km of tunnels, 12 km of open canal), 1 big dam (Condoroma) and 2 reservoir-intakes (*Presa-bocatomas Tuti and Tipay)* were finished only in 11 years.

It cannot be denied that the internal differences and sometimes conflicting interests, as well as corruption of the leaders of the communities, have sometimes weakened the effectiveness of organized, collective action. Individual interests and communal values and principles are continuously competing with each other. One source of mistrust is that building a community irrigation system still depends on public or other external funds. Mobilizing and handling such large sums of money creates opportunities for local leaders to misuse the money. This can block or delay the people's project temporarily, as happened with the Ramosino brothers. This does not mean that external support (funds, technical guidance, and facilities) from the State or NGOs are not necessary. On the

contrary, especially in irrigation infrastructure construction, external support is desirable if it also brings supportive advice and assistance. However, to understand and support a peoples' project it is necessary to be aware of the possible existence of opposing value systems and contrasting interests within communities.

Though external or internal factors can block local initiatives to construct a people's irrigation project, most Andean communities have learned how to develop these projects in a constant marginalized environment. The strength of these projects consists in their local legitimacy as compared to alternatives decided by others. For instance, Coporaqueños rejected the U-pipe siphon project proposed by CAPRODA and promoted by some local leaders, because it was not the alternative they sought. Despite their urgent water needs, the lack of external support, and everyday problems during the construction process, Coporaqueños had the courage to reject this attractive proposal. They instead wanted to pursue their own project, because they wanted to stay in control and autonomous. By doing so, people also wanted to assure local livelihood strategies, which somehow, create or strengthen self-reliant[128] communities.

The design and construction of the *Canal Coporaque* was strongly embedded in local traditions and customary practices, and even in local ways to resist hegemonic interventions. Thus, the *Canal Coporaque* was a project with identity, or a place-based project, encompassing past, present, and future visions of the socio-cultural and natural environment from a different perspective and logic than those promoted externally. Since these projects emerge from people's dreams, experience and knowledge of their necessities and environment, it establishes a reciprocal feeling of belonging between people and infrastructure, and between people and water. This sense of reciprocal belonging is renewed every year through rituals of offerings and water feasts, as I will show in the next chapter.

People's irrigation projects also enable community members to renew and reinforce traditional Andean collective work parties (*faenas* or *mingas*) which at the same time grant each *faenante* with rights to use water, and create a sense of collective ownership of the constructed system. This collective ownership is also translated into individual rights and obligations. This contrasts with a State irrigation system, where water rights are purchased (Boelens 2008a). Consequently, as people's irrigation projects are invested with particular political-cultural meanings, they also constitute one of the ways in which people do politics from below. To a large extent, by redefining what water development is about, these kinds of projects also involve the transformation of power asymmetries in front of exclusive alternatives defined by others..

c) In some situations, the efforts of communities to develop a people's project can fail. Collective effort and action may be weakened or dissolved by intended and unintended counterforces, like what happened with the efforts of the three communities (Lari, Madrigal and Coporaque) of the right bank of the Colca Valley in trying to develop a multi-communal irrigation project. During the design of this multi-communal project there were internal and external counterforces that in the end forced the leaders to give up on their irrigation aspirations. The lack of political interest, and the egoism of the MIP

[128] Self-reliance implies (according to Parajuli 2004) reducing dependence on other places, or on external, centralized decision-making policy. However, it does not deny the desirability of establishing different socio-economic and political relationships.

officials, as well as the manner in which local leaders were treated as second class citizens by government officials, finally discouraged the leaders. Many cases throughout the Andes report similar incidences of how powerful interests have acted as counterforces to the successful development of people's irrigation projects (Boelens 2001, Castro 2001, Ploeg 2006a,b, Román 2010).

When seeing the case of the villages of Sihuas Valley, it can be noticed that here too, the people's capacity to respond to adversities and continue developing their flourishing agriculture was broken. This happened because the productive capacities of their land and water were continuously undermined. Yet, farmers from this valley are still paying the water fee as a way to keep their water and land rights, as well as to maintain their right to a place.

In all, this chapter has shown how place-based struggles and people's projects are not only critical in the ethno-politics of water, but also that water is often a key focus for the development of these politics. The older traditions of community affiliation and access to resources have also played a role in shaping these claims and struggles to access, store and deliver water alongside new political networks. The duality of gender roles in water management has also enabled women to take a vital role in these struggles, especially at the local level. In the next chapter I describe and analyse how water traditions still play this role in communities of Colca Valley.

Chapter 6
Irrigation organization, water rights and everyday water politics in the Colca Valley

The construction of rights, authority and collective identity

'Local water rights systems are not just incomprehensible and inadequate in relation to conventional wisdom (labelled rationality) or a standard concept of justice; in the eyes of officialdom they are most of all unmanageable, expressing 'unruly' disorder.' (Boelens 2009:307)

6.1. Introduction

The organization of irrigation in the communities of the Colca valley and the everyday politics that are part of it, emerge from the complex interplay of the forces of historically-rooted institutions, new institutions that sprang from recent policy reforms, as well as the struggles to maintain the 'peoples projects' described in preceding chapters. This chapter explores this interplay, looking not only at the requirements and opportunities it gives for irrigation in practice, but also at how these institutions and the meanings attached to them construct politics within water organizations and are part of the real political action needed to keep current irrigation organizations and water rights working for local people.

Taking the cases of the communities of the Colca Valley, in particular Coporaque and Yanque, this chapter analyses the construction, transformation and legitimization of water rights and the politics of difference. It shows how local plural ways to construct and legitimize rules, water rights, and authority are linked to water security practices. Concepts of equity, fairness, efficiency, respect to collective agreements and authority, as well as respect to gendered water deities, continuously intertwine, constituting principal elements around which local ideas and practices of water security are manifested. In everyday realities, water users appeal to different normative systems to construct, activate and materialize their rights to water, making use of the plurality of legal systems that are present in the area. Yet, most of their claims and practices remain also strongly shaped by customary norms and traditions. Traditional institutions have remained valid since before the Inka period, and are importantly based on the attribution of a sentient meaning to water, which is seen as a gendered living being. Seeing water, and nature in general, as a living being means that people treat it with reverence, and explains why relations between humans and water are expressed in elaborate rituals constituting the symbolic dimension of water rights. This relational and supernatural (symbolic) meaning of water also manifests itself in how water rights and security are expressed.

In the first part of this chapter I draw attention to the rituals and traditions present in irrigation management in Coporaque, with special attention to the yearly celebrations of the water festival called *Yarqa Haspiy.* This festival embodies political, cultural, normative and technological aspects, and is of crucial importance for the materialization of water rights, as well as for the establishment of the authority and autonomy of the local water user organization. Although clearly based in century-old customs and traditions, water management in the Colca Valley is not static. People have changed their ideas and practices over time, adapting to new situations, by appropriating and repositioning new laws, discourses and new official water authorities within their own local ways to

construct water rights, authority and community. The subsequent section describes the traditional and official water authorities (of the *C. Regantes)* describing how both systems of authorities support and complement each other to accomplish the ritualized management of water. By working together, the legitimacy and power of the local organisation is reinforced. The third section discusses how water users and representatives work with these plural aspects of water management in Colca Valley communities, describing events and outcomes in Yanque as well as Coporaque. It shows how both locally constructed agreements and rules adopted or adapted from outside become legitimate and serve to guide the management and control of water, to punish free riders and even to confront other authoritarian rulers. However they are also an arena of struggle over meanings and a field of cultural politics in which norms, rules and authority are contested.

For the analysis of the chapter, I draw on the conceptualization of water rights of Boelens and Zwarteveen (2003), the complexity of these rights (Roth 2005), the definition of politics by McCann (2002), and frameworks to study ethnicity and identity affiliation of Brumfiel (2003) and Jenkins (1994), detailed in section 1.5. Boelens and Zwarteveen have described the dimensions as well as the categories of water rights shaping irrigation practices. The socio-legal, technical, and organizational (including the symbolic) dimensions of rights link with the different ways in which rights become manifest: as reference, activated and materialized rights. McCann's definition of politics, as the appropriation and transformation of meanings, enables the study of cultural politics enacted when social groups embodying different cultural repertoires and practices come into conflict. In this chapter I show that the interpretation, representation and meanings attached to water are a source of social processes that must be seen as political in how they affect negotiation, cooperation and conflict around the use, production and distribution of water. The seriousness and importance of these politics shape the everyday working of the irrigation system, and also determine how well a community can hold its resources and community management intact against external discourses and pressures. The processes of identity affiliation described here will show how this encompasses not only identity traits but also the struggle by which different groups attach meanings to water, land and landscape.

6.2. The water ritual of *Yarqa Haspiy* in Coporaque*:* The symbolic dimension of water rights

'[...] Even today there is still this veneration of the water sources, springs, ditches and rivers that pass through the village and farms. And they also honour the springs and rivers, […]. They particularly revere the union of two rivers. [...] [they] s*acrificed and offered sea shells to the fountains and springs [...] because the shells were daughters of the sea, the mother of all water* [springs'. (Polo Ondegardo, cited by Orihuela 1994).

In the communities of the Colca Valley, different forms of interactions and power relationships are developed not only among the water users and other competing claimants, but also between users and engendered water deities, or between users and nature. The cosmology of the inhabitants of the Valley attaches a special meaning to a place as sentient and magical, with the earth, mountains, rivers, lakes, forests, etc. being considered as animated entities. To better understand this symbolic and religious dimension of water rights, this section describes the ritualized water practices in Coporaque and across the Colca Valley, best expressed in the *Yarqa Haspiy* or cleaning of

the canal. This description allows a better understanding of how the other dimensions of water rights (socio-legal, technical, organizational) interact with the symbolic.

When in 1571 the Spanish chronicler Polo Ondegardo reported about the religious meanings that indigenous people attributed to water, he could hardly have imagined that these practices would survive in this globalizing world, and that they would continue to play an important role in the construction of local authority, ethnicity, and resistance.

The name of the main water festival, *Yarqa Haspiy*[129] is probably a strategic name that was assigned, after the Spanish colonization, to a set of cultural manifestations dedicated to water. As explained in chapter 2, the Spaniards tried to abolish local manifestations of culture and religiosity, forbidding its practice and persecuting religious authorities. However, indigenous people continued practicing their rituals clandestinely during the night, as the writings of Ávila (1966[1598]: 35-36) illustrate. This Catholic priest reported, for instance, that when the Spanish priests asked the indigenous people of San Lorenzo de Quinti (Huarochiri-Lima) what they were doing in their unusual and suspicions meetings during the night, people answered that they were busy with the *Yarqa Haspiy* (meaning the 'cleaning of the canals'). This was indeed what they were doing, but they were also honouring *Mama Choquesuso,* the main water deity of that time, and installing their traditional water authorities.

Nowadays, people from communities of the Colca Valley, and from the Andes in general, still consider water (and nature) as a deity, and celebrate rituals and festivals in its name. In their worldview, deities relate with humans and the rest of nature in a hierarchical and reciprocal, magical way. Water deities, as humans, need to eat, marry, establish networks and authority, and they can be offended. For instance, *Tata Mismi* (one of the snow-capped mountains situated on the right bank of the Colca Valley) is considered the husband of *Mama Umahala* (a spring also located on the right bank, in the territory of the community of Yanque), and the two of them have children (other small mountains and water sources). *Tata Mismi* is seen as more powerful than the other local mountains (*Apus),* because He provides water to five communities (Yanque, Coporaque, Ichpampa, Lari and Madrigal). *Mama Umahala* is highly esteemed by people from Yanque. There even is a family (Checa) whose members, already for centuries, have devoted themselves to serving this deity, as a sort of priests. This duty of priesthood has been inherited by the Checas (the name comes from *Cheqaq*, meaning a trustworthy person) from their ancestors. In fact, the *Cheqaq* was a system of religious water authorities established before the time of the Inkas, as the narratives of Ávila show (Ávila 1966[1598]).

The interaction between female and male water deities, human beings, forests, animals, and mountains can best be characterised by a shared feeling of interdependence. It is based on a deep awareness that co-existence is required to make a certain place secure, 'warm', and sociably sentient. The importance of co-existence is what local people call *uyhuay*, which literally means (from *Runa Simi*) 'nurturing and caring for each other'. According to my experience in my own community, an experience that is corroborated by many studies in other Andean communities, nurturing and caring for each other is not a

[129] The indigenous people appropriated this name strategically to hide that this was a religious event. It seems that its original name was *Oma Raymi,* which means the 'festival of the mother water'. The event was such an important celebration in the Andes, that it was considered as one of the 12 calendar months of the year (as already explained in chapter-2). For more details see also Cobo (1892), and Carrion (2005).

simple task, but is very complicated and challenging, intertwining feelings of responsibility, reciprocity, selfishness, spirituality, material wellbeing and power relations. *Uyhuay* is not free from struggles and conflicts. It is also a political skill that sustains communality and collective identity or ethnicity, coloured by hierarchical (class, ethnic, and generational) relationships. Although each community member must learn how to reproduce *uyhuay,* traditional authorities, elderly people, and women play a particularly central role in producing and reproducing it. The concept of *uyhuay* also plays a crucial role in the construction and materialization of water rights and politics.

The water festival *Yarqa Haspiy* embodies a set of normative, moral, and religious repertories of rituals, in which traditional authorities play an important role. I therefore first explain how the traditional system of water authorities is organized in Colca Valley, before moving on to describe *Yarqa Haspiy.*

6.2.1. The traditional water authorities

As described earlier, the traditional water authorities have existed in the Andes since the first cultures started to develop irrigated agriculture. These authorities have been awarded different names throughout history. However, some ancient names persist until today, surviving the different periods of transculturation. For instance, until recently in Coporaque, water authorities were named *Mallku Kamayoq,* which means the server of *Mallku,* the male water deity of the culture of the Collaguas. In other communities, traditional water authorities are still called *Yarqa Voto,* meaning the one who is in charge of looking after the canal. In some communities of Cusco, water authorities are called *Qollanas,* referring to the top leaders existing before the Inka period (see also Vera, 2004). Most traditional water authorities in today's Colca Valley use the names assigned to them during the Spanish colonization, such as *Alcalde de Aguas, regidor,* and *juez de aguas.*

Most of the duties of the traditional water authorities (or water mayors) are not written down, but consist of unwritten agreements. State water authorities have occasionally pressured communities, like Coporaque, to document their recognition of these authorities in a written form, as in the internal bylaws of the water user organization, so that their existence would be formalized. Coporaqueños gave in to this pressure also because they hoped it would facilitate obliging all users to assume the task of *regidor* at least once. In addition to the above described authorities there are other ones that play a role in the domain of water. These are the *cabecillas* (headers), *traceros* (tailers), and *voto mayores* (thanks givers). All these minor authorities help the *regidor* in celebrating the water festival and rituals, and organizing the cleaning and maintenance of canals.

Andean priests[130] are additional important authorities, who collaborate with the water mayors. They are recognized with various names in the Colca Valley, such as: *Paqo* (the server), *Rikuq* (the one who can see everything), *Kamachikusqa* (the anointed), *Altos Pachas* (from a high position) or *Llapakay* (the one who is powerful). All these different names reflect that Andean priests are highly esteemed and respected, an esteem and respect that are based on their mystical knowledge about the vital energy of nature. The

[130] These are local spiritual leaders and healers who perform the rites of the local religion. The Spanish colonizers tried dismissing them as sorcerers (in case of men) and witches (in case of women). In some places, they are still referred to as such. However, indigenous people recognize them as priests and as religious authorities.

priests are responsible for reproducing this energy and for reinforcing the link among humans, nature and deities. They have a moral commitment to society, not only as a religious authority, but also as a political one. So, during the inauguration ceremony of the new *regidor*, the priest performs the ritual of transferring power to the new *regidores* of *Urinsaya and Hanansaya* through transferring the *Vara* (snake- or condor-headed staff) to them. This *Vara* symbolically confers authority to the *regidor* and his wife, and also offers protection to their families, their livestock and their agricultural production in general.

In the Colca Valley, each community has two principal water mayors, according to the ancient division of irrigation systems in moieties: the water mayor of *Urinsaya* and of *Hanansaya* respectively (see photo 6.1). These two moieties are usually the bigger and more complex water systems of the community and the most difficult to manage. Next to these principal mayors, there are the secondary water mayors, who manage the smaller irrigation sub-systems. As mentioned earlier, Coporaque has five irrigation sub-systems, thus there are five water mayors. The *Urinsaya regidor* controls the Canal Aqenta-Santa Rosa reservoir, and distributes the water to the users of *Urinsaya;* the *Hanansaya regidor* controls the Canal Coporaque-Mallkuqocha reservoir, and distributes water to the users of the *Hanansaya* moiety. Both mayors (*regidores*) are also responsible for celebrating the *Yarqa Haspiy*, according to customary norms. The three secondary *regidores* administer the other three sub-systems, and they do not celebrate the *Yarqa Haspiy,* although they can perform some water rituals.

Photo 6.1: The regidores of Urinsaya and Hanansaya carrying the Vara (Coporaque, Aug. 2006)

Photograph from my own archive

The tasks of the principal *regidores* are generally considered to be more appropriate for men than for women, although women sometimes also assume this charge. People explain this by referring to the types of skills required: one must have a strong character to distribute water equally among the users of the complex system; one must be smart in

order to make sure that water gets to the users at the right time and in the right order; one has to wake up very early almost every day (around four in the morning) in order to start distributing water and make sure users are irrigating correctly and the water reaches everybody according to the plan for that day. According to Coporaqueños (both men and women) it would be very difficult for a woman to occupy the position of principal *regidor*. However, the internal bylaws state that both female and male users can assume this charge, and in practice women do. When a woman occupies the charge of *regidor*, she feels proud of it. One ex-*regidora* of Yanque community told me about her conversation with a man who was reluctant to become a *regidor*: '*I said to that man, don't be a coward. See my example, as a single woman I assumed my responsibilities and properly organized the water feast'*. Besides, she argued, '*it would be disrespectful if the upcoming regidores would not be observing the customs of our ancestors, and it would even be disrespectful to Tata Mismi and to Mama Umahala'* (fieldwork, Sept. 2006)

When a *regidor* does not properly assume his duties, his wife may step in. There are many cases in Coporaque in which the wives of water mayors have had to take over their husbands' positions – including situations when the husband drank most of the time, or when he was ill or migrated. What is interesting to highlight here is the irrevocability of the position of *regidor.* This is unlike other official office bearer positions (for instance in the *C. Regantes),* where people can be removed from their position when they do not perform their duties well. The traditional water authority thus cannot be replaced, because the position is part of the religious *cargos* system and also is a service to water deities.

The water mayors assume their charge for one year, and sometimes the period is extended for one or two months, when rain does not arrive on time. During this period they perform different religious, administrative and management activities, according to the hydrological and agricultural cycle. Their activities start in January (rainy season) and usually finish in December. During the first two months of the year, the two newly elected water mayors, accompanied by the Andean priests, celebrate (at their respective houses) for one day the *Mallku Tinkay,* which is a ceremony expressing thanks for the rainy season and the harvest. In this celebration, the water mayors, both husband and wife, are visited and recognized by the members of the *C. Regantes*, and different local authorities[131], who offer them traditional beverages and food. This is also the moment in which both *regidores* start asking their relatives' help and assistance to organize the water festival, which takes place in July or August. They also name their minor authorities[132], asking them to share responsibilities and authority. This process of asking for assistance is a special ritual, as part of *uyhuay* practices. The couple, especially women, have to 'steal the heart' of their helpers, offering some presents (bread, flour, flowers, fruits, and local beverages). During this ritual they use very nice persuasive words, such us: '*my dear sister and brother, my dear mama and papa, we come to you faithfully, please help us […] it is only a reciprocal service* (ayni), *this time you will do it for me and tomorrow we will do for you […]. In this way we will carefully nurture and care for each other* [uyhuay]*'.* This moment is an opportunity for the wives of the *regidores* to

[131] These include the mayor of the municipality (*alcalde)*, the judge, the governor, and communal authorities.
[132] These authorities include not only those mentioned in the former paragraphs (the cabecillas, traceros and voto mayors), but also those who will help prepare food and *chicha* (an Andean beverage prepared from maize, barley, and quinoa) during the five days of the water feast celebrations, as well as those who will help gathering fuel (or firewood), people who will act as dancers (*K'anas*), the transporters of food and beverage during the pilgrimage to the sacred springs, the musicians, etc.

develop abilities of *uyhuay* and organize a large group of female collaborators to successfully celebrate the *Yarqa Haspiy.* Having many female helpers is important, because women are in charge of preparing food and beverages to offer to the crowd during the three days of the festival. Women are also responsible for manufacturing the celebratory dress of the family, and preparing presents for the collaborators (see also Valderrama and Escalante, 1988).

In the subsequent months, during the rainy season (Feb-March), some communities celebrate what they call the *Qocha Mayllay,* or the cleaning of the reservoir. The ceremony is accompanied by rituals and music, and is led by the *regidor* and the Andean priest. After the rainy season, during May and June, the new water mayors start preparing their offerings (named locally as *pagos,* or *Irantas* or *Ch'ikes)* to the sacred springs and mountains, just before the great water festival or *Yarqa Haspiy* starts. Sometimes, traditional authorities also make a pilgrimage to the main sacred *Apus* or snow-capped mountains to offer presents and symbolically demarcate their water territories. The Andean priest and the water mayors of Coporaque and of Yanque communities for instance do this, to clearly demarcate the hydrological territories between their communities. In principle, both communities use water from the same source: the melting snow of the Mismi snow-cap, situated within the communal lands of Coporaque. Since ancient times, the Yanqueños also use water from Mount Mismi. In the upland, their canal crosses the territory of Coporaque. Every year (and sometimes twice a year), the water mayors from both communities, together with the Andean priest, undertake a pilgrimage to the Mismi to perform some water rituals. By moving alongside the canals and water springs, water authorities bless the water places, while simultaneously establishing the respective boundaries of their water territories, thus maintaining a certain cosmo-political order (Rodríguez 2006, Perez-Galán 2004).

Finally, when the month of July or August arrives, people are ready to celebrate the most important cultural event in the Colca Valley: the *Yarqa Haspiy.* Occasionally, when the rain does not arrive on time, during the month of November or December, the traditional water authorities hold a ceremony called the 'invocation of rain'.

6.2.2. The Yarqa Haspiy celebrations

People from Coporaque spend nearly one month celebrating this traditional water event. Each activity is an opportunity for people to create and consolidate social and family networks, what some authors term 'cultural capital', where people mobilize huge amounts of human and economic resources, as well as expertise and knowledge. These events are truly fields for wielding and yielding power, where identity and culture are re-produced, and authority and local politics are legitimized.

Yarqa Haspiy consists of a series of ceremonies in honour of *Tata Mallku* and *Mama Uma,* who, according to the local ideology, provide water. These deities also protect and give wisdom to the *regidores* (including their families) so that they can perform their duties well and serve the community properly (Vera and Zwarteveen 2008). The celebration combines intensive physical work, moments of pilgrimage, spiritual worship and the offering of presents to both deities. Honours are also dedicated to Mother Earth (*Pacha Mama)* and to various *Apus* or sacred mountains located in the Valley and in the region. In the case of Coporaque, at least six distinct moments can be distinguished in the celebrations of the water festival: 1) the 'private reception' of the *Mallku*, 2) the cleaning of irrigation infrastructures, 3) the public reception of the *Mallku*, 4) the pilgrimage to

the sacred springs, 5) the democratic grassroots meeting, called *Rimanakuy,* and 6) the water festival itself.

1) The 'private' reception of the *Mallku*.

This ceremony is called *Tiachikuy* (literally meaning 'inviting someone to sit down') in Coporaque, and is held in the house of each *regidor* during midnight, finishing before the sunrise. On the last day of July, the *Uninsaya and Hanansaya* water mayors and their spouses invite the Andean priest, their families, and their minor water authorities to 'receive' *Tata Mallku.* The water deity is embodied in the *Vara* (condor or snake-headed staff), which is placed on a sort of shrine, temporarily arranged in the central part of the *regidor*'s house. While the participants drink *chicha* and chew coca, silently sitting around the *Vara*, the priest prepares different kinds of offerings or *Irantas* to present to the different local and regional water deities and to the 'protectors' (spirits) of the irrigation infrastructure. He also asks the deities' permission to start with the yearly water celebrations.

Offerings are deemed as a delicious festive 'food' for the deities. People consider offerings as part of *uyhuay,* or the mutual nurturing and caring between Mother Nature and humans. The *Iranta* contains: coca, various colours of grains (maize, quinoa, amaranthus, and beans), flowers, incense, cotton, miniature animals made from tallow, little mugs containing wine, *chicha*, vicuña blood, and a foetus of an Andean camel (vicuña, llama or alpaca). It also contains little books made from shiny silver and gold paper. Every component of the *Iranta* has its own meaning. For instance, the light yellow colour of grains and flowers represent wisdom, which is asked for the *regidor* and his wife to govern water with justice. The white colour means peaceful relations among users, and respect for the water authority. The red colour means a very active spirit (energy) for users for working and cleaning the canals, the light black means a spirit of collaboration (reciprocity). The blood of the vicuña symbolises the fluidity and velocity of water, also expressed in the local saying: '*water must run like a vicuña'.*

The priest, after preparing all *irantas,* congratulates the water authorities (both husband and wife) and exhorts them to carefully fulfil their duties in the name of *Tata Mallku,* and for the wellbeing of the community. Finally the priest, in the name of *Mallku,* authorizes the traditional authorities to start the water festival.

2) Cleaning of the irrigation infrastructure, or *Yarqa Haspiy*

The next day (August 1st), very early in the morning before sunrise, the minor water authorities (the *cabecilla* and the *tracero)* of the *Urinsaya* and the *Hanansaya* moieties, announce the beginning of the water festival celebrations and the cleaning of the irrigation infrastructure by playing clarinets and drums. Two or three hours later, male and female water users, organised according to their *saya* affiliation, attend the *faena* (for the maintenance of the canals) equipped with the necessary tools. Work starts at the tail-end of one of the secondary canals and finishes at the head of the canal, at the connection point with the main canal. Before starting the *faena*, the minor traditional authorities offer the *Iranta* (prepared the night before) to the spirit 'protectors' of the canal, asking them permission to start the *faena,* and their blessing to finish it successfully.

After the rituals of offerings, the group of *faenantes* distribute themselves along the canal; the *cabecillas* ('header') places him or herself at the head of the group and the *traceros*

('tailer') at the end of the group. Upon the command of the header, the work starts; and when the 'tailer' gives the sign that work has been finished, the whole group moves to the next stretch of the canal. The work is differentiated by gender: women cut the brushwood and thorns (which grow along the canal) with a sickle, while men follow them removing the mud or stones, or in case it is necessary, repairing the canals (see photo 6.2). In the case of the cleaning of the reservoirs, both men and women work equally (see photo 6.3). Women are often elected as 'header' or 'tailer', and their role is highly appreciated.

Photo 6.2: Cleaning of the canal
(women head the work cutting the shrubs)

In general, users try to participate in the *Yarqa Haspiy,* because it forms part of the socio-cultural practices that constitute the fabric of Coporaque society. For young people, participation helps in their socialization as *comuneros.* Participation in the festival and in the *faenas* also re-enforces local identity, it is a fulfilment of religious duties, and a way to do service to the community. During the *faena*, there are two musicians animating the workers all day. Finally, when the group takes a rest, the so called *voto mayors* (usually families of the *regidores*), offer beverages to the tired and thirsty people.

The cleaning of the secondary canals continues every day until the fifth of August, the day when the water users start cleaning the two main ancient canals, called the *canal madre of Aquenta* and the *canal Inka*. The first is cleaned by the users of *Urinsaya*, and the second by the users of *Hanansaya.* When the cleaning work finishes, both groups gather at the inlet of the *canal madre Aquenta*, and prepare to publicly receive *Tata Mallku.*

Photo 6.3: Cleaning of the reservoir Santa Rosa

Photographs from my own archive

3) The public reception of *Mallku* or *Mallku Chaskiy*

On the fifth of August, the Andean priest and the *regidores* of *Urinsaya and Hanansaya,* together with their wives, are responsible for conducting the ceremony of the public reception of *Mallku*. They are equipped with different kind of foods (corn meal, barley meal, quinoa meal, wine, *chicha*, and vicuña blood) to 'feed' the *Mallku*. This is the first time that the traditional water authorities carry the *Vara* in public. This imposes respect among users, who kneel down and kiss the *Vara.* The official water authorities (of the *C. Regantes)* are also present in this ceremony, thus publicly recognizing and accepting the *regidores*, and also showing the water users that they respect and collaborate with these authorities. They also accompany both *regidores* during the symbolic reception of *Mallku.*

At the moment of the symbolic reception, both *regidores*, together with their wives and their minor water authorities, the priest, and the authorities of the *C. Regantes,* stand in the canal (without water) forming a line. There they wait for some minutes, until the first flow of water coming from the springs of *Willcaya* and *Sahuara* (fed by the snow-capped Mismi) touches their legs, which is when they all immediately kneel down, take the turbid water with both hands and drink it with reverence. After this, they offer (pour) the different meals into the water, walking a short distance along the canal (photo 6.4). This entire ceremony is accompanied with music and the enthusiastic applause and cheering of all the users. The ceremony itself is so moving that many people cry tears of joy.

In some villages (for instance in Yanque), the rituals are differentiated by gender: only the wives of the water mayors can enter into the canal, while their husbands stay at its edge. The wives of the water mayors (named *Alcaldesas)* play the role of the 'wives' of the *Mallku,* or of the *Tata Mismi.* The *Alcaldesas* stand with their legs spread over the canal, and at the first moment water passes through, they pour the meals and *chicha* into the water. At that moment the female water mayors recite: '*Tata Mismi, Tata Mallku, you are my husband, we are tied with a golden chain. Today I ask you to be pleasant with your*

children, to meet all our water needs, and to let our crops grow nicely'. The husbands, together with the rest of the people, ceremoniously greet the water, while drinking *chicha* and setting off fireworks.

Photo 6.4: The reception of the Mallku (the water deity) by the traditional authorities

Photographs from my own archive

In contrast, during the ceremony of *Mama Umahala,* at the spring of the same name in Yanque, only the priest and male members (of the family Checa) are allowed to perform the central ceremony. In this place, the ancestors built a concave altar with perfectly shaped stones, resembling a woman's vagina and legs. In this concave altar the priest (the head of the Checas) and their assistants offer presents. At yet another spring, the *Mama Choqechicha,* located in the community of Callalli, the offering rituals are performed by women only; men are not allowed to come close to the spring.

After the ceremony of the reception of *Mallku*, Coporaqueños prepare to make a pilgrimage to the highlands where their sacred sources of water are situated.

4) The pilgrimage to the sacred water springs.

On the ninth of August, the musicians again announce another water event: the pilgrimage to the sacred water springs (photo 6.5). This time the announcement is made just after midnight (00:30), because users will start the pilgrimage between 01:00 and 03:00 in the morning. Usually, people are busy all night, preparing their working implements, food and beverages for this symbolic event. Upon the call from the musicians, when it is still very dark, women and men start climbing up the high

mountains and after walking for 4 or 5 hours[133], they arrive at the source of water. The users from *Urinsaya,* under the direction of the traditional authorities approach the *Sahuara* spring, and the people from *Hanansaya* go to the *Willcaya* spring. At that place the Andean priest, the *regidor,* and the minor traditional water authorities perform the offering rituals. In the meantime, the authorities of the *C. Regantes* organize users into groups of 15 people and start repairing and cleaning the ancient canals that bring water to the Qantumayu River, and from there to the canals of Aqenta and Inka.

At the end of that day, people return to their village, and although they feel exhausted, they sing and dance. At the entrance to the village, the members of the board of the *C. Regantes* welcome the *faenantes* with music and warm drinks. After a short rest (two days) people start preparing for the celebration of the central water festival, which starts with *Rimanakuy,* as explained below.

5) The democratic discussion meeting or *Rimanakuy*

On the eleventh of August, after the ritual of offering at the Santa Rosa reservoir (during the night), people gather at this ancient reservoir to fulfil different activities. First, they discuss different issues related to water activities and irrigation. On this occasion, each community board member (including the municipal mayor) informs the community members about their achievements and performance of the past year. Each man and woman thus has the opportunity not only to judge their leaders, but also to give them feedback. At the end of the meeting, people elect the two new *regidores* of the respective moieties, who will perform their duties in the year to come. The election is made following the alphabetic order of the water users inscribed in the *C. Regantes* registers of membership. When a user cannot assume this duty, because of different reasons (like the death of a relative) he or she can postpone his or her obligation to the next year(s), and the next user in the list is elected.

Finally, the participants, organised in groups of ten people, spend the rest of their time cleaning the reservoir and sharing local beverages. The next three days, the central water festival will be celebrated at this reservoir.

6) The central water festival

Finally, on August 12, 13, and 14, people of Coporaque devote their time to celebrating the central water festival. The *regidores* of *Urinsaya* and *Hanansaya* perform different symbolic activities, like visiting the house or the office of important authorities, such as: the Andean priest, the governor, the judge of peace, the *C. Regantes*. On the other hand, people and relatives offer different presents and gifts (money, breads, clothes, etc) to the two *regidores,* and their respective wives (see also photo III and IV from annexe), in recognition of their authority, and also to show friendship and reciprocity. Especially the wife of the *regidor* receives many gifts (see photo 6.6). Once more, the water authorities (traditional and official), their wives and families, receive *Mallku* at the intake of the Santa Rosa reservoir. The ceremony, this time, is a very portentous occasion in which emotions, religious devotion, and rivalry intertwine.

[133] For some villages, such as Yanque-*Urinsaya*, the pilgrimage to their sacred springs takes one day and the cleaning work takes three days. People have to take all their gear with them for sleeping and eating. They also bring medicine in case of emergencies.

Photo 6.5: Pilgrimage to the sacred water fountains

Photograph from my own archive

Photo 6.6: Presents for the traditional water authorities both wife and husband

Photograph from my own archive

During the three days of the celebrations, the *regidores* from both moieties have to offer food, beverages, and music to the entire community.

Sometimes both *regidores,* including their wives, have to race against each other to demonstrate their capacities to govern water and users. This competition embodies complex interactions: power relationships, respect, reciprocity, service, and humility. Sometimes the sense of rivalry becomes so strong between the two water mayors, that the party can finish in a fight. Such confrontations and fights are nevertheless becoming less frequent, since the authorities of the *C. Regantes* have spoken out against them, through an official document.

After these three days of celebrations, the Coporaqueños still continue the celebrations with the cleaning of the tertiary canals. They also repair the terraces near the canals. All the work and ceremonies finish on the twenty-ninth of August, a day when people devote time to clean and repair the Coporaque canal. The event is always accompanied with music and dance. This day is the last time the water mayors offer the *Iranta* to the water deities. Once more, they receive *Mallku* at the main intake of this canal. Afterwards, water authorities and users 'guide' the water (or *Mallku*) to the reservoir of *Mallku Qocha,* where the community proudly celebrate (dancing, sharing food and drink) their success in bringing water from the Colca River to their fields.

The way indigenous-peasants from Coporaque, and in general from the Colca Valley, celebrate the *Yarqa Haspiy* reflects the importance of water in constructing their collective identity, local institutions and authority. The centrality of water in the construction of the Andean identity was already recognized by the Spanish chroniclers of the sixteenth and seventeenth centuries (Polo Ondegardo, mentioned by Carrion 2005; Ramos Gabilán, mentioned by Bouysse-Cassane 1986, Cobo 1956, 1982). As described in Chapter 2, colonial attempts to annihilate this water culture, which they termed 'diabolical practices', have been unsuccessful. Many authors[134], have provided testimonies of the survival of religious rites as core activities in water management in Andean communities, not only in Peru, but also in Bolivia and in Chile.

The *Yarqa Haspiy* celebrations have been neither static nor closed to the outside world, but were always adapted to changing situations. Nowadays, representatives from the official authorities, such as from the C. *Regantes,* the *J. Usuarios,* the municipality, together with local office-bearers such as the judge and the governor have a specific role to play during this water celebration. Their presence lends public legitimacy to the traditional rituals and authorities, and serves to support and recognize the water mayors, both husband and wife. Especially the wives and the group of women responsible for organizing the festival are highly valued and respected.

In general, in Andean communities customary repertoires and the official system of laws and rules support and complement each other. These dynamics give a new meaning to local water practices, supporting local users in their right to be different (Gutiérrez and Arratia 2009, Gerbrandy and Hoogendam 1998, Gelles 2006,). The next section describes how traditional and official water authorities support each other and shows how

[134] See Gelles (1990), Montero (2006), Rostoworowski (2000), Valderrama and Escalante (1988), Orihuela (1994), Vera (2004), and Hogue and Rau, (2008) for testimonies for Peru, and Bendezú 1983, Castro et al. 1994, Castro 1997, and Gerbrandy and Hoogendam 1998 for Bolivia and Chile).

traditional and State norms complement each other in the everyday construction of local water rights, rules and authorities.

6.3. Official authorities and local water rights

This coexistence of traditional and official authorities in Andean communities means that local water management (or governance) has several sources of regulation and norms. Such a situation of legal pluralism implies that people can strategically 'shop around' to find the set of rules most suited for furthering their interests or pursuing their goals (cf. Benda-Beckmann 1996). Traditional and local collective agreements, norms, values and principles to manage water are not always written on paper, but exist because they are an intrinsic part of every day practices (such as *Uyhuay*). The next sections describe how water distribution and management are organized in the Colca Valley. It also depicts two cases in which collective norms are not respected, resulting in the punishment of users.

6.3.1. Legal pluralism in water management in the Coporapque and the Colca Valley

Water management in the communities of the Colca Valley is guided by two relatively distinct water authorities: one established by State Water Law with the *C. Regantes* (the irrigators' committee) as its most visible organization at the local level, and the other established according to customary local norms, with the water mayors as their visible representatives. Table 6.1 shows how both water authorities support each other and work together in different water management tasks. Although conflicts do sometimes arise between them because their activities overlap, in general their respective roles and duties are well defined and respected.

The duties of the authorities of the *C. Regantes* are represented in table 6.1. They are responsible, among other things, for convening the WUA meetings, maintaining formal contacts with governmental and non-governmental organizations and authorities, charging water fees, punishing users' infringements and organizing maintenance of the irrigation infrastructure. The last two tasks are done in coordination with the traditional water authorities. The authorities of the *C. Regantes* form the nexus between local water users and the State water authorities (the ALA, former ATDR). According to formal regulations, these authorities must serve in this position for three consecutive years. The *C. Regantes* of the different communities of the valley come together in the water user association, the *J. Usuarios.* According to the State water law, the Board of the *C. Regantes* consists of seven members. They are democratically elected by the Assembly in the meeting of the *C. Regantes.* The board usually consist of men, while at least one woman is elected to occupy the charge of treasurer or delegate. Having a woman in the board is deemed desirable, because she will be the one who will look after arranging or preparing food and beverages for special occasions, for instance when engineers visit the community.

Locally, it is accepted that the *C. Regantes* authorities manage and control the community irrigation systems, controlling the different obligations and rights of each user. The *C. Regantes* also collects water fees from each user, according to the area irrigated. Part of the amount collected is used to maintain the infrastructure and another part goes to the *J. Usuarios.*

Table 6.1: The role of official and traditional water authorities in Coporaque				
Irrigation sub-systems	**Administration**	**Distribution of water**	**Maintenance of infrastructure or *'Yarqa haspiy'***	**Water feast and rituals**
Urinsaya system: canal Aqenta-Santa Rosa reservoir	Authorities of the *C Regantes*. They collect water fees and control the ICC	*Regidor* of *Urinsaya* moiety. He also controls the ICC	Water users of *Urinsaya* led by their *regidor,* with help of authorities of the *C. Regantes*	Compulsory public event *Regidor* of *Urinsaya* and the respective traditional minor authorities
Hanansaya system: Canal Coporaque-Mallku Qocha reservoir	Authorities of the *C. Regantes*. They collect water fees and control the ICC	*Regidor* of *Hanansaya* moiety. He also controls the ICC	Water users of *Hanansaya* led by their *regidor,* with help of authorities of the *C. Regantes*	Compulsory public event *Regidor* of *Hanansaya* and the respective traditional minor authorities
Wallallik'uchu-Chilliwitira system	Authorities of the *C. Regantes*. They collect water fees and control the ICC	*Regidor* of Qollanapataca. He controls the ICC	Water users of Qollanapataca, led by their *regidor*	Not compulsory If it is performed, it is not a public event
Ch'usña system: Qachule springs-Ch'usña reservoir	Authorities of the *C. Regantes*. They collect water fees and control the ICC	*Regidor* of Chusñapam-pa. He also controls the ICC	Water users of Chusñapampa, led by their *regidor*	Not compulsory If it is performed, it is not a public event
Springs of Ch'aqere	Authorities of the *C. Regantes*	*Regidor* of Ch'aqere. He also controls the ICC	Water users of Ch'aqere, led by their *regidor*	Not compulsory

ICC= irrigation control card, a booklet in which membership, duties and rights are summarised (see below).

The authorities of the *C. Regantes* are also responsible for formalizing the membership of the water users in the register, with the approval of the ALA engineers. On claiming membership, a user has to present a request to the *C. Regantes* and the ALA, attaching his or her documents of land ownership which is the main requirement to be entitled to water. Although a user can be eligible to become registered as a member according to the official rules, the Assembly of the local WUA has the final say in this, based on local rules: serving the community, assuming authority charges, participating in meetings and communal works (*faenas)*, etc.

In Coporaque, once a user is accepted as member, he or she receives an 'irrigation control card' (ICC), in which his or her obligations and rights are written. The ICC is divided in four parts: the irrigation schedule, the collective work or *faenas*, the water fees, and assistance to the *C. Regantes* meetings. The first two sections of the ICC are controlled by the traditional water authorities, and the last two by the authorities of the *C. Regantes*. Sometimes the *faenas* are controlled by both authorities. When a user is deemed 'in order' and fulfils the obligations, the water authorities put a stamp on the respective section, indicating that the user can materialize his or her water rights (like irrigating, voting, or receiving some incentives). When a user is not 'in order', he or she can be admonished in the assemblies, and must first pay a fine (money, or a day of work in the canal, or a day controlling water along the canal, etc) before obtaining water.

I already described most of the symbolic and religious duties of the water mayors in the previous paragraphs, which are undertaken according to the customary norms. Besides celebrating the *Yarqa Hapiy*, the *regidores* are also in charge of leading meetings at the *reginas,* which are the traditional places (usually at the head of a main canal or at the inlet of a reservoir) and occasions in which water is distributed every day early in the morning. At the *regina,* water users also discuss different water-related activities, such as the faenas, infractions, punishments, or some projects to improve their system. The water mayors also monitor the irrigation of each parcel. They can levy penalties when people do not comply with agreed distribution rules.

6.3.2. The authority of the local water users association: struggles in Coporaque

In Coporaque, as across the Colca Valley, the water user organization, represented by the *C. Regantes* (consisting of official and traditional authorities), is the most important local organisation. This, coupled with how water provides the basis for people's identity and culture, is why the communities of this valley can be defined as 'hydraulic communities'. Water authorities have power over the community[135] authorities, and even over of the Municipality. In Coporaque, the dominance of the water organization is for instance reflected in the mobilizing capacity of the respective authorities. When water authorities convoke an assembly, many more local people are present than when the community or the municipality call a meeting. This is why the community or municipality often arrange their own meetings alongside those of the authorities of the *C. Regantes.* The meetings of the *C. Regantes* last three or four hours and sometimes take place every week, especially during the irrigation period. The meetings can be early in the morning (from 6:00-10:00) or during the night (from 19:00-23:00). The official functions of the *C. Regantes* authorities are clearly stated in the internal bylaws according to the official water law. However, the agenda of these meetings usually comprises not only water issues but also other community activities, such as: repairing bridges and roads, training activities with NGOs or the Municipality, cattle vaccination, or even issues related with the vaccination of children, problems in the schools, or local health centres and issues in the church. The Assembly and the authorities thus represent more than a space for just discussing water related activities; it is the community itself. This political centrality of the *C. Regantes* is seldom recognized by State water authorities.

In general, and according to the water law, the authorities of the *C. Regantes* report and are accountable to the authorities of the *J. Usuarios*, and both are in charge of implementing the official water regulations. In practice, the organizations sometimes clash with each other, because the *C. Regantes*, in representing wider community interests, try to respect local collective agreements. The authorities of the *J. Usuarios,* in contrast, often remain much more loyal to State water regulations, sometimes trying to implement them quite literally. This for instance showed when the responsibility to collect water fees was transferred from the former ATDR to the *J. Usuarios* (as part of the programme to transfer irrigation systems to the users, see chapter 3). The effect was that the *J. Usuarios* started placing a lot of emphasis on collecting 100% of fees on time (including arrears), insisting on collecting these at the beginning of the agricultural season. In the case of the *J. Usuarios* of the Colca Valley, the official authorities sent a

[135] In contrast, in most of the central and oriental Andes, the community is the most important local institution, and the water user organization is subordinated to the community authorities.

letter to the 36 *C. Regantes* of the Valley, making clear a) that users must pay the water fee, according to the water law, which is the highest-ranking legal norm; b) that those *C. Regantes* who paid the water fee on time, would also receive an economic incentive; c) that those organizations or users who refused to pay the fee would be subject to the full force of the law; and d) that they granted only 15 days to pay the full fees. Some *C. Regantes* tried to abide by the *J. Usuarios* admonition, especially those whose leaders were part of the board. Other communities protested in silence, by not reacting at all to the *J. Usuarios*' requirements. Their reasoning was that since government had not invested in any local irrigation infrastructure, there was no reason to pay anything to the State. Besides, they argued, the water they use flows from sacred mountains and springs located in their territories. In the case of the *C. Regantes* of Coporaque, the letter of the *J. Usuarios* was discussed in an Assembly, and users decided to write a response letter in which they would ask for a re-negotiation of the payment on the following terms[136]:

1) Payment of the water fee should happen at the end of the agricultural season rather than at the beginning, and be in accordance to the actual volume of water used during the agricultural season, rather than per cultivated ha. The water users perceived it as unfair to pay water fees at the beginning of the agricultural season, because in many cases they lose their harvest because of water scarcity, frost, or flooding. In other cases, some crops (like barley, wheat or quinoa) are cultivated during the rainy season, therefore rainfall covers its water requirements.
2) A fair re-allocation of the current water fee[137]. Coporaqueños proposed to keep 80% of the fee for themselves (instead of the 40% stipulated by the authorities of the *J. Usuarios*), and send only 20% of it to the *J. Usuarios*. They justified this proposal by saying that they had not benefited from paying the fee to the *J. Usuarios* and ATDR, for instance in the form of training, or economic support in case of emergency.
3) Finally, Coporaqueños asked the presence of the official authorities (of the *J. Usuarios* and ATDR) in the next meeting to discuss the proposal. They emphasized that during the 14 years of existence of the *J. Usuarios*, its authorities had visited their meetings only twice.

In August 2006, on the day that the president and the engineer of the *J. Usuarios* finally attended the Assembly of the *C. Regantes*, they behaved like typical[138] bureaucrats giving no room for dialogue or negotiation with the users:

> After the president of the *C. Regantes* warmly welcomed the visitors, he invited the president of the *J. Usuarios* to explain their response to the letter of the Coporaqueños. The president, holding a pamphlet explaining the water law in his hand, started his speech by referring to the law as the only and ultimate norm to be considered and respected, stressing: '*All decisions and agreements we*

[136] The authorities of the *J. Usuarios* and the ATDR thought that I had advised the water users of Coporaque in writing this letter, since I was supporting the struggle of this community. However I did not even know the Coporaqueños had drafted such a letter. I found out about it the day when both parties confronted each other in the *C. Regantes* meeting.

[137] The water fee was divided in different components (named CIJU): a) 40% - 60% of the fee could be kept by the local water organization or the *C. Regantes*, b) 25-35 % for the regional *J. Usuarios*, c) 5% for the ATDR (now ALA), d) 10% of (a+b+c) for the Canon of water, e) 10% for amortizations, and f) 1% of the total water fee for the national *J. Usuarios*

[138] As the 'sole owners' of truth and reason, shaped by feudal and colonial styles of thinking (Gelles 2002 and Lynch 1988 also describe this).

> *will make* [today] *have to be in accordance with the law'.* In the face of this categorical position by the foremost representative of the irrigators of Colca Valley, most participants felt disenfranchised, and the friendly atmosphere immediately turned around. One of the water users replied firmly: '*our requests are based on our actual needs, and we must, at least, see what is the most relevant, the water law or our needs; that is why we sent a letter to you with a proposal to negotiate the water fee'.* After everyone in attendance indicated their agreement, the *J. Usuarios* president answered: '*We do not have any problem with considering your proposal, but as I already stated, we cannot make decisions outside the official norms, so your letter and claims are null* (invalid)*.'* At this moment all users got irritated and started to protest loudly: '*How can our agreement be null?! What is this?! Are you mocking us?*' Then the president, feeling the dissatisfaction and angry eyes staring at him, tried to change the tone of his discourse, and said '*I am only an instrument to transmit the official mandate [...].'* One of the users replied: '*We are not refusing to pay the water fee, we just want to know why more than 60% of our fee goes to the J. Usuarios, and how we are being benefited by the J. Usuarios? [...]. How does the J. Usuarios defend us from the big projects, like Majes, who took our water and left nothing for us? You even blamed us for using our own water and you favour the powerful. In the same way that you have authority to ask us to pay the water fee, you must also defend our water rights'.* To answer this question, the president asked the engineer to explain how the water fees consist of different components. The president and the engineer also explained the PROFUDUA (water registration program), claiming that, once implemented, it would prevent free-riding. Assembly participants, feeling that their questions were not answered satisfactorily, again remarked: '*It seems that everything will remain the same, and our requests will not be taken into account. Our representatives* [leaders] *have not offered any alternative to our proposal [...]. This means that we will continue giving and giving [money], but we will not receive anything in return. Where is the reciprocity then? We would like you to consider our petition'*. The president then replied: '*every year we ask the C. Regantes for a 'work plan' including the 'cédula de cultivo' (*cropping pattern*), but you have not presented it. Therefore we cannot negotiate. Besides, the Law does not allow it'.* In view of the president's obstinacy, one of the users declared firmly: *'the agreement of the people is also a Law, so we will respect our agreement'.* (meeting of the *C. Regantes* of Coporaque, August, 2006)

Observing this confrontation between the users and the regional leaders who supposedly represented them, I was reminded of similar stories of colleagues about how the leaders become absorbed and disciplined by the 'system of State Law'. Instead of defending the water rights of their people, they defend the interests of bureaucrats and State institutions (see also Alegría 2007). This experience shows how, in the Andean water reality, monolegality (discussed in chapter 3) is imposed and forced not only by State water professionals, but also by the regional water user representative such as the *J. Usuarios.* However, as Boelens (2008a) states, users have always taught those who wield power that the Law, rather than depending just on authoritarian power or the power of one group over another, depends on the way people interact with and constitute each other as agents and subjects of law. The applicability of a law depends, ultimately, on the legitimacy and authority that a group or organization will grant it.

6.3.3. Punishing free-riding behaviour and enforcing respect for local norms and authority

I already indicated that the Coporaqueños had to respect the bylaws of the *C. Regantes,* which state that assuming the position of the water mayor (or *regidor*) is a compulsory obligation for each registered member, man or woman. Non-fulfilment of this obligation would be penalized by not receiving water for irrigation, and in addition the payment of a fine equivalent to a minimal of one month's salary. Only those users who occupy the charge of president of the *C. Regantes* are exempt from this obligation.

Once the internal bylaws of the WUA were officially recognized, Coporaqueños had a legal backing to their agreements. This allowed people to defend and respect their customary traditions and to reinforce the authority of the office-bearers of both authorities, the *C. Regantes* and the water mayors. However, there are water users who consider themselves as more 'progressive' or 'modern' than the others. These often are the sons or grandsons of former landlords or literate people, who think that assuming the post of a *regidor* is incompatible with their social status. In former times, they often succeeded in being replaced by others, often powerless peasants, or even *alpaqueros* who only grazed their herds on community upland pastures. Alex is one example of a wealthy *comunero* who refused to assume the compulsory duty of *regidor* when it was his turn (in 2005) to do so.

> Alex, feeling superior as an upper class *comunero*, categorically refused assuming the position of *regidor.* Because of his attitude, the water authorities of the *C. Regantes* proceeded to punish him, cutting Alex's irrigation turn. Alex had to appeal to the engineers of the ATDR and the *J. Usuarios*. These official authorities reprimanded the local water authorities of the *C. Regantes* and ordered them to re-allocate irrigation turns to Alex immediately, because he was paying his water fees on time and hence the law guaranteed him his irrigation rights. Despite many letters from the *J. Usuarios*, the Coporaqueños remained firm in their decision that Alex would only receive water if he accepted the post of *regidor.* They were sure that their local rules had more validity than the State law. As one user told Alex in a meeting of the *C. Regantes* in June, 2006: '*although the* [official] *law may guarantee you the right to irrigate, our internal regulations are more valid, because they were made by us, […]*'. Privately, Alex tried to persuade the president of the *C. Regantes* by offering some money to allow him not to occupy the traditional charge until years to come, but the president firmly refused it. Because of this situation Alex considered the president as his enemy.
>
> This struggle took almost three years (2005-2007). In June of 2006 the engineers[139] ordered the *C. Regantes* authorities to come to the *J. Usuarios* offices to resolve the problem. The president of the *C. Regantes* defended himself, in front of the engineers and Alex, with the internal bylaws and the agreements written in the minutes of the *C. Regantes*. The engineers had no choice then to accept the validity of the official documents of the Coporaqueños. Finally, Alex had to agree to take over the *regiduría* during 2007, in a general Assembly of the *C. Regantes*. However, he still tried to make his tenure subject to some conditions, saying that he would only assume the task of distributing water and controlling irrigation,

[139]Engineer is sued here as a term to refer collectively to professionals supporting technical services Ingeniero (translated here as Engineer) is a term of respect used by locals to address such professionals.

> but not celebrate the water festival. Although some male water users accepted Alex's conditions, female water users protested fiercely, especially those who had already performed this duty. They reproached Alex for being a cowardly, penny pinching man. His female relatives also reprimanded him: *'how do you say such things! Accept your responsibility without protesting, we will certainly help you organize the celebrations [...]. Women are mostly in charge of preparing the feast!'* (meeting of the *C. Regantes* of Coporaque, Sept. 2006)

Community members like Alex, who consider themselves superior, or more modern and progressive than the others, usually do not care much about local traditions. The same happens with community members who migrate to big cities, or who move to the *Pampas de Majes*. They consider the water traditions as something pertaining to the past, or to a backward stage of cultural development, and think that their disappearance is a sign of modernity or civilization. I noticed this for instance when talking with Anton, an ex-president of the *J. Usuarios* of the Colca Valley, who was removed from the charge he also held as president of the *C. Regantes* in his home community of Yanque, because he refused to fulfill local traditions.

> The board of the *J. Usuarios* is comprised of representative leaders (usually a president of one of the *C. Regantes* in the Colca Valley). This board stays in charge for three years. An engineer (*gerente*) also forms part of the *J. Usuarios*, and he is paid with a fraction of the water fee. In practice, the *gerente* and the president of the *J. Usuarios* try to guarantee that official norms are respected, and they are hardly interested in customary norms. In 2007, Anton[140], being the president of the *C. Regantes* of the Yanque *Urinsaya* community, was elected to the presidency of the *J. Usuarios*. In this capacity, he tried to correctly perform his duties as an official authority. He also tried to favour his WUA, supporting the construction and maintenance of different irrigation infrastructure projects, gaining respect in his community. However, one year later (2008), Anton had serious problems with his own WUA. According to customary norms, Anton, as president of the *C. Regantes,* should coordinate and collaborate with the traditional water authorities (water mayors) of Yanque *Urinsaya* for the celebration of the *Yarqa Haspiy.* However, Anton – also influenced by the opinion of the *gerente* of the *J. Usuarios* – refused to participate in these public ceremonies. People regarded this behaviour as an offense to the community rules and a lack of respect to the water mayor. Anton, considering himself a modern farmer, only recognized the water mayors as *tomeros* (water distributors), a post recognized by official water law, according to the coastal-based distribution system. He did not want to recognize the political and religious duties of a water mayor, nor did he want to acknowledge local definitions and practices of water allocation. Because of this attitude, the different ceremonies for the water rituals suffered some set-backs. The reaction of the water users of Yanque was instant: they revoked Anton from his position and elected a new president of the *C. Regantes*. Although Anton had worked and demonstrated interest in collaborating with his own *C. Regantes*, the water users did not hesitate to punish him. The staff of the *J. Usuarios* and of the

[140]"Anton" (nickname) is a community member of Yanque who got a plot in the Majes Irrigation Project. Consequently he does not live in Yanque permanently. Anton, like most users who migrated from the community, however, keeps his membership in the *C. Regantes* and in the community. This was the reason why he, as any member, was elected as president of the *C. Regantes* of Yanque.

> ALA (former ATDR) tried to support Anton (because he did not make any mistake, according to the official rules). However, he also lost his position as president of the *J. Usuarios* since he was no longer the local representative leader of the *C. Regantes*. Acting firmly, the Yanqueños demonstrated their authority over officialdom, and indirectly claimed respect for community authority and for their local way of organizing water governance (fieldwork, 2007).

Both described experiences illustrate how water rights, authority and meanings are negotiated at local level. Decision-making authority and legitimacy of rights-claims come about as the result of confrontations of diverging views over particular meanings of water, roles and powers, and particular regimes of representation, both within and outside the community. The two cases also show the centrality of water traditions, and collective agreements, in the activation and materialization of reference rights. Both users lost their reference rights, even if only temporarily, until they learnt to respect the local authority and norms. Rightly Boelens (2009) emphasizes that locally constructed norms and the locally appointed authorities are the ones with the legitimate powers to enforce water rights, rather than 'outside' rules and rule makers.

Since water rights are the core element of water security practices, it can be stated that the local water practices and authority also define what water security means in Andean communities, as is discussed in the following section.

6.4. Concepts and meanings of water security in Colca Valley communities

For the indigenous peasant people from the communities of the Colca Valley, water security embodies socio-cultural, technological, normative and symbolic dimensions. Ideas of fair access and distribution of water, and its efficient use, coupled with the local way to construct water rights, constitute the corner stone of water security practices. Since official norms and authorities have tried to impose the rule that water rights can only be activated by paying the water fee, local users have also come to relate water security to the yearly payment of a water fee. Only those users who do not use water for irrigation (for instance, when they decide not to cultivate a plot of land) for a specific period, are acquitted from paying the fee and from participating in collective works, or meetings. As water is a scarce resource in the Colca Valley, people try to use and distribute it in such a way that it reaches every user. They do this by different means: avoiding water losses during the course from the source to the plot, distributing it from tail to head, or vice-versa, establishing clear rules to avoid conflicts among users, and imposing strong authority. The corner stone of the efficacy of the system are dynamic local water institutions and organizations.

Users reduce water losses by frequently maintaining the irrigation infrastructure. Besides the regular yearly cleaning of the infrastructure (or *Yarqa Haspiy),* people can maintain their irrigation system when and if required. During this activity, people work according to the area of the irrigated land that every user possesses. For instance, when a canal is being maintained, a user must work one meter per *topo* of land (1 m/0.33 ha), thus; if a user has 6 topos (or two ha), he or she (or the family) must work along six meters of the canal. Both men and women work in the cleaning of the canals, but it is preferred that men assume this heavy task, as one of the interviewed male users explained: '*men are stronger, and they can work fast, that is why we prefer men to do this kind of work*' (a water user from *C. Regantes* of Coporaque, Nov. 2005). A single woman

(widow or divorced) usually sends her elder son or daughter to the *faena*, or she can hire a *jornalero*, when her economic conditions allow it.

Distribution efficiency is operationalized in the infrastructure, the irrigation schedule, and the system of water authorities. For instance in Coporaque, the five irrigation subsystems have their own *regidor*. They know and manage the distribution points and structures (sluices, floodgates, partition canals, etc) very well. As already mentioned, these authorities also monitor the efficiency of irrigation in each plot. The irrigation schedule is applied according to the *mita* system or irrigation 'from edge to edge', as explained in the previous chapter. Even today, with the *Canal Coporaque* providing a relative 'abundance' of water, the *mita* system still persists. According to interviewed users, however, intensive agriculture[141] nevertheless starts to disrupt the *mita* system, because new crops require more frequent irrigation. Coporaqueños are still trying to keep the *mita* system, and users who want to grow new crops first have to ask permission from the *C. Regantes'* Assembly to avoid confrontations and conflicts with water authorities and users. This is how Coporaqueños construct local water security practices – 'water must reach everybody' – in everyday reality.

The different water rituals are also profoundly based on an idea of security. People invest time, devotion, work and money to worship water deities with the faith that these will ensure water supply for the years to come, and hence also the reproduction of life. For instance, the ritual in which the female water mayor (in the community of Yanque) stands with her legs spread over the canal represents the ritual of fertilization, and thus symbolizes the cycle of life. The same happens when drinking *chicha,* during the *Yarqa Haspiy* celebrations: everybody drinks as much as possible, so that they will urinate abundantly (make water). This expresses the desire that the deities will do the same (by raining and snowing). When water or rain is becoming scarce, people think that this is because of the absence or bad performance of water rituals, or because of their lack of respect toward sentient entities by adopting new ideas of modernization.

When people go on a pilgrimage and offer presents to deities, they do this not only as a manifestation of gratitude and reciprocity, but also as a way to secure the favour of deities for humans. When more offerings and devotion are demonstrated, more blessings (water) will be received from the deities. The same happens with *uyhuay* among community members: the more material or symbolical support a person or a family provides to other people from within or outside the community, the more reciprocal behaviour will be ensured or will be expected.

6.5. Conclusions

The different cases described in this chapter illustrate how struggles over particular interpretations of water management play a central role in community water management and organization. I have explained in earlier chapters how, in the Andes, water (and nature in general) is seen as a living being to be treated with reverence, and I have shown how relations between humans and water are expressed in elaborate rituals.

[141] Intensive agriculture is increasing rapidly in the Colca Valley, responding also to opportunities from tourism (hotels, restaurants, lodges, etc.). The State's agricultural extension people are also trying to introduce new varieties of crops, but poorly fit to local ways of managing and ensuring water.

These rituals are not the folkloric or 'incomprehensible' forms of water management of unmanageable people, as some 'modern' managers (see opening quote of this chapter) would have it. I show that the water rites performed are a requirement to gain water rights, and constitute a process that many local people feel is a crucial dimension of their community rights, identity and livelihoods. Nevertheless – and also because of this importance – maintaining and gaining access to these rights and institutions to build livelihoods is an arena of struggle, especially for women (as will be further discussed in the next chapter). The materialization of rights needs to be constructed with work and service. In Andean communities, such as Corporaque, traditions and customary norms are central to this validation and materialization of local water rights, and hence in water security practices.

The relevance of water traditions also shows in the continued existence of traditional water authorities and in their relative autonomy from outside rules and 'rulers'. In spite of the continued importance of water traditions in constructing and moulding water rights, current water management practices are the result of continuous confrontations, negotiations and collaboration with such external norms, authorities and knowledge. Local water rights and practices have become pluralised and dynamic, continuously changing and adapting to new situations. As Ahlers and Zwarteveen (2009:412) point out, water rights and water security carry meanings and are negotiated and arranged in different social domains of interaction. Across domains, and even within domains, the norms and rules referred to may have different origins and sources of legitimization. Which rules or norms are to be considered in certain moments is therefore often the result of struggles over meanings and representation, over authority and legitimacy.

In spite of the existence of plural sources of regulation and the fact that users can thus 'shop' from different legal sources, the described cases in this chapter suggest that local water rights and practices still maintain some common features: they are clearly ritualized; the power of the local water authority is grounded in collective agreements and vested in rotating community leadership posts; the distribution of water is usually done based on local concepts of fairness and efficiency; the traditional and official authorities (as well as the norms) work and support each other; and both women and men are expected to assume the charge of authority.

The case of Alex, who did not want to assume the traditional charge of water mayor, showed that he could not materialize his rights to irrigate until he fulfilled the traditional obligations. Although his reference rights were guaranteed by official laws, these counted for little. Local people showed Alex the importance of respecting not only local traditions, but also the local agreements, including those of the water authorities (both the *C. Regantes* and traditional water mayors). Respect to local water traditions and the collective agreements are thus fundamental to self-managed hydraulic communities, such as those from the Colca Valley. Even when a user is occupying a position of water authority and serving the community – like Anton was doing in Yanque- he will only be recognized and respected when acting in agreement with local traditions and rules. By undervaluing these two core elements of water rights, Anton lost his position of president and his membership in the *J. Usuarios*. The standing and power of the *C. Regantes* is also such that its meetings are a forum for discussion of other local social services, and although this is not a formal arrangement it reinforces the denomination of such localities as 'hydraulic communities'.

Since in local views, water is seen as a living being, responsible for the subsistence of people and nature, in general most users try to serve and fulfill obligations not only to materialize and ensure rights to water, but also as a part of *uyhuay* (nurturing and taking care of each other) and as a sign of religious reverence to water (and nature). The different activities developed around the celebration of *Yarqa Haspiy* clearly show this. This activity embodies various cultural, normative, political, technological and symbolical components, and allows people to reinforce their local collective identity, and the legitimacy of their customary traditions (Orihuela 1994, Vera and Zwarteveen 2008). Through the different rituals, female and male water users share and reproduce their norms, values, and principles in such a way that every member feels that he or she belongs and feels committed to the place.

For the indigenous peasants of the Colca Valley this feeling of belonging is essential; they strongly identify with their place, their communities, and their Valley. In their perspective, this sense of identification and belonging is also what entitles them to use the communal resources (land, forests, pastures, etc.), and to participate in management decisions, and it is what inspires them to look after and defend these resources. It also grants a sense of security, and allows to collectively confront risks and insecurities, with the community providing protection against internal and external threats. However, these rights and entitlements are not straightforward or automatically attached to people who are born or live in a particular community. Instead, they need to be continuously earned and renewed by serving each other and through *uyhuay* practices. These practices of caring for each other thus implicitly embody the concept of security.

Traditional local authorities play an important role in constructing and recreating place-based identity and territoriality. By moving alongside the canals and water springs and offering gifts, water mayors and Andean priests 'appropriate' and legitimize local water sources (including the irrigation infrastructure), establishing the respective boundaries between communities or between the community and other competing parties. These acts therefore work to symbolically establish and maintain a certain cosmo-political order (Rodríguez 2006, Perez-Galán 2004). By practicing rituals of pilgrimage and offerings, traditional water authorities also ensure the favour of deities to supply water. As this chapter shows, this is not just the symbolic dimension of water rights and water security, but also has real value and power because people respect and acknowledge it.

This particular way of Andean people to understand water, and to activate and materialize water rights, has often been denied or made invisible by State water professionals. They tend to categorize these concepts and practices as pertaining to a backward stage of civilization, or consider them at best as belonging to the realm of folklore and the exotic (Cadena 2008). Local water users who consider themselves as more educated and modern, like Anton and Alex, also tend to undervalue or reject local water rights and management practices. Such cultural superiority manifested by literate people and water experts deeply colours interactions between 'outsiders' and local water users (Gelles 2006, Zwarteveen 2006, Roth, 2005). For instance, the State desire to devise a uniform system of water rights has often resulted in definitions of rights that were incompatible with existing norms and practices, but were nevertheless deemed justifiable on the basis of an alleged superiority (greater efficiency or efficacy for instance). Such an attitude of superiority for instance marked the behaviour of the president and engineer of the *J. Usuarios* in the meeting of the *C. Regantes* in Coporaque. They tried to warn the users that they would definitely lose their rights to use the water, if they would not pay the water fee according to the 'supreme' mandate of the official

water law. These professionals denied the relevance of the users' own definitions of water rights and their own water security practices, and did not realize that the payment of water fees was just one element of this. Coporaqueños taught these official authorities a lesson by telling them that their own agreements and regulations were also the 'law'. In this respect, I agree with Boelens (2009:308) who points out that '[...] the struggle for access to water combines with the struggle to claim or defend the legitimacy of local authority and water right systems'.

Moreover, questions of resource redistribution also involve questions of cultural and political recognition (with local knowledge and interpretations being at stake), and often include the defence of place and are importantly played out around questions of ethnicity and identity. They are, in other words, an important part of ethno-water politics. This chapter has shown how these political struggles are taking place inside communities to accompany struggles in social arenas at higher spatial and politics scales, and that these internal and external dynamics are linked and need to be studied and understood together. Communities like Coporaque have developed an alternative to modernity, by constructing their own people's irrigation project; a project that has not only been designed and constructed, but is also maintained and controlled by people themselves. By doing so, Coporaqueños have not only resisted the predominant model of irrigation development, but also defended their local way to see and understand water and development, based on local rules and principles to construct water rights, authority, and sense of place. Likewise, the capacity of people from Coporaque to confront the imposition of the official water norms and authority, described in point 6.4.2 and 6.4.3 can also be seen as a strategy of resistance, an attempt to foster local autonomy and politics from below (Cadena 2008, Escobar 2008, Parajuli 2004). This kind of strategy, in addition to collective practices like *Yarqa Haspiy,* can become a powerful political tool in attempts to change the current structures and relationships of the modern and globalized society, including relations between this society and nature (Cadena 2008, Hogue and Rau 2008, Urbano 1992).

A last conclusion of this chapter is that indigenous peasant women play an important role in the construction of place-based identity and communality. They are usually in charge of preparing and organizing the core elements of traditional practices, such as the celebrations in honour of water deities. Women are usually seen as more strongly belonging to the place, and this belonging is strengthened through the socialization of myths, songs, food, beverages, and clothes. These findings add to those of other authors who have highlighted the crucial gender dimensions of water management practices, along with the collective construction of identity and appropriation of place (Escobar 2008, 2001b, Shiva 1989, 1998, Vera 2006a,b, Vera and Zwarteveen 2007). The wives of the water mayors of the Colca Valley clearly show that for Andean women, traditions form an important source of agency and power. Through *uyhuay*, they build networks, together with their husbands. They also construct power and exert authority, by serving the community, because they do their tasks without receiving any salary. Both the female and male traditional authorities gain great respect and power, because they invest a huge amount of their own money, energy, and time in celebrating the water festival. Power, in this case, is not owned by the water authorities, but is based on the consensus and collective action of the group and on the capacity to serve the community. That is what Moffat (cited by Vera 2004:27) calls the '*power with'* and the '*power within'*. This type of power is expressed in the local expression: '*As much as I can give, that much I am*', in contrast to: '*as much I have, I am what I have'*. The pride and powers of women suggest that some of the historical duality in gender relations (discussed in chapter 2) remains in

force today, in spite of colonial and post-colonial ideologies that denied women the possibility to be political and public actors. Identity and standing is gained from being an active community member, and by upholding of customs and norms, rather than from material goods. Women in particular have to work hard to earn power and respect, with skilful exertion of *uyhuay* and developing abilities of reciprocity, of bargaining, of confronting, or staying undercover in different domains of interaction. The next chapter further describes these gendered aspects of water practices, analysing the struggle for water and water-related livelihoods at household level and beyond.

Chapter 7
En-gendering everyday water politics in Coporaque
Bargaining power, representation and participation within and beyond the household.

7.1. Introduction

In chapters 2 and 3, I have analysed processes of historical construction of social hierarchies and water powers in Andean societies, and have pointed out that these processes are always gendered. This chapter further describes and analyses these everyday gendered processes of bargaining and negotiation within and beyond the household. I look at how patterns of male dominance, supported by specific gender ideologies that place a greater value on behavioural characteristics associated with men than on those associated with women, shape gendered power relationships. I demonstrate that the relation between male dominance in formal decision making and rights and gendered power relationships and patterns of behaviour is not one-dimensional or directly causal. Instead there are a range of possibilities between the acceptance of normative sanctions as the legitimate rules of behaviour, and conforming to them. Women can resist, or they can negotiate and bargain about different possibilities with men in everyday practices, within different domains of interaction.

The subsequent sections of this chapter provide cases of four households, drawing on the in-depth studies differentiated by marital status and landownership. These reveal processes of negotiation, collaboration, bargaining and struggle, and their contrasting outcomes in terms of securing access and rights to water. I outline and then critically analyse water negotiations and struggles beyond the household. I explain how resources, representation, authority, meaning and power are negotiated at different domains of interaction. My analysis illustrates how different factors shape women's and men's strategies and abilities to defend their (water-related) interests. While local norms and values, such as the importance of interdependence and the need to care for each other and for nature as expressed in *uyhuay*, shape individual or collective actions, particular individual interests and the need to 'feather one's own nest' also have an important bearing on the outcome of negotiations around central resources like water or land. Thus, meanings of reciprocity, complementarity or mutual support that are characteristic of local water traditions may be challenged in the interests of individual or family gains. The next section presents some additional conceptual ideas to analyse these gender relations.

7.2. Conceptualising gendered bargaining power within and beyond households

The household sphere is obviously a primary domain in which gender relationships, roles, ideologies and identities regarding womanhood and manhood are created, negotiated, and reproduced. As outlined in section 1.5 my theoretical starting point is that the dynamics of gender relations within households can best be understood as forms of bargaining and negotiation, confrontation, cooperation and contestation. Many factors play a role in determining bargaining processes, the outcomes of which can favour one or the other family member, and the nature and outcomes of which are shaped by different stages of life and domestic cycles. These are in turn influenced

by marital status and kinship systems, local norms and cultural repertoires[142], official policies, and by the wider economic and political context. Simultaneously these ideologies and practices are reproduced at various higher levels of the social organisation, such as the water user organization, the community, the municipality, and other local and extra-local organizations. Understanding households as domains of bargaining and negotiation seems to go against the Andean worldview, or the *Cosmovisión Andina*[143]. However, many scholars[144] also recognize that there exist asymmetries and hierarchies among indigenous-peasant people which sustain class, ethnic and gender differentiation. Thus, as this chapter reveals, the ideological importance of values of complementarity does not mean that relations between men and women are always or necessarily equitable, or that all incomes and resources are equally shared or distributed. The following figures summarise my conceptualisation of intra-household relations.

In Figure 7.1, I make use of the concept of *symbolic boundary*. I use this term to express a relational idea about the position of one actor compared to another, for instance in terms of ownership or access to land (who have as opposed to of those who do not have) or in terms of participation in decision making. For instance, women may have to cross symbolic boundaries if they claim membership in a water user organization, if this is a domain (as is often the case) which has been constructed and perceived as masculine territory (Vera 1999). Actual 'possession' of land or other fundamental resources contributes not only to a person's bargaining capacity in intra-household relations, but also strengthens this person's position and identity as a social actor in other social domains of interaction. If an actor 'lacks' most of these factors, she or he feels powerless and is poorly positioned to bargain with someone who has them. The latter person has the possibility and power to monopolize decision-making and resource allocation within the household, leaving insufficient room for his or her partner to bargain. I refer to such a relationship as an inequitable intra-household relationship (figure 7.2).

If, for instance, both husband and wife possess material resources (such as land), or if they have access to family or other influential networks, as well as to knowledge and information, they can then both be considered as 'possessing' an equal capacity to bargain. In this case, intra-household relations are more equitable and dialogic (figure 7.3). However, if the influencing factors –such as the predominant gender ideology and stereotypes about appropriate women's or men's behaviour, or local norms and State policies- favour men, then women's bargaining power will be lower,

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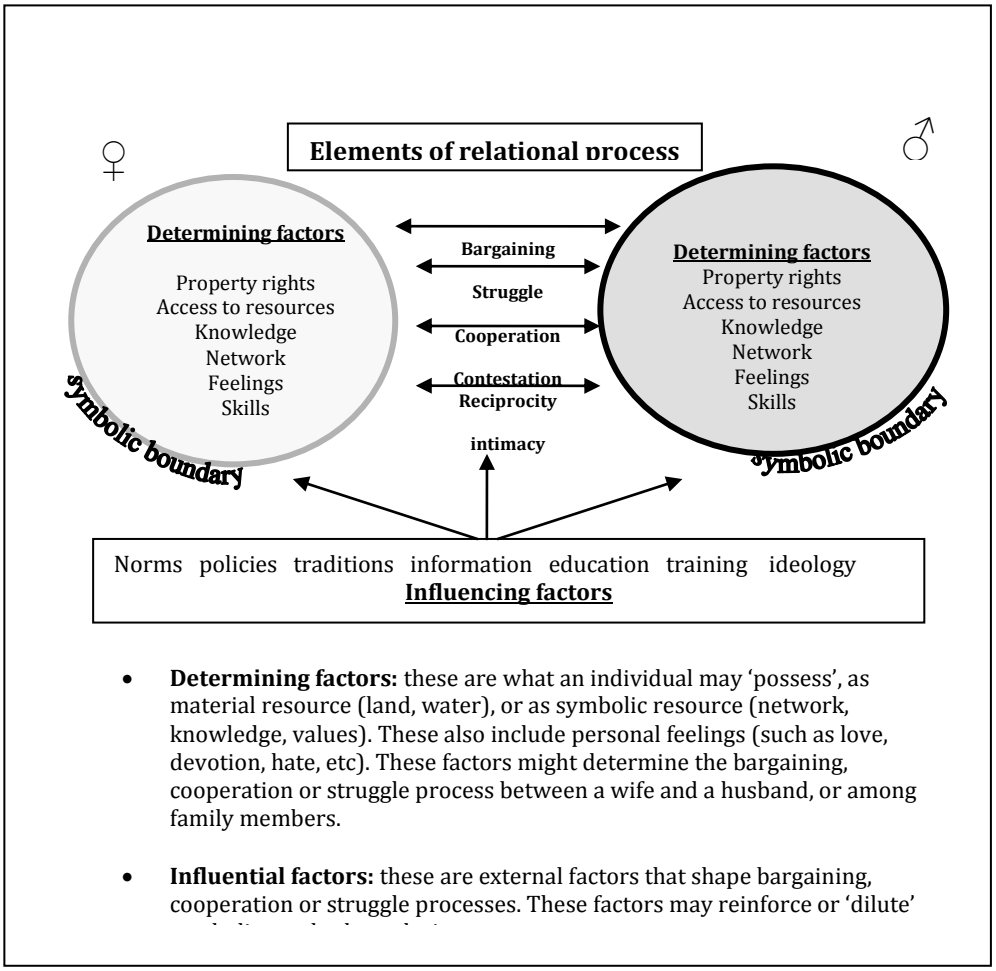
[142] Cultural repertoires (Long 2001:91) are the ways in which various cultural elements – values, types or fragments of discourses, organizational ideas, symbols and rituals – are used and combined in social practices, consciously or otherwise.

[143] In this cosmology, the complementarity and reciprocity between men and women is highly valued and promoted; a complementarity that is seen as mirroring the dual and balanced relationships between the masculine and feminine worlds of the gods (Boelens and Zwarteveen 2003), see also section 1.5. As explained in chapter 3, one widespread idea about Andean water management is that indigenous-peasants communities' water interests and struggles are not individual but collective. This idea lies at the heart of the argument that individual property rights do not matter for indigenous people. The struggle for individual control over property that is characteristic of socialist and feminist movements in the West would therefore not apply to the Andes. Such struggles are seen as typical of the individualism of western societies and as having no relevance for the inherently collective indigenous systems (Claverías 2002, Grillo 1994, Gutierrez and Arratia 1997, 2009, Pacari, mentioned by Deere and León 2002). My analysis instead shows how women and men discuss, negotiate, and struggle as individuals within a context of collectively owned and managed water and land.

[144] See Cadena 1992, Ferraro 2004, Perrin and Perruchon 1997, Pinzas 2001

and they may feel pressure to sacrifice their own interests and personal well-being in favour of that of their husbands.

Fig. 7.1: Intra-household relations and their determining



- **Determining factors:** these are what an individual may 'possess', as material resource (land, water), or as symbolic resource (network, knowledge, values). These also include personal feelings (such as love, devotion, hate, etc). These factors might determine the bargaining, cooperation or struggle process between a wife and a husband, or among family members.

- **Influential factors:** these are external factors that shape bargaining, cooperation or struggle processes. These factors may reinforce or 'dilute'

Sometimes, women and men are not aware of this condition of unequal bargaining power, because they have internalized it and accept it as the norm or natural situation. Sen (1995) terms this 'false' consciousness, and identifies it as an important determinant of gender inequalities.

When a woman perceives her situation as unequal or unjust, she can envisage some alternatives, even in a most adverse, disadvantageous situation. This capacity to influence the situation is what Long and Villarreal (1993) refer to when discussing an actor's agency. For instance, a woman may try exposing the inequality of a certain gender condition, critically challenge it, or she may try to creatively re-shape social arrangements in her favour. In doing so, she needs power and room to manoeuvre, which might imply a degree of consent, or even yielding the power to a man (Villarreal, 1994). A woman can keep silent when her authoritarian husband is making decisions unilaterally, but later on she may make alliances with other household members, or ask relatives to mediate (figure 7.4). A source of agency may also reside in a woman's behaviour in intimate relations. If one of the couple is not willing to cooperate, conflicts may arise. This itself can trigger further negotiations among members of the household, or lead toward a break-up in relations (separation or divorce).

Fig. 7.2: Inequitable intra-household gender relations

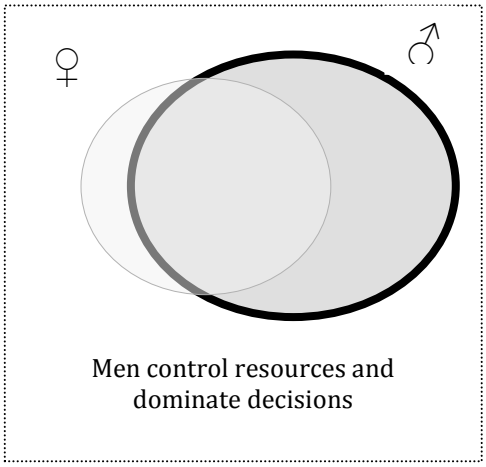


Fig. 7.3: Equitable, dialogic intra-household gender relations

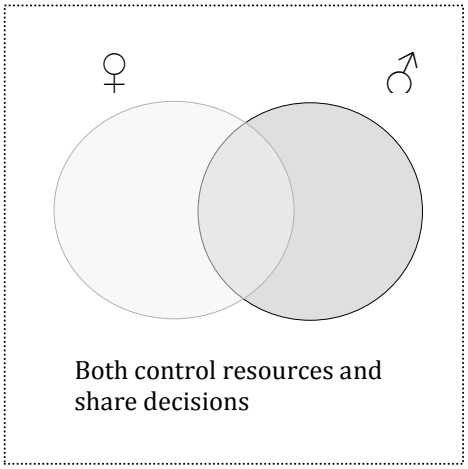
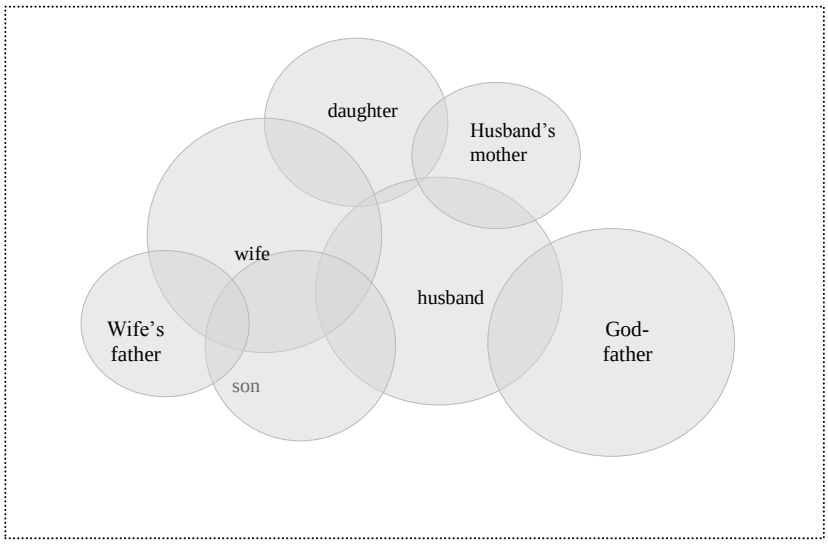


Fig. 7.2: Collective intra-household relations



Official discourses and policies are often based on a clear distinction between the 'private' (associated with the household domain) and the 'public' (associated with all that happens outside the household). Everyday water realities in the Andes blur these distinctions, because there is no clear demarcation between the 'public' and the 'private' sphere of social life and gender relations. Rather, the boundaries between the two are often fluid and permeable. However, for heuristic purposes this I still use this distinction pragmatically in the study of the different cases in this chapter. I further distinguish between the 'formal public', the 'informal public', and the household. The first denotes domains which local people perceive as 'official' spaces associated with the public administration, such as the water user organization or *C. Regantes*, the municipality, and the governmental water offices such as ALA (former ATDR). The second refers to domains considered as non-official, such as traditional meetings (known as *reginas*), the field, and the neighbourhood, which I also refer to as 'beyond the household'. These categorisations allow study of how day-to-day

water management and control is gendered in different domains of interaction, and how women and men bargain and devise strategies to gain access and rights to water.

7.3. Bargaining at the household level: Cases from Coporaque

As explained in chapter 1 (section1.6.2), I selected four household cases – 2 married and 2 divorced- from the eight cases of my sample to explain how bargaining takes place at the household level. These four cases offer interesting data to analyse how differentiated intra-household water negotiations arise, and to shed some light on the struggles between husbands and wives within hydraulic communities like Coporaque.

7.3.1. The case of Teo and Illa, the 'benevolent' dictator and the 'victim' woman

Teo and Illa are a married couple who are separated (not divorced) since 1993, after having lived together for 20 years. They have seven children, all of them already adults. Illa is an illiterate, monolingual woman, although she can speak a bit of Spanish. She is an orphan and grew up in poor living conditions, because her mother was single and landless. Even though her father had a considerable amount of land, she did not inherit any of it[145], because when her father died (suddenly), her half-brothers considered her an 'illigitimate' daughter. By contrast, Teo inherited his share of land from his family. He is a literate, bilingual, talkative man. He has regularly assumed positions of authority in the community and in the WUA. When Illa and Teo started living together, they only enjoyed a few months of marital harmony. After this first period, Teo started to mistreat his wife physically and psychologically, mainly because of his jealous character.

During the time they lived together, they bought land and started a small business (*tienda* or grocery store) in the community. Illa was the one who was mainly in charge of cultivating the land, irrigating, and looking after the children and the *tienda*, while Teo was busy with public functions as an office-bearer or as a salaried employee in the municipality. He did not like farming or irrigating work, however he was the one who made most decisions as to the distribution of the benefits without consulting his wife. Illa preferred to keep silent, partly to avoid violent reactions of her husband. Teo, as head of the household, was the designated member of the WUA and of the community, and therefore represented the household and Illa at all the meetings and assemblies. He hardly informed his wife about the outcomes of these meetings. Illa tried to get information by asking neighbours, because while she was living together with Teo, she was not allowed to attend the WUA or communal meetings.

While Illa was so busy with the agricultural activities and domestic chores, Teo engaged in what local people referred to as the 'easy life'; spending money on alcohol and women. He hardly ever used to bring money to the family, and even sold most of the land without Illa's agreement. Illa accepted this situation, because she considered herself powerless, as she said: *'I endured all mistreatment and unfaithfulness from him*

[145] In Coporaque, as in the rest of the communities in the Colca Valley, daughters and sons inherit land, even those who are considered 'illegal' children. Current Peruvian Civil Law does not recognize the difference between 'legal' and 'illegal' children.

[husband] *because of my children. Besides, I have no parents or family to run to for protection. I am an orphan*[146] *woman […]. I have no 'eyes' for reading papers. Every time he asked me to 'sign'* [fingerprint] *a paper for permission, it was for selling our lands'.* When Illa protested about her husband's untruthful attitude, Teo would hit Illa and call her ignorant.

Finally, after 20 years of continuous mistreatment, and at the insistence of her older children, Illa decided to separate from Teo (but not to divorce) through the local judge. The local judge ruled in favour of Illa, since her years of mistreatment were publicly known, as was Illa's complete dedication to her children. It was also known that Teo, in his 'easy' life, had lived with different other women. Illa and her children got the few pieces of land that Teo had not yet sold, as well as the family house. From that time onwards, Teo never again contributed to his children's upkeep or education. Once Illa had obtained the land, after the separation, she could register as a member in the *C. Regantes*, and started to participate in the meetings and other communal activities. She also obtained the irrigation control card (ICC), acknowledging her membership and right to water.

The year 2000, seven years after Illa and Teo were separated, saw the finalization of the construction of two new irrigation systems[147] in Coporaque. These enabled more land to be irrigated. Coporaque's Community Assembly decided to distribute around 172 ha of its communal land among 250 *comuneros* and *comuneras*. Precisely in that year, Teo was member of the communal board. The requirements to qualify for the land were (1) to be a *comunero* and (2) to contribute with a symbolic quota (150 *Nuevos Soles*, about 45 Dollars). Illa, like the other separated women, and this time as a head of household, tried to access these lands, and so did her husband.

At first, the community allocated the land to her. However, after a few days the Community Assembly noticed that both Illa and Teo had each received land. This was not the case for the rest of the separated or divorced couples, where only the person responsible for maintaining the household (mostly the women) had got the land. Being on the communal board, Teo was in a position to influence decisions in his favour and succeeded in obtaining land in his name, as well. Rather than disputing Teo's claim to land, the Community Assembly referred to the rule that the land was for both, and as they were not divorced, they reasoned that the husband had to share the land with his wife. The Assembly put pressure on Illa to renounce the land that she had received. Teo convinced and promised her and his children that he would share his new land with them, and Illa agreed to give up her land. However, and as was Teo's custom, one of the first things he did with the land was to pawn it. As he did not have the money for it, he later asked Illa to help him redeem it. Illa and her eldest children made every efforts to collect the required money and redeemed one third of the total land (0.3 ha of 1 ha).

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[146] The term 'orphan' in the local language (*Runa Simi*) is *waqcha*, which has several meanings. It refers not only to losing one's parents, but also to a lack of family networks and to a corresponding lack of access to material resources (such as land or livestock).

[147] These two irrigation system are the Coporaque canal and the Qachule's reservoir and canals. The former could irrigate around 300 ha, and the latter 100 new ha.

Illa consequently registered this piece of land with the water users' organization and tried fulfilling all the tasks and requirements needed to get water rights for this land. However after two growing seasons in which Illa had cultivated the land, Teo sold[148] all of it illegally (including the one-third that Illa considered to be hers) to another user without asking permission of Illa or their eldest sons. She came to know about this transaction when the water users' organization gave her a copy of the document showing that the owner of the land was another man, who had also become registered as a water right holder of this land. Illa and her elder sons tried to regain possession of the land, as well as the water rights, asking for help from different lawyers and from the Technical Administration of Irrigation (ATDR) engineers. In spite of many journeys to these offices, she did not succeed in her appeals. The engineers told her that 'water belongs to the land', and because the land had a new owner, water would also be given to the new owner[149]. The lawyers that Illa approached behaved dubiously, and many of them turned out to be friends of the new owner. Presently, Illa and her elder sons are still trying to recover this land, including the water rights.

7.3.2. The case of Lupe and Leo, 'the machista' woman and the 'feminine' man

Lupe and Leo are married peasants with four children, all of them already adults. Both are literate and bilingual, speaking fluent Spanish and *Runa Simi*. Lupe is one of the daughters of a wealthy *comunero* and leader of Coporaque, while Leo comes from a highland *alpaquero* community (where rearing of alpacas is the predominant livelihood activity). Upon marriage, Lupe received one *topo* of irrigated land (1/3 ha) and a house as dowry[150] from her parents. The new couple established their conjugal home in this house. Leo received a number of alpacas from his parents, which he sold to buy a *topo* of irrigated land. A few months later, Lupe and Leo were admitted as members of the community and of the *C. Regantes*, and Leo was registered in both organizations as an official member being the head of (and the representative of) the household. A few years later, they bought some more *topos* of land, thus becoming *mayorista* peasants. Due to this progress, the younger newlywed couples considered them a good example and role model. Indeed, Lupe and Leo demonstrated their abilities not only by doing well in buying land, but also as leaders of the community. Leo was elected as an office-bearer to different communal positions: treasurer, record-keeping secretary, and president. He also occupied the positions of president of the *C. Regantes*, and of *regidor* or water major. Lupe likewise occupied office-bearer positions like: president of the local women's organization, treasurer of the *C. Regantes*, and president (twice) of the Caylloma Peasant Women's Federation (*Federación de Mujeres Campesinas de Caylloma)*, an active peasant and provincial organization in Arequipa during the 1990s. Both Lupe and Leo had acquired

[148] As noted in the previous chapters, the law to Promote Investment in Agriculture, No. 653, in 1990, opened the doors to free-market trade of communal lands. Additionally, the legal norm of Rural Lands Registration DL No. 667 set out the formal processes for registration of ownership of rural property.

[149] The former Peruvian General Water Law 17752 (in force since 1968), as well as its complementary decrees and regulations (D. Law No 653 – D.S. No 0048-91-AG and D.S. No 057-2000-AG), do not state that 'water belongs to the land' per se.

[150] In general, in Andean communities both daughters and sons receive material dowries (land and livestock) from their parents. They also receive such things as seeds, agricultural tools, cookware, and clothes from their god-parents and from their relatives, when they marry. Usually preference is given to sons, who receive more dowries.

leadership abilities when they were young through their involvement in training organised by the left-wing party in Arequipa.

Intra-household relations and dynamics seemed reciprocal and cooperative, until the fourth child was born (8 years after marriage, early 1990s). This was a moment when many internal and external factors came together, causing serious chaos and conflicts within the household. Among others, the severe economic crisis[151] of the 1990s and the shortage of food[152] (in rural areas), forced Lupe to travel and be away from home and the community for prolonged periods. To generate some income and food, and thus guarantee the family's subsistence, Lupe got involved in a small-scale trade business, like many women from the village and the Colca Valley. Leo was not happy with Lupe's travels and her being away so often; he complained that she neglected her housework and feared that she was cheating on him with another man while she was away. However, Lupe continued with her business. Because of the persistence of Lupe, Leo began to mistreat his wife, sometimes so violently that Lupe had to run away with her children.

In this same period, Leo began to drink alcohol, neglecting the everyday agricultural tasks, as well as those of water mayor, which he had assumed at the time. This forced Lupe to take over the duties of her husband as *regidor*. Although in Coporaque, as in the rest of the Colca Valley villages, the traditional charge of *regidor or regidora* is assumed by both spouses, men are responsible for leading meetings in the *regina*, for distributing water, and they are also the ones who are held accountable by the *C. Regantes* Assembly for duties performed. Nevertheless, Lupe stepped forward, assuming the central and very visible position of *regidor*, mainly distributing and controlling water. That she thus *de facto* became the *regidor* instead of her husband was very special and important to Lupe, because, according to the general opinion of Coporaqueños, usually only men are able to properly distribute water and control the irrigation schedule. These are tasks that are deemed to require a strong character, something associated more with men. Lupe also continued participating in training sessions, reinforcing her leadership spirit. This is how she became the president of the Caylloma Peasant Women Federation.

When the conflicts with her husband started, Lupe felt resigned to her fate, putting up with all the mistreatment and assuming responsibility for supporting her household, which was a lot of work for her and her older children, who started to help with the work. Later, Lupe was often the one to attend the communal meetings and works (*faenas*), and she was also the one who would participate in water users' organization meetings and assist in compulsory canal cleaning activities. Lupe's prominence in the 'public' domain was looked at with suspicion by the rest of the *comuneros*. They questioned her abilities, and claimed she worked only half as much as a man could do. People told her that '*husbands must come to the faenas and not wives, husbands are the*

[151] In 1990, the newly-elected President Alberto Fujimori implemented one of the most striking economic programmes in Peruvian history, known as the 'Economic Shock', because of the felt necessity for 'belt-tightening'. A peasant who had sold a cow the day before, could not buy even a (25 Kilo) bag of sugar the next day with the same amount of money. Most male peasants turned to drinking alcohol, as a way to escape from this harsh reality.

[152] Agricultural production was always insufficient to sustain family livelihoods in Coporaque before 2003 (when the two new irrigation systems began operating), but from 1988 to 1991 a persistent drought afflicted the Andean region making conditions even more severe. Most peasants had to migrate or engage in complementary activities to support their families.

official members, otherwise we will also send our wives to do this work'. In spite of, and against such opinions, Lupe carried out her duties correctly. She crossed symbolic gender boundaries in assuming tasks and displaying abilities that are labelled as masculine.

On a more practical level, being able to work as a *regidor* meant that she could no longer do her domestic duties. She had to negotiate and arrange with her eldest children to do most of the cooking and cleaning. In spite of all the evidence of Lupe's work and sacrifice, communal authorities still supported Leo when Lupe complained to them about how Leo physically abused her. As she tells it: '*They (authorities) used to say to me: you have a strong character and you want to command him, that is why there are problems in your house, you must try not to talk back to him when he is bossy or when he comes home drunk*'.

After seven years of tolerating this mistreatment, Lupe decided to separate from her husband, moving with her children to her parents' house, while Leo stayed in Lupe's house. She did not, however, want a formal divorce, because she didn't want their joint property, especially the land, to be divided: *'I did not want to do the partition because I already knew that he would immediately sell all the land in order to buy his alcohol. And my children? What would we leave to our children? Besides, I am the one who made most efforts and investments in these lands; we have them because of my sacrifices*'. In the next few years, Lupe and her children tried to manage all agricultural activities, which was difficult for them. First of all, Leo claimed that he had to give his authorization to his family to obtain irrigation water, since he was the one registered as the official member of the *C. Regantes* (and also of the community) and his name was on the ICC. When Lupe or her children asked for water and irrigated land without Leo's consent, he would react in two ways: discouraging (by threatening them) his family to farm the land already irrigated, or farming the land on his own (after it was irrigated by Lupe and the children). When his family farmed the land, Leo would harvest part of it. Faced with this situation, Lupe and her children decided to migrate to the city in search of a better life there, leaving all the land available to Leo. As Lupe had already expected, Leo drank even more alcohol and did not successfully farm most of the plots.

Given that Leo neglected most of the management of the land and water, and in view of the fact that Lupe was in charge of fulfilling membership obligations of the *C. Regantes* and of the community, she devised strategies to take control of the most important conjugal property: the land, and later also the water. How did she manage it? A first important step was to become an official member of the community (the institution that administers and manages the communal lands). To achieve this, she had to ask the communal authorities to accept her and register her name instead of her husband's. She justified this by showing that she was assuming all the responsibilities of the household subsistence, as well all as the communal activities. Getting this acceptance was not easy, because Leo had been the president of the communal board some years before and still had some influence there. Lupe did not give up, and took advantage of the fact that one of her relatives was on the communal board. He mediated for Lupe, and supported her requests for membership.

A second step was to become an official and recognized member of the *C. Regantes.* Lupe asked the water authorities to register her[153] as a member. To allow this to happen, the water users' organization had to remove her husband's name from the register and replace it with hers. This proved difficult. Lupe had to get formal approval from the engineers at the ATDR (the government irrigation agency), to remove her husband's name from the membership list. To grant this approval, the ATDR engineers asked Lupe for proof of the fact that she was a landholder as well as head of the household. Lupe succeeded in providing this proof, although it required quite some stamina and patience. It helped that she was already accepted by the community as a *comunera*. She asked, and received, an official declaration from the local judge stating that she was indeed physically separated from Leo. In addition, she received written testimonies from the water users' organization showing Leo's poor reputation in fulfilling the duties and obligations as a user, due to his drinking behaviour.

After a long process and a lot of paperwork, and to the astonishment and gossip of the *Coporaqueños*, Lupe succeeded in having Leo's name removed from the register of the water users' organization. She received the ICC in her name. At the same time, being registered as *comunera* gave her the chance to receive land during the partition of the communal land, after the two new irrigation systems were finalized. In fact, she even obtained two plots of land (almost 4 *topos*, or 1.3 ha).

Most water users did not support Lupe's struggles. On the contrary, they often referred to her as a negative example for the other women of Coporaque. They called Lupe a *machista*, to signify that her behaviour was not consistent with that of proper women. Lupe was clearly trespassing symbolic and normative gender boundaries. At the same time, people started to call Leo a *saco largo* (big sack) meaning that he was not macho enough to 'handle' his wife, and Leo also started to complain publicly that he was the one who was mistreated by his wife. Lupe did not care what people called her. What mattered to her was that she had greatly improved her bargaining position vis-à-vis her husband about land and water questions through her official recognition as a *comunera* and by becoming a recognized member of the water users' organization. Her increased control over land and water also showed in the fact that, since their separation, Leo made several attempts to either sell the land or to prevent Lupe or their children from working on it. Being confronted by Leo's attitude, Lupe resolutely stopped cultivating the lands and declared them fallow[154] for a couple of years. This implied an official agreement of the water authorities of the ATDR (now ALA) and the *C. Regantes* not to irrigate these lands This procedure would prevent Leo from irrigating the land, and hence from cultivating it.

[153] According to the local norm of Coporaque´s water user organization, as in the rest of Caylloma's communities, a person can be registered as a member if he or she owns a piece of land. In the case of married couples, the head of the household is normally the one who is registered. Usually the man is considered to be the head of the household, even when he does not have any land and his wife does.

[154] A user can declare a land fallow by presenting a letter to the official water authorities, where he/she makes clear that she will not use water for irrigation for specific years. During this period the user stops paying the water fee and does not have to fulfil the other obligations as active user.

7.3.3. The case of Manuel and Nina, the 'capable' man and the 'invisible' woman

Manuel is married to Nina, and they have been living together for more than 35 years. They have five children, all adults who have migrated to the city. Manuel and Nina married after having their second child, as is the custom of *sirvinakuy*[155] in most Andean communities. Both of them have a very extended family network. Nina's side of the family were the former local elite, and thus had many lands and other material possessions. When they married, both got agricultural plots from their parents. Some years later, they bought more plots of irrigated land, becoming *mayoristas*; being considered wealthy peasants in the community. Manuel, as head of the household, is registered in the *C. Regantes*.

Manuel is recognized in the community, and also in the Colca Valley, as a knowledgeable and capable man with leadership qualities. He is the prototype of what people call a 'macho' man, not only because of his strong character but also because he is resolute in confronting state officials and water bureaucrats as equals. Engineers and other professionals usually approach him with caution and only when they have to. He has twice been president of the *C. Regantes*, once governor, once local Judge, and many times president of local organizations, such as the *Comité Agropecuario.* Nina, by contrast, has barely participated in public meetings and she has never occupied any position of authority. She is recognized by the locals as something like the 'antithesis' of Lupe, because she embodies proper, accepted femininity, respecting and obeying her husband. Nina, like most Andean peasant women, is busy in the field, irrigating, herding and milking cows, besides performing her designated reproductive role. In general, Nina looks like a very silent, quiet woman in the 'public' sphere, but in her house, she is an authority. Manuel usually has to consult her about every daily task and obligation. This is because he is busy with his 'public' duties, and Nina is managing the everyday productive and reproductive activities.

When Manuel assumed the *C. Regantes* presidency for the first time, Nina had to confront a difficult situation because she had to take over most of her husband's farming activities. This was burdensome for her, since the children were still young and they needed much attention. Nina was not in favour of her husband being elected as president, but she had to silently accept, since local norms prescribe obligations and responsibilities for all registered users. For Nina and her children it was hard to re-adjust household tasks and obligations. Manuel was too busy doing his best with his presidential duties. Sometimes, they had conflicts, as Nina describes: '*It was too much for me and for my children, I had to do everything alone, and sometimes I did not have enough time for doing work properly, because we have many plots; and then, the harvests failed, or some of our cows died, while he was travelling to resolve the WUA necessities'.* However, Nina was able to develop abilities and knowledge managing the field and house responsibilities with the help of her extended family, and also of her children's help as they got older.

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[155] *Sirvinakuy* when literally translated from *Runa Simi* means 'serving each other'. This is a traditional pre-marital trial period of living together, with the consent of parents from both sides. During this period, the couple gets to know each other, and also tries to serve and please their parents in-law. When the *sirvinakuy* relationship period is too conflict-ridden, the couple can still separate and start a new relationship, but in most cases the couple marries.

The second time that Manuel was elected as the *C. Regantes* president (15 years after the first occasion), Nina strongly objected to her husband's election. Although a group of influential *comuneros* visited Manuel and Nina's home to consult and persuade them, especially Nina, to accept Manuel's election, she rejected the idea. Her argument was that her husband had already served the community enough. On election day, Nina still tried to prevent Manuel from accepting any position. She says: '*I told him early in the morning, please, try to think carefully before accepting any position. I do not want to quarrel with you anymore; think twice, carefully, I do not want my fields and animals abandoned this time. So, first think very carefully, because this time I will not assume your responsibilities…'.* However, Manuel could not refuse the user assembly's decision, and he was elected for the second time.

When Manuel returned home after the election, he kept silent, looking for a way to approach his wife. Although Nina already knew about the news, and was angry, she acted as if she did not know anything. Manuel behaved kindly with his wife and started to ask her what tasks needed to be done that day. However Nina could not hide her disagreement anymore, and firmly responded to Manuel: *'You already know what are the conditions and obligations…'.*

This time, Manuel is more careful about planning his time and commitments, in order to fulfil his responsibilities both as an office-holder and as a husband and household member. Sometimes, when he visits public offices in the city for routine WUA affairs, he goes together with his wife, something that in former times was almost impossible. In these offices, Nina is not always admitted as readily as Manuel is. For instance, the caretaker of one of these offices tried to prevent Nina from going inside, claiming that women are not allowed to enter official meetings with engineers. Manuel had to interfere and explain that both of them were involved with the WUA's affairs. He introduced his wife as *mi señora esposa* to the engineers, and made it clear that she could also participate in these official meetings. Nina appreciates this kind of behaviour by Manuel; it makes her feel like an important person and she says that she can understand her husband better, and she can even give advice and better feedback to Manuel, because she is better informed about her husband's activities.

7.3.4. The case of Laila and Noé, the visible woman and the invisible man.

Laila is a relatively young woman, who had already lived (in the period of *sirvinakuy*) for seven years with Noé, a man from a neighbouring community (Chivay, capital of the province of Caylloma), located seven kilometres from Coporaque. Both of them are literate and bilingual. At the time of my field research (2005-2006), they had three children, two of them attending primary school and one in secondary school. The family went to live in Noé's community, where they have the conjugal house and a crafts store, which is located in the village's main marketplace. They also share family land in their own community, so Laila is registered as a member of the *C. Regantes* in the community of Coporaque, while Noé is registered in his own.

Like any official member, Laila tries to fulfil membership obligations in the *C. Regantes* and the community of Coporaque. She is the one who holds the irrigation control card, she attends the meetings, she pays the water fees, and she has to take responsibility for maintenance work; in this last case, usually she hires a labourer. As an official member of the community and of the WUA, Laila received one hectare of land during the partition of communal lands watered by the new Qachule irrigation

system. A few years later, Laila was elected as *regidora* of Qachule[156]. Laila raised some objections to her election, because she now lives in another village, and more importantly, she needed her partner's consent, but she ultimately had to accept the post. The couple knew they had to assume this duty, since local norms prescribe obligations for registered WUA and community members.

Laila and Noé had to discuss and bargain about how to meet their duties as *regidora*. Laila had to lead the users' meetings at the *regina,* because she knew the users of her village and the local irrigation system; Noé had to help controlling the proper distribution of water according to the agreed rotation *in situ*. Thus, while Laila was busy with the water distribution activities at the *regina* early in the morning, Noé had to stay at home with the children, waiting until his wife got back home, around 8:30 in the morning. In the afternoon and during the week, Noé had to oversee the distribution of water and the irrigation practices in the field. At the end of the day, he had to make sure that enough water was stored in the reservoir so that there would be enough to meet the irrigation schedules of the next day. While Noé was busy controlling everyday irrigation, Laila was in charge of the household chores, along with the craft store activities (selling and making handicrafts).

Assuming the charge of *regidora* was challenging for Laila for many reasons. Firstly, she considered herself to be too young to properly manage and lead a water users' meeting at the *regina.* This involves firmly and fairly settling the many arguments and sometimes strong confrontations among users. People usually think that only a man can do this, so usually men are preferred to take on this role. Secondly, she had to be the first person arriving at the *regina* early in the morning, which was difficult for Laila, since she lives in another community. Sometimes, she would come to Coporaque the day before the meeting and sleep at her parents' house, but usually she had to hire a taxi very early the day of the meeting. Finally, her reputation as a woman, as well as an authority, depended on how well she could arrange and balance her household responsibilities with her travel away from the locality and her water authority duties.

Laila did succeed with her duties as a *regidora*, and was also able to manage her other household responsibilities, although it implied additional work for her. In doing so, she devised some strategies in both the household and the 'public' domain. First she had to 'win' her husband's willingness to cooperate with her, as Laila pointed out: *'[…] I had to approach my husband nicely to persuade him to share responsibilities with me; otherwise I could not fulfil any of this responsibility […] a woman has to be very wise to make things work in the home […] sometimes you have to work harder than a man, sacrificing your leisure time. What can I do? There is no other option'.*

Before exerting the duty of water mayor, Laila and Noé decided to celebrate the water rituals, in part to 'win' recognition and respect from the water users. Formally, they were not obliged to celebrate these rituals, because Qachule was a new irrigation system (started in 2000). Laila and Noé nevertheless performed them, according to customary norms and traditions; like the *regidores* of the *Urinsaya* and *Hanansaya*

[156] Qachule is a relatively small irrigation system (120 users), which is why the *regina* meetings are held only once a week (every Sunday) from 6 until 8 or 9 in the morning, depending on the agenda and the problems to be handled. Water is distributed for the whole week, according to the system of irrigation by *mita*.

dual moieties do (see also previous chapter). In the case of Laila, the rituals involved offering 'presents' to the 'mother' water spring of Qachule and to the main *Apus* (sacred mountains) of Coporaque to ask for: a) enough water to satisfy irrigation needs, b) protection for the *regidora*'s family, c) tolerant, collaborative behaviour among water users to avoid conflicts, and importantly, d) wisdom and patience for the new *regidora* in order to govern water firmly and fairly. The ritual is mediated and performed by the traditional religious authority or Andean priest, who symbolically confers authority and power on the new *regidor*(a) and his or her family in a public ceremony. This ceremony means that water users must respect the authoritative position of the *regidor.* After the religious ceremony, beverages and meals are offered to those attending. Through engaging in these rituals and the ceremony, Laila gained respect and esteem from the water users in her community. Vested with the authority to talk at the official WUA meetings, she felt empowered, which she had not felt before being the *regidora.*

7.4. Some first reflections on intra-household struggles for water

As we can see, the first two cases described in this chapter are contrasting life histories of broken marriages. The first case shows how access to and control over water is a co-determinant of a woman's bargaining position within the household. When a woman lacks access to and control over material (such as land) and symbolic resources (such as family networks), she also risks losing her access to water. The same happens when she has little education and poor access to information. In such cases, a woman has little ability to contest a husband's authoritative behaviour within the domain of the household. In the domain of the community, she will depend on her husband's mediation for accessing land or water. The second case, in contrast to the first, shows a woman's ability to bargain and mobilize resources and to overcome difficulties, and finally gain control over land and water. Although both wife and husband – as knowledgeable, capable actors – tried to cooperate at the beginning of their relationship, prevailing conflicts led to a break-down of the cooperation. The other two household cases are of successful couples, where access to resources, representation and authority are negotiated in a more dialogic gender interaction. In one of the cases, the husband assumes the representation and authority, while the wife remains 'invisible' behind the leadership image of the husband. However, the wife gains 'visibility' over time, by consenting to her husband's power. In the last case, the wife assumes representation and (traditional) authority in the *C. Regantes*, as well as in the community. This woman strategically devised actions to enable her to fulfil her duty successfully and gain respect from the other water users. She tried to perform traditional water rituals (although it was not her duty) in order to be vested with authority by the Andean priest, which according to local beliefs, also confers protection and power on the newly-elected water authority. She also successfully negotiated with her husband to share her water authority responsibilities with him.

These cases clearly show the wide range of outcomes of intra-household gender relations around water, where the capacity and the abilities to negotiate, to confront inequalities, to pursue individual interests, or to gain consensus of the partner also depended on a wide range of factors available to an actor. Traditional values of complementarity and reciprocity can play an important role at a certain moment, but they do not guarantee the harmonious and dialogic intra-household relationships. These values can even be misused by some members, as I indicate in the next section.

Although the community, as an institution, can offer protection to its members, it can also fail in some cases. For instance, during the land partition in Coporaque, the *comuneros* agreed to allocate land to divorced, widowed, abandoned (by husbands) or separated women who were in charge of the family. However, Illa lost her allocated land, because of the influential network of her husband. Teo constructed a *compadrazgo*[157] relationship with an influential *comunero*, who helped him to gain control over the conjugal property, without the community being able to mediate in favour of Illa.

7.5. Actors and networks in 'informal' water negotiations and struggles

In Coporaque, family networks, friendships, and 'god-father' or *compadrazgo* relationships (not necessarily spiritual) are important sources of resources, agency and power. These are constructed in every day interactions on the basis of reciprocal services, offerings and gifts (Ferraro 2004, Gascón 2005, Calla 1996). Water and land are important ingredients in constructing, reinforcing, or de-constructing such *compadrazgo* relationships. In this section, I illustrate this with the case of Ramosino (not his real name), a *mayorista comunero* in Coporaque.

Ramosino has a remarkable ability to mobilize support and resources through networks and *compadrazgo* relationships with bureaucrats (lawyers, engineers, judges, etc) and politicians. He does this in part through his performance as leader or *caudillo* of the community, and partly through the strategic offering of gifts. He is extremely literate in all the official norms and laws related to land and water. In fact, the people in the Colca Valley including the *Coporaqueños*, refer to Ramosino as the *tinterillo*. This nickname illustrates his knowledge of the existing legal system; people consider him even capable to act as a lawyer. He is as good in networking inside the community as outside it. Within Coporaque, he is recognized as a leader as he occupied many charges of authority: president of the community, governor, and municipal mayor. Over the last past years he has been gradually losing some respect and recognition because of his inclination to 'feather his own nest', but he still plays an important role in the community. He is a person to be reckoned with because of his influence and it is difficult to be against him because he does not hesitate to make life difficult for those who oppose or criticize him or his attitude.

One of his favoured strategies to 'feather his own nest' seems to be to make use of the insecurity and vulnerability that come with marital problems, especially when land and water rights are re-negotiated. In the case of Illa and Teo (described above), Ramosino was for instance instrumental in the decision of Teo to sell the land, which the community allocated to him and Illa. Ramosino strategically established a *compadrazgo* relationship with Teo and used this to persuade him first to rent out the

[157] *Compadrazgo* is a kinship relationship, based on horizontal or vertical reciprocity, strategically constructed by people to obtain different material and symbolic benefits. This relationship is a social contract that is established between families, or between people from different classes or ethnic status through baptism, or a haircut, or the marriage system. When the *compadres* are from a different social status, hierarchical power relationships and asymmetrical reciprocity are accepted. Usually the well-off *compadre* takes advantage, benefiting from unpaid services, but at the same time he or she can also be called upon for support by the less wealthy party when the need arises. Illiterate widows, divorced or single women often depend on, but are also vulnerable to the game of asymmetrical reciprocity.

plot to him. As this plot was situated in the best ancient terraces of Coporaque, Ramosino was eager to gain its possession. In fact, after three years of renting the land he bought not only the part of Teo, but also that of Illa, a transaction that was made without the knowledge and acquiescence of Illa. Theo and Ramosino made the transaction in spite of the fact that it was forbidden to sell the recently distributed communal lands. When Illa denounced the injustice and demanded the services from a lawyer for recovering her land, it already appeared to be a lost cause. Ramosino, being knowledgeable about norms and laws, had 'sold' the land to his daughter. This situation turned out negatively for Illa, because, according to the lawyer, the land was in possession of third parties who were not part of the judicial process. Besides, most of the lawyers were 'friends' of Ramosino.

Ramosino also intervened in the case of Lupe and Leo. As I already described above, Lupe officially declared her plots as fallow, to prevent Leo from cultivating them. However, Leo could still cultivate some of them thanks to Ramosino, who – being the *regidor* – agreed to give irrigation turns to Leo. Ramosino did this favour to Leo, because every time he wanted or needed to travel to the city of Arequipa for some days, he asked Leo to replace him in the duty of distributing water in the *regina*. Ramosino could not ask his wife to undertake the duty, because she lived in another village (Chivay), so instead he asked Leo. In return, Leo thus got water for irrigating the land that officially he was not allowed to farm. Lupe got annoyed because of the attitude of Ramosino, but in the end she did not denounce the case due to pressure from relatives, who persuaded her to understand Leo's situation.

During the period of my field research, Ramosino also got involved in the process of divorce of yet another family (Luna). In this case, he supported the wife of Luna, who was trying to recover her house and garden, which she had inherited from her parents. Luna refused to leave the home, arguing that he had looked after the children when his wife had abandoned the family for a while. With the support of Ramosino, the wife could recover control over her property; but a few months later Ramosino bought the house and the garden (around 1/3 ha).

Ramosino also uses his networks to take revenge on his adversaries. For instance, in 2005, he occupied the traditional charge of water mayor, and he took advantage of this position by favouring some relatives and *compadres* with irrigation turns, while delaying or refusing to give irrigation turns to his adversaries. On one occasion, Ramosino severely fined one of his adversaries[158] (who was the governor of Coporaque), for having irrigated his field out of turn. Ramosino sought the approval of the president of the *C. Regantes* – his *compadre* (not spiritual) – for this heavy punishment. In fact, the governor had no other alternative than to irrigate 'illegally', because his crops were almost drying out and Ramosino had refused to give him a water turn. The governor complained to the ATDR and the *J. Usuarios* about how both water authorities (Ramosino and the president of the *C. Regantes*) had treated him, accusing them of the abuse of their authority. The ATDR engineers intervened and judged in favour of the governor. To settle scores and get even, Ramosino mobilized

[158] Both Ramosino and this opponent assumed the position of Municipal Mayor of Coporaque in subsequent years. When they were in charge, part of the Canal Coporaque was still under construction (see previous chapter). This opponent denounced Ramosino with the State authorities because of irregularities in the management of project funds. Since that time the opponent was considered a political enemy by Ramosino.

his political influence in the upper level and succeeded in getting the governor removed from service. His strategy included an appeal to the ex-wife of the governor, asking her to denounce her ex-husband in court for abandoning his family and not fulfilling his obligations as father of three daughters. Ramosino consequently could use this to construct an argument about the unsuitability of the governor, negatively influencing the public image of the government in the district. Ramosino managed not only to effectively eliminate his opponent, but also succeeded in convincing the politicians (some of them his *compadres*) to give the now vacant post of governor to his daughter. In this way Coporaque had, for the first time, a woman as governor. Yet, most of the Coporaqueños did not agree with her appointment, not because of her gender, but because of the dubious process through which she had become appointed.

All these cases are not mere incidences, but form part of the everyday politics of water (and land). Although there are more or less clear and known regulatory norms and rules that guarantee some equity in access to water and land, these every day politics demonstrate that actual water access and distribution occur through complex power relationships that always exist within the community and that are clearly gendered.

7.6. Bargaining and power in water management organizations

Throughout Peru, and indeed in many other places in the world, participation and registration as members of formal water associations is most often confined to men as 'heads' of households, even when their wives have land and they do not (Kome 2002, Vera and Zwarteveen 2008, Zwarteveen et al. 2010). As already noted, the Civil Code of Peru, as well as the Peruvian Family Legislation, does not use the term 'head of the household' in any of their articles. Instead they state that households can be represented by both members, provided one of them gives an official authorization. The former and new water laws of Peru are also gender neutral, not stipulating any preference as to who should be considered as the household representative. Yet, in practice, men are considered as such, which is why women often do not have a formal voice in decision-making and do not have the same possibilities to mobilize resources to secure formal access to water as men do[159].

The right to participate in WUAs is not only linked to household headship, but also to who is doing irrigation management activities. In the perception of engineers, irrigation is distinctly masculine: it is not just something that only men do, but also something that culturally belongs to the male domain and that is associated with perceptions of masculinity.[160] When women are involved in irrigation tasks, such as for instance in hiring workers for irrigating, asking the water authority for water, paying the water tariff, guarding water along the canal in order to avoid losing it, these tasks are perceived as complementary and secondary activities, and not as

[159] See Bastidas 2005, Boelens and Zwarteveen 2003, Gutiérrez and Cardona 1998, Lynch 1991, Meinzen-Dick and Zwarteveen 2001.

[160] The direct association of irrigation with men seems to be common in most countries of Latin America. Several studies have noted the associations between water management tasks and masculinity (Bastidas 2005, Bourque and Warren 1981, Gutierrez and Arratia 1997, Lynch 1993, Radcliffe 1986, Tuitelaar de Quitón et al. 1994, Vera 1999)

irrigation proper. Women themselves do consider what they do as irrigation, whereas men may go along with engineering perceptions in defining irrigation as the work they perform in actually opening the channels with shovels so that water flows into the fields (cf. Bourque and Warren 1981:119). In particular, the difficult task of making *composturas*, the typical spiral-shaped furrows to irrigate on steep slopes or sandy soils, tends to be considered as something that can and should be done only by men (Vera 2005).

The strong connections between irrigation and masculinity further legitimize that water management is (seen as) an affair of men only and may explain why mostly men become members of water user associations. The implication for women is that their water powers are not straightforwardly conveyed to them through institutions or laws, but need to be wielded and constructed through complex processes that may entail struggle, negotiation, compromises and even silence.

In spite of this, in Coporaque there are quite some women who have chosen to represent their households as official WUA members. Almost 30% of all official WUA members are female, and of this group 39% (almost 40%) are married women[161], 33% are widows, 21% are single and 7% are separated women (like Lupe or Illa). Local people give various explanations for the high percentage of married women participating in the WUA, all of them related to ideas about their reliability and trustworthiness as compared to that of their husbands. For instance, when women are married to men from other communities, preference is given to these 'local' women as the ones to participate in the meetings. Another group of women who are members are wives of alcoholics. Also, some men are dedicated to non-farming income generation activities, like taxi-drivers or embroiderers. In such cases, they prefer their wives to be involved in water activities. In general however, there is social pressure on women – from family and neighbours – to respect the common rule of male membership. As the example of Lupe showed, women who too actively manifest themselves as public decision-makers risk being blamed for unwomanly behaviour, and called *machista*. Married women thus really have to struggle to defend their right to membership; they have to cross symbolic boundaries or challenge values, beliefs and normative systems[162].

Although quite some women do decide to go through these troubles to become a member of the WUA, most decide against it. Focus group discussion with women in Coporaque revealed several reasons why women sometimes prefer to avoid membership of the *C. Regantes*. Important is that women have many obligations, and most of them are time-consuming and very heavy work. Many researchers[163] have noticed that because of heavy domestic and productive workloads, women are reluctant to spent time in meetings (the opportunity cost) and prefer that their husbands, or elder sons (in the case of widows) participate. Important in this regard is that it is often not as easy for women to transfer some domestic responsibilities to their husbands, as it is for men to leave some of their tasks to their wives. In the

[161] In Coporaque, women can inherit land as men do, but they still lose the possibility of controlling the land –as well as the water – when they get married, because their husbands are usually the ones who get registered – with land – in water committees.
[162] See Agarwal 1997, Arroyo and Boelens 1997, Moraes and Perkins 2007, Zwarteveen 2006.
[163] See Bastidas 2005, Meinzen-Dick and Zwarteveen 2001, Moraes and Perkins 2007.

household of Illa, Lupe and Nina, the assignment of domestic roles was non-negotiable. When Lupe assumed positions of leadership and authority, she had to do so either by working longer hours or negotiating this with her elder daughters. The household division of labour with its assignment of domestic responsibilities to women is so deeply institutionalized in rules, identities and practices that it appears to be non-negotiable. Women have assumed this as something attached to being a woman; something they cannot even put on the bargaining agenda. Kabeer (1994) argues in this respect that such issues of 'non-decision making' can also be seen as a manifestation of male power, because women confine bargaining to 'safe' issues, suppressing others since they can generate conflicts.

Many women compare the effectiveness of time spent in *C. Regantes* meetings with that of competing activities, arguing that in the meetings people spend too much time on endless discussions, when there are many things to do at home or in the fields. Sometimes, men use the meetings to show off in public, losing themselves in endless speeches and arguments. Moreover, when a woman tries to raise her hand to participate, authorities at the meeting do not 'see' it, as if it were 'invisible'. When a woman is finally given the opportunity to talk, the assembly does not listen to her, or they mock her opinion. In such a situation, many women prefer to remain silent.[164] In Coporaque, not only women have this opinion; many men feel the same. Especially those men who are engaged in income-generating activities (such as embroidering, taxi-driving, and managing small stores) prefer to pay the fine rather than spending their time in endless meetings.

What also affects women's participation is that the *C. Regantes* meetings are spaces where notions of masculinity are subtly produced and reproduced. For instance, one time the Assembly was discussing the communal lands, which *Coporaqueños* were disputing with a neighbouring community (Caylloma) that was encroaching on Coporaque. One *comunero* harangued the weak character and leadership of the communal authorities in the following terms: *'[…] what is happening here is that we are lacking the courage to demand respect; it would be better for us to wear women's skirts and to sit* [silent in the meeting]'. No-one from the male users was surprised about these expressions. On the contrary, they agreed by nodding their heads. Only some (literate) women felt derided. In the same meeting, another *comunero* added this comment: '*it seems that the people of Caylloma [*the neighbouring community*] have three [*testicles*] and we have only one; that is why our authorities cannot make decisions and act in time'*. Confronted by such criticisms, the authorities tried to defend themselves by asserting that they were in fact active, and denying that they were 'effeminate', as their critics were claiming. One authority said: *'[...] while women cannot speak* (publicly)*, we are very macho and we can talk and say things directly [...]'*. These discourses tend to reflect and reproduce masculine ideologies of hierarchy (Knights and Kerfoot 2004), positing men as the 'better' and 'stronger' ones and women as being weak, silent and without the capacity to make decisions and assume leadership

[164] Many studies in the Andes similarly observe that women do not always feel that a *C. Regantes* meeting serves to voice their water concerns, and some of them are even critical of their husbands spending so much time there; instead, they prefer to use their time in productive activities, (Bastidas 2005, Gutierrez y Cardona 1998, Gerbrandy and Hoogendam 1998, Zwarteveen 2006).

Another strong reason the women gave for not being official members in the *C. Regantes* is the question of labour responsibilities in irrigation infrastructure maintenance. In the Andes, because of geographic conditions, there is repeated damage to irrigation infrastructure due to flooding and erosion and regular maintenance work is therefore required. This maintenance work is done through collective systems of work (*faenas* or *mingas).* Most of these *faenas* are rough and exhausting, demanding strong physical force. This is why men are preferred to do this work[165]. When a woman participates in the *faenas,* her work is valued as only half of that of a man. Although these limitations discourage women from working in *faenas,* many women (like Lupe and Illa) struggle to participate in this activity, because it is an important pre-requisite to create and keep water rights.

Interestingly, the participation in the traditional water management space – the *regina* – is less linked to the headship of the household. As I already explained, men and women are equally represented and participate equally in *regina* meetings, even when a woman is not registered as an official member in the *C. Regantes*. In this domain, and unlike in official WUA meetings, both women and men voice their opinions; they both discuss and negotiate their interests as equals. In short, both recognize each other as knowledgeable, capable actors. That is also why men and women can both be elected as water authorities (*regidores)*; although men have more opportunities, since the criteria to be elected are still linked to official registration in the *C. Regantes*. However, irrespective of whether a man or a woman is elected as *regidor* or *regidora*, both are responsible for making sure that all duties that come with this responsibility are fulfilled in a satisfactory way. In fact, the entire family feel committed to making sure that the new *regidor* or *regidora* performs well. This explains why Laila could negotiate with her husband to share responsibilities, even though she was the designated person to assume the charge in the WUA and the *regina* assembly. Water users granted authority to Laila and respected her because of her abilities to manage users' debates in the meeting and her skills to distribute and control water. Water users, including Laila herself, also attributed her success to the fact that she had performed the water rituals.

The different cases described above reflect how local water management and control is eminently gendered in different social domains of interaction. Men and women bargain, negotiate and struggle around different water activities and rights within and beyond the household, in formal and informal 'public' spaces, where their different abilities and powers generate the everyday gendered politics of water.

7.7. Conclusion: Gender and water security- struggles over resources, meanings, and representation

This chapter has shown that an understanding of the linkages between water security practices and gender cannot be obtained by just looking at the 'formal' powers and status of men and women, as reflected in official organizations, discourses and laws. Important water powers also reside in day-to-day water management and control practices. These practices and powers are embedded in culture and partly manifested in customary norms that operate in social domains that are not normally associated

[165] See Boelens 2008a[a], Gelles 2002, Gerbrandy and Hoogendam 1998, Gutierrez and Cardona 1998.

with formal water management, such as the household or family and kinship networks. A focus on everyday water politics can therefore reveal important sources of agency for women; resources that they can mobilize in support of their attempts to access and control land and water. This chapter also shows that the actual materialization of water rights in Andean communities is the outcome of on-going processes of negotiation and confrontation in everyday (gender) relations, in different domain of interaction.

Understanding of water struggles and practices from a gender perspective can improve more general understandings of the (cultural) politics of water management in at least three ways: 1) many water-related negotiations, struggles and conflicts happen in and through everyday practices and politics at the interface of the domain of the household with other formal and informal domains and networks ; 2) struggles over meanings and (gendered) identities form an important part of negotiations over access and rights to water; and, 3) customary practices and discourses are important in constructing and legitimizing local claims, rights and authority.

7.7.1. Intra-household relations as an arena of water struggles

The cases described illustrate how women and men are engaged in constant dealings, struggles, and negotiations, and water is one important strategic resource around which this happens. Each household member deploys different material and symbolic resources to devise strategies, define his or her identity (as a social actor) and claim a stake over fundamental resources, such as water or water-related incomes. In some cases, constant struggles typify intra-household relations, to the point of threatening mutual understanding and even the marriage. In other cases, cooperation and reciprocity prevail, creating a more dialogic, equitable gender interface. The position and bargaining capacity of the different women and men, in different marital stages and life contexts, are coloured by a range of social expectations, images of hierarchies and boundaries for social action, knowledge and position in the community or WUA affairs, and links with the 'outside world' through experiences of town life and migration. When, as in Coparaque, subsistence and income generation depend on irrigated agriculture, access to and control over land and water are central to the livelihoods of rural families, and are key to determining one's bargaining power in different social domains of interaction. The different cases clearly illustrate the position and authority that come with ownership of a plot of land. Illa did not just experience difficulties in articulating her needs and wishes within the domain of the household because of being landless, but she also felt less sure than her husband about her status as a social actor in the wider community. Although Illa worked hard to buy land, when she was married, Teo was still the undisputed authoritative patriarch of the family. Teo could decide and sell the land without even consulting his wife, and spend money on his own personal interests. Cooperation and reciprocity were almost absent in these intra-household dynamics.

The different cases also illustrate that literacy, knowledge and family networks are important factors in determining a person's bargaining capacity. Lupe was in a better fall-back position than Illa to defend her interests and to claim water rights, because of her literacy and because of her previous experiences in meetings and organizations. She marched through these institutions equipped with knowledge and contacts, whereas Illa learned what she could by doing and was ignorant of formal laws and policies. Lupe also gained an advantage over her husband because she could

mobilize her family network. For instance, when she claimed membership in the community and WUA instead of Leo, she succeeded in her attempt by turning to a family member who was a member of the communal board. Yet most Coporaqueños disagreed with Lupe's way of struggling for membership, calling her a *machista*. Although the community agreed that some women could be considered heads of household (when the husband dies or he abandons his family and runs away) they rejected Lupe's claim because she was the one who 'ran away' from the marital setting, crossing boundaries of gender-appropriate behaviour. Actually, the meaning of 'head of household', as locally conceived, was at stake.

Teo, Illa's husband, also got communal land as a head of household, although in practice Illa was the head of the household, at least from the moment Teo abandoned the conjugal home. However, Teo mobilized his networks and position on the community board to gain advantage over Illa. Later on, Teo could illegally sell this land by making a *compadrazgo* alliance with the influential Ramosino *comunero* of Coporaque, who in the end owned the disputed land. However, unlike the case of Lupe, the communal authorities did not negatively judge Teo. The negative experience taught Illa the importance of knowing about water and land matters, to have a family network, and to be recognized as a social actor in order to claim not only land, but also to have a voice.

In the case of Manuel and Nina, one can observe how negotiations and decisions were undertaken, and how authority and power were recognized, through the different stages of their marriage. While authority and power were inherent to Manuel, Nina gained them over time through an interplay of compliance, conformity and submission to Manuel. Especially at the start of the marriage, when the children were still young, Nina developed personal abilities to mobilise resources (family network and knowledge), and to manage her own time in order to cope with everyday livelihood activities. She acquired knowledge and skills in such a way that Manuel had to consult and bargain with her to perform his own work in the field. By wielding her husband's institutionalized authority and power, Nina also wielded power. This is in line with what Villarreal (1994), and Long (2001) have suggested: that power is wielded through complex processes involving forms of agency. Those labelled as 'powerless' or 'oppressed' within specific circumstances are hardly ever utterly passive victims, but can become involved in active acts and strategies of resistance.

Wielding power also involves the personal abilities and the perspicacity to perceive 'edges' and 'social interstices' that can be taken advantage of. While women may successfully pursue their goals, and manage quite significantly to constrain men in the process, this does not necessarily mean that they go against accepted norms and ideologies. Also, their goals are likely to be shaped by existing institutions and local norms such as those around kinship and inheritance which often deny them ready access to the social privilege, authority and esteem enjoyed by men, as the cases of Illa and Lupe demonstrated. This situation might weaken women's capacity in bargaining. Gender ideologies play important roles in structuring and legitimizing institutions and authorities, and in shaping spaces for both women's and men's actions. In the same way, verbalized discourses, such as '*machista* woman', 'ignorant woman', 'macho man', 'head of the household', as well as non-verbal behaviour, bodily expressions and feelings, are endowed with particular social meaning and values, that can limit women's capacity to act, while encouraging men.

7.7.2. The construction of social water actors: crossing and re-defining symbolic boundaries

In rural communities, water professionals, and sometimes water users themselves, tend to consider that the only legitimate social actors in irrigation are those who are registered as *comuneros* or *usuarios* of the *C. Regantes*. While this may seem a logical and sound consideration, it creates problems when the status of *usuarios* or *comuneros* is confined to 'heads of the household', who are usually men. Women thus become invisible. In fact, government employed water technicians tend to approach only men when discussing water issues in the field (Vera 2005). Women generally seem less involved in irrigation-related activities, while women's roles as mothers and housekeepers are more readily identified and recognized than their roles as producers, irrigators or managers. Such a reading of reality not only justifies not registering women in the *C. Regantes*, but also their exclusion from decision-making in water management. Thus, registration not only creates symbolic gender boundaries, but also differentiation among those who have land and those who have none, those who are considered *comuneros* and those who are not, and those who can be considered legitimate social water actors and those who cannot.

When a woman resolves to claim rights to be registered in the *C. Regantes*, she can do so either by openly confronting prevailing gender ideologies and power hierarchies (and cross symbolic boundaries), like Lupe did, or by creatively negotiating her consent to structural power (seemingly accepting symbolic boundaries), as Nina did. Both strategies involve re-valuing and re-defining of female identity and work and rejecting rules and regulations that link women to specific roles. Women's attempts to obtain a greater voice in irrigation-related decisions show how water rights not just involve a struggle about resources, but also about norms, meanings and identities. Hence, women who would like to be registered as member of the *C. Regantes* have to be able to justify this aspiration by actively constructing counter-discourses. In doing so, they need to the courage to cross or subtly redefine symbolic boundaries. The different cases presented in this chapter indicate that access to resources, including land, knowledge and family networks as summarised in Figure 7.1, are determining factors in encouraging women's aspiration to do this. These factors also improve women's or men's position to bargain dialogically, as the photo in Fig. 7.2. shows.

If women are officially accepted and registered as members of the WUA, it considerably strengthens their bargaining position versus their husbands. It also increases the legitimacy of their presence in communal work parties and at WUA meetings and public gatherings. This suggests that strategies for women's empowerment, rather than trying to reverse existing power hierarchies, would be more successful when improving the dialogic bargaining capacity and learning process of both women and men. Both the husbands of Laila and Lupe were literate and had acquired abilities to generate other income generating activities (such as embroidery). Laila could dialogically bargain with her husband because both had land and were registered as members of the *C. Regantes*. Lupe and Leo could also bargain dialogically in the first 7 years of their marriage. However, this ceased when Leo became an alcoholic, and Lupe had to fulfil water rights. She had to confront the water authorities or other users who were not in agreement with Lupe's participation because she was not the official member of the *C. Regantes*. This situation forced Lupe to cross symbolic gender boundaries and claim membership.

7.7.3. The role of water culture and customary institutions in gendered water relations

The local water culture (such as the rituals of water management), and customary institutions and processes (like reciprocity, complementarity) of negotiation for materializing water rights are important elements to take into account when analysing intra and inter-household relationships in the Andean community context. The different cases described in this chapter indicate how traditional ways to create water rights, organize water practices and authority can offer better possibilities for women to create and defend their secure access to water, as well as exert authority than state water institutions. However, not all traditions promote gender equity: there are some customary institutions characterized by asymmetrical reciprocity (such as *compadrazgo*), that can be misused by those in a position to take advantage of vulnerable people.

Traditionally, Andean communities have institutionalized the collective management of water. In everyday practice, both women and men are involved in it. This practice has assured not only the collective management of water, but also the individual rights (of a man or woman) to use the communal resources and take part in decision-making processes. Until recently, women did not care much about their formal registration, because the collective ownership of land and water that [still] exists in rural communities provided them support and security. However, since the new water right registration policies and programmes, - such as PROFODUA (see chapter 3)- such registration becomes more important and also changes meaning, with a potential trend of individualization. When water and land rights are registered in the names of men only, and especially when marriages are breaking up, women are more vulnerable to losing their rights to land and water, and cannot be certain of accessing, using or otherwise benefiting from these resources. For instance, Illa was very vulnerable in her struggle to protect her land and water rights, not only due to the authoritarian behaviour of her husband Teo, but also because of the new politico-normative context (such as the Law No. 632, issued since 1993, see also chapter 3 point 3.5.1), which legally formalized possibilities to sell communal land. Such new laws also allowed Teo and Ramosino to make their sale and purchase transactions, even though the communal regulations prohibited selling the recently distributed communal lands. Illa's case also illustrates how land and water rights are nested: upon losing her land, Illa also lost her water rights.

The customary water meeting domain, known as *regina*, offered better possibilities to women to negotiate their access to water. This is because this space of participation is somehow perceived as less masculine and less officially 'public'. In contrast, the official WUA (*C. Regantes*), is defined as a masculine domain, and successful performance in these domains has come to be associated with masculinity. Thus the *regina* is perceived as gender-complementary or gender-dual. Women's opinions and authority is equally valued as that of men, and both have a chance to be elected as [traditional] authorities. Water users grant authority and respect to elected *regidores* or *regidoras*, and both spouses are responsible for this position. This is, in part, because their power is sanctioned by the Andean priest. This is for instance how Laila succeeded in becoming accepted as the *regidora:* she performed the water ritual, although she and her husband were not obliged to do this. However cases like Ramosino (also a principal *regidor*), demonstrate how this position can also be misused for pursuing personal interests. Besides, Ramosino 'feathered his own nest'

using the traditional Andean institutions of reciprocity and *compadrazgo*. Cases like the one of Ramosino are a warning against idealizing Andean communities.

Therefore, on analysing water and the intra-household relations in Andean communities it is necessary to consider different factors that intertwine with each other: material and symbolic resources, knowledge and personal attributes, bargaining capacity and autonomy, customary institutions and values, gender ideologies and discourses, etc. Some authors, as Deere and Leon (1998), put more emphasis on women's access to material resources, such as land, as an ingredient of bargaining power. However, as Zwarteveen (2006) argues, and as the cases described show, intra-household water negotiations and struggles occur not only over water or land as material resources and rights, but also over meanings and discourses, representation and participation, as well as individual identities.

Though equitable rights over productive resources like land seem to be central to boosting an actor's standing and bargaining power in rural areas, I therefore come to a slightly different conclusion that Deere and León (2002). These authors suggest that, in order to change gender inequalities and women's subordination, the issue of redistribution issue, especially in relation to land property rights, is of most importance. They argue that only when women have guaranteed access and rights to land, they can start addressing the question of (identity) recognition, including cultural differences. However, in Peru, where culture, networks and traditions play an important role in ensuring women's and men's access to land and other material resources, recognition and redistribution co-determine each other.

Chapter 8
Conclusions: The ethno-politics of water security in the Andes
Beyond the essentialization of ethnicity and gender

8.1. Introduction

In this thesis, I have shown how ethnicity and gender have been constitutive elements of fair and secure access to water in Andean communities throughout Peruvian history. I have tried to demonstrate how ethno-water politics create space and opportunities both for inclusion and exclusion, for contestation and struggles and how it enables the empowerment of marginalized people at different levels. Through the presentation and analysis of ethno-historical evidence, and by carefully mapping and documenting existing water practices in the communities of the Colca Valley, I have shown that ethnicity and gender have not only been constitutive aspects of every-day water politics, but also that water itself has constituted a central resource in defining and re-defining ethnicity and gender in the Andes. Water was, and still is, central in overall socio-organizational, political, and cultural dynamics.

Historically, different processes of intervention and occupation in the Colca valley have shaped the space for local action to build alternative water realities. What comes out very clearly from my thesis is that, throughout history, the people in the Valley have constructed their own political water projects from below and on their own terms, anchored in a specific cosmology that attaches a sentient meaning to water (and nature), and rooted in traditions and place-based identities and history. Contestation and resistance processes have been heterogeneous, varying from conflictive (and even violent) responses to interventions to more re-creative or transformative processes. To understand these dynamics, I have proposed the concept of 'ethno-water politics', linking and combining different theoretical insights (cultural politics, counter-development, place and alternatives to modernity) which all share the desire to make sense of, and create opportunities for, people's own constructions of development 'from below'.

My thesis builds on the work of many others researchers[166] who have linked water rights with ethnicity and gender, often in attempts to explain water injustices in the Andes These authors clearly argue how, throughout history, differentiated access to water and water injustices have originated and been institutionalized by practices, discourses and structures rooted in and co-creating ethnic and gender differences that work to support social hierarchies and unequal power relations. The present study has gone further in this effort. It has explained water injustices and threats to water security in the Andes by de-constructing and re-constructing Peruvian water history and interventions from an ethno-feminist perspective, making a conscious effort to situate current realities in their historical context.

In this last and concluding chapter, I attempt to weave together the various lines of analysis of the thesis. To do this, and even though te events referred to sometimes overlap, I organize the discussion of this concluding chapter in accordance with the three objectives of this study. Accordingly, in the first part I discuss both the process by which

[166] Arroyo and Boelens 1997, Boelens 2008a, Bustamante 2002, Castro 2006, Gelles 2002, Gentes 2002, Gerbrandy and Hoogendam 1998, Guevara 2007, Gutierrez and Arratia 1999, Perales 2008, Zwarteveen 2006.

water has moulded and shaped ethnicity and gender in the Andes, and how (in turn) gender and ethnicity are constitutive of ethno-water politics. To effectively control access to water, one important strategy of designers of irrigation development interventions has been to discipline and align people's visions and water requirements by legal force, justified by ideologies of progress and science and technology. I discuss the implications of the resulting interventions on the water security of Andean communities in the second part. The third part presents the variety of people's responses and resistance to these interventions in the context of modernity and neo-liberal policies in Peru. In the fourth part, I discuss the limits of people's agency and capacity to resist. In the last part I intend to go back to the third objective of this research, which is to insist in including gender and ethnicity on the agenda of irrigation policy, research and development interventions. I do this by explaining the implication and applicability of ethno-water politics.

8.2. Defining and redefining ethnicity and gender in the Andes. The centrality of water

The ethno-historical information presented in this book clearly indicates how water has been interpreted, represented and valued in a particular way by Andean people throughout the development of the different civilizations in the Andes. As explained in chapter 2, historically Andean people have vested water with a particular ontological meaning. Water sources were seen as female and male creator deities of all living beings in the world. Water thus constituted a central resource around which ethnicity, institutions, and authorities were defined and re-defined. Because of the gendered interpretation and representation of water (with female as well as male water deities) socio-productive, political and religious practices were also organized as gender dual: there were roles for both women and men as leaders, and consequently both occupied high political and religious leadership positions. My exploration even reveals that ancient cultures dedicated their most important worship centres[167] and religious festivities to female water deities. Based on the studies of Rostworowski (2000, 1998), I have argued that this is linked to the fact that – in the vision of peoples of the initial cultures – female water deities were superior to male deities. The ethno-historical evidence that shows the importance of women, and that highlights how the social and political organisation of society and of water management was gender-dual with male as well as female leaders, has been curiously overlooked by most archaeological and ethno-historical studies. It deserves more attention, since it would help not only to understand and question how current water cultures, meanings and practices are gendered, but would also be important in further tracing and questioning the origins of current gender biases in water police. Evidence of gender duality in history also provides new justification for actions to pursue parity of participation and representation in different water domains and in general at other political levels.

Today, after and in spite of having experienced different processes of intervention, occupation and trans-culturization throughout history, people from Andean communities still consider water (and nature in general) as a sacred living being. My research in the

[167] In Chapter 2, I argue why religious centres and altars, such as: the *Tticciqaqa* altar (in the 'Sun Island', in Titicaca Lake), the *Akapana* or *Akamama* pyramid and the *Umapunku* temple (in Tihuanaku, Bolivia), the *Tticciqocha* fountain (in Cusco), the *Apurimaq* temple (in Apurímac), and the *Pachakamaq* temple (in Lima), were devoted to female water deities.

communities of the Colca Valley illustrates how *Mama Uma* (water spring), *Tata Mismi* (snow-capped mountain), or *Tata Mallku* (male water deity) are important in creating spaces for livelihood and individual or collective actions to build or defend every day water politics from below (see cases in chapters 5, 6 and 7). The continued existence and importance of traditional water authorities (water mayors) and practices, such as *Yarqa Haspiy,* throughout the Andes (not only in Peru, but also in Bolivia and Chile) shows the crucial role of water in codetermining the socio-cultural and political character of Andean history. Water is, thus, important in shaping people's actions, identity and agency, and even forms an important form (symbol) of power to claim autonomy for managing communities.

Given the centrality of water in moulding ethnicity, gender and overall socio-political, religious and cultural dynamics, and given the importance of water as a vital resource for production, water also constituted an important entry-point for the elite and rulers of the different civilizations to (political, military and religious) strategies of control and domination (Boelens and Gelles 2005, Marsilli 2005, Pérez-Galán 2004). Hence, rulers strategically appropriated and controlled the ontological meaning attached to water (along with the other natural resources), to justify and lend legitimacy to their rule and support their claims of the superiority (sacred) of their identity (and culture). Existing political and religious hierarchies, as well as water-based ethnicities, authorities and gender roles were continuously re-defined in such processes of domination and (cultural) appropriation. Existing local water beliefs and practices were often downgraded and labelled as inferior or backward (or less modern), with local ethnic and gender identities being categorized as inferior or as ' anomalous' to the so called 'superior' culture.

Chapter 2 and 3 explain how such processes affected the position, as well as the access and rights to water, of Indians and women (including those of the supposedly superior or dominant cultures), especially after the Spanish colonization. Political and social hierarchies were established on the basis of ethnicity and gender, with *indigena* women at the bottom end and white men at the top. Alongside their construction of women as inferior to men, Spanish rulers also introduced a clear gender-based division of the world in a female domestic realm and a male public realm. The institutionalization of this division upset the relative balance of power between the genders that had existed in pre-Spanish cultures, and set the stage for what happened after the independence during the Republican period, and even for what persists until nowadays. The interpretation and representation of ethnicity and gender has been controlled by men of the hegemonic culture, making Andean men and women prisoners of a 'natural' cultural pattern of negative ethnic and gender stereotypes (Blondet and Oliart 2008, Cadena 1992, Vera 2004, 2005). This cultural marginalization served to deny important rights to *indigena* people and women, and also resulted in the exclusion of indigenous people from representation and participation in nation-building projects (including voting as citizens)

Though different policies – such as the Law of the Indies (during the Spanish rule), the (water) Law 2672 of 1917 (during the first Republican period), the Constitutions of 1920 and of 1979 – all attempted to recognize and protect the rights of indigenous women and men to land and water (and later to citizenship), the actual materialization of these policies was shaped by existing power hierarchies, with dominant and powerful groups succeeding in bending outcomes towards their own interests. This explains why these policies and laws did not eradicate the predominant stereotype of Indians as being 'savage', 'backward', 'lazy', and 'apathetic'. Indigenous men were considered as having a feminine character, incapable of dominating their wives and heading their household,

thus also incapable of governing a community or a village (Álvarez-Calderón 2005, Baud 2006, Boelens et al. 2007, Cadena 2004, Drzewieniecki 1995, Seligman 1992).

The social construction and later naturalization of ethnic and gender identities as 'anomalous' and 'deviant' also had direct geo-political implications for Andean or Amazonian territories, including their livestock (lamas and alpacas) and agricultural products (*Chenopodium quinoa, Lupinus*, sp, *Trepaelum tuberosum,* etc) . In analogy to how its people were seen, Andean agricultural lands were often qualified as 'poor' and 'infertile', or as presenting an 'inaccessible' topography, and thus as difficult to manage and prone to the hazardous and cold conditions of the climate. Such labelling allowed politicians to turn their gaze away from these areas (such as the Colca Valley), and instead choose other ones as more suitable for 'productive' agriculture, and cost-effective public investments. This explains, in part, why the desert coast was prioritized for public investment in large-scale irrigation. Andean and Amazonian lands were left behind and their inhabitants were made invisible or treated as 'second class citizens', as the recent authoritative and annihilating intervention by president Alan García against the Amazonian communities –better known as the 'Baguazo'- illustrates (FIDH 2009, Bebbington 2009). Rightly Mitchell (1995:130) points out that 'the more natural the anomalies appear, the less obvious the hegemonic discursive construction will be'.

However, even if different dominant cultures have tried to appropriate and control the meaning of water, and with some of them (like the Spaniards) even trying to proscribe Andean manifestations of water-based religiosity, people from Andean communities have continued honouring their water deities and practising their rituals, even if secretly. In some cases, they strategically changed the names of central rituals, such as from *Uma Raymi* (or water festival) to *Yarqa Haspiy* (cleaning of the canals), to safeguard the local manifestation of beliefs, protect customary norms and practices to access water, and legitimate political and religious water authorities (see chapter 2). The organizing practices and ceremonies existing today – especially during the *Yarqa Haspiy*- and the rituals conducted by the traditional water mayors and the Andean priests in the communities of the Colca Valley (as described in chapter 6), provide a clear testimony of the continued presence and importance of *Mama Uma* and *Tata Mallku* in present days of globalized modernity. Indeed, every day cultural politics around water are importantly evolving around the different meanings and values given to water by 'western' cultures and by those considered as 'traditional' cultures (as discussed in Chapters 2, 4, 5 and 6). Rightly Boelens (2009:308) argues that confrontation and struggle over definition and boundaries about water visions and practices have always been present in water politics. The struggle for access to water, historically, has also been a struggle to claim authority and legitimacy of local water rights systems.

I have also shown new realities of potential strength of women involvement in water management and politics. Even if indigenous women have been restricted from entering public spheres and displaced from leadership positions (since the last period of the Inka Empire), they have always continued to be involved in water politics. In the domains considered as traditional (such as the *reginas* in the Colca Valley), women have continued playing roles and are still actively participating, negotiating their rights and even moving into positions of power. Being largely responsible for irrigating the plot, maintaining and organizing traditional water festivals, and occasionally assuming traditional water authority positions (as priestesses or water mayors), women have played an important role in keeping traditional knowledge, practices, and place alive. Due to their determination to stick to traditional customs (such as their dress), as well as their

abilities to construct and use traditional relations of sharing and conviviality (reciprocity, *uyhuay,* family networks) to cope with uncertainties and threats to family livelihoods, peasant-indigenous women have continuously challenged cultural standardization processes. Indeed, they have learned to use the marginalization and relative invisibility of their gender position to transgress and cross hegemonic gender boundaries in order to yield power, as Lupe, Nina and Laila from Coporaque (as described in chapter 7), or the women from Llullucha-Cusco (as described in chapter 3) did. Maintaining customary practices allowed Andean people to also legitimize local norms and authorities and institutions. With the safeguarding of the symbolic, managerial, and political meaning of water, also collective identity, place and territory were reproduced and maintained. This is precisely what I have labelled as 'ethno-politics'.

This contemporary ethno-politics of water demonstrate the significance and power of people acting as a 'hydraulic community', at a time when their rights to water are threatened. The cases analysed in chapters 5 and 6 illustrate this, by showing people's efforts to construct new water alternatives when confronting individualization or privatization of water rights, discussed further below.

8.3. Irrigation Development interventions: the assembling of legal force, modernity, science and technology

As is discussed in chapters 2 and 3, discourses of modernity, linked to efficiency, productivity and economic development guided the political agendas and interventions of the Peruvian Nation-State at the beginning of the 20th century. Education was an important element of this agenda, as it would bring enlightenment to create progressive and productive citizens. These thoughts also influenced the entrance of white and mestizo women in technical schools and universities. Although they thus could become productive actors, they were still not 'equal' enough to be considered as citizens. The education of the indigenous population to become productive wage labour was the core of the political project of the 'Indigenistas' of the first decades of the 20th century (Cadena 2004, Álvarez-Calderón 2005).

The discourses of modernity, progress and development served to divide society into two worlds: the developed modern one and the backward traditional one. The further people grew from superstitious beliefs and traditions, the more progressive and civilized they were. In a similar evolutionary reasoning, a man became more modern and masculine the more he conquered, dominated and exploited nature (or deserts) and tamed wilderness (Mies 1986, Molle, et al. 2009). According to Udas and Zwarteveen (2010), ideas of control and domination of nature that were widespread in the water sector also linked technical competence to the dominant cultural idea of masculinity. It is no coincidence then that agricultural universities, up to these last few decades, have characteristically constructed and actively upheld the domain of water science and management as a typically masculine one. Expressions of 'hegemonic masculinity' (Kessler 1982, mentioned by Connell and Messerschmidt 2005) therefore abound in the water sector, and can also be witnessed in my home agricultural University 'La Molina' (See Boelens 2008, Rap and Oré 2009).

The hydraulic mission was central to ideas of progress and modernity in the agricultural sector, emphasizing the productive and economic value of water and positioning irrigation interventions (especially large-scale irrigations on the coast) as central to

nation-state building projects of development. The promoters of the hydraulic mission (such as engineer Charles Sutton) set out to boost efficient and modern agriculture on existing hacienda farming systems on the coast, and to make desert land suitable for agriculture. They did not consider the irrigation needs of Andean communities, and had little consideration for what would happen to the places from which water had to be diverted or transferred to make large-scale irrigation projects viable. Andean communities were simply ignored, probably because the traditional farmers, their knowledge and technology did not fit the image of the modern progressive and entrepreneurial farmers that was part of the hydraulic mission. At best, indigenous farmers were seen as a hindrance to scientific rationality and as an offence to the brave and masculine calibre of audacious and skilful agricultural engineers (Molle et al. 2009, Zwarteveen 2006). The standard of modernity and development set by the hydraulic mission was based on a sense of rational and cultural superiority, and is therefore a typically colonialist one (Escobar 2008, Blaser 2004, Tubino 2006, Zwarteveen 2006). In this respect, I agree with Molle, Mollinga and Wester (2009:329) who refer to those involved in the hydraulic mission as the children of Colonialism.

Large-scale irrigation projects counted on the support (and compliance) of international funds, such us the World Bank and the International Monetary Fund. These international lenders sponsored large investors, such as the Majes Corporation (MACON), and thus helped materializing engineers' dreams of modernity and progress (Williams 1995). In sum international capital, the Peruvian State, and engineers joined hands in a tremendous mission to overcome backwardness, misery, and underdevelopment by diverting and taming rivers and conquering deserts. In Chapter 4, I have argued that the realization of this mission implied the simultaneous destruction and invisibilization of the agricultural potentiality of the land and existing farmers' knowledge, like that in the Colca or Sihuas Valleys.

The hydraulic mission reached its maximum expression in the course of the Agrarian Reform, because during this period (1968-78) the construction of large-scale irrigation schemes intensified. The construction of such projects as Majes-I, Chira-Piura, and Tinajones, as well as the studies of Jequetepeque-Zaña and Chavi-Mochic, absorbed more than 85 % of the total budget of the Ministry of Agriculture in those years (Portocarrero 1982). It is not surprising then, that during this booming era of the hydraulic mission, the engineers of the Agrarian Reform drafted a Water Law (the General Water Law 17752) in 1969 that clearly reflected this sense of ethno-gender and techno-cultural superiority. This law was mainly based on coastal realities (as were the former water laws) and technical criteria. The equalizing principle of this law, treating all Peruvians as equals and all territories and waters as the same, ignored the Andean and Amazonian ways of managing and valuing water, as well as their traditional authorities and normative systems. In this respect, Boelens (2009:314) rightly argues that in the Andean context, the equalizing intentions of policies do not bring about more equal access, but instead worked to deny difference and to control diversity.

Likewise, the team of water law reformers vertically determined the rules of access to water, without consideration for existing uses and practices. Although the Water Law 17752 declared water a resource of public interest (State ownership), and although most of its contents were very different from the former Water Code 1902, it still threatened the water rights and water security of Andean communities, for many reasons. Firstly, as this law granted absolute power to the State to decide about the allocation, distribution and use of water, it left local water organizations or communities without possibilities to

participate in or negotiate water allocation and distribution. Secondly, the State usually prioritized the water consumption of the big cities and the water needs of large-scale irrigation systems over those of Andean communities (Guerra, 1986). Thirdly, Law 17752 (including the Law of the Peasant communities 24656, issued in 1987) left Andean communities without legal backing to defend or claim their rights to water sources, against competing third parties. In this legal context, most Andean communities felt vulnerable and helpless when confronted by the massive diversion and transfer of water from their territories to large-scale irrigation systems on the coastal region. For this reason when water from the Colca River was transferred (10-13 m^3/s) from the watershed of Colca to feed (and indeed make possible) the irrigation of the desert plains of the *Pampas de Majes* (15,000 ha, until present), it was seen as a matter of progress and national development. However, my analysis of this inter-basin transfer shows a different story, as detailed in chapters 4 and 5. Communities like Cabanaconde, Pinchollo and Coporaque had so little water that they could only irrigate once every 70-90 days. Coporaque alone had a water deficit (see, table 5.1 from chapter 5, or annexe table II-VI). When the people of the Colca Valley protested, and also asked the State and politicians to recognize their water needs, their voices were either dismissed (as coming from second-class citizens) or their needs were ranked as lower and less important than those of the new farmers of the *Pampas de Majes,* or of the wider project of development and modernization.

What is particular about the MIP, is that the public investment made in Majes-I (nearly 90 thousand US$ /ha) exceeded by far the costs of other large irrigation systems on the coast (on average 6.5 thousand US$/ha). This calculation does not include the costs of maintaining the irrigation system every year, and of promoting productivity (green revolution) in the *Pampas de Majes.* Peruvian politicians justified this enormous investment by referring to the construction of Majes-II (best known as 'Angostura Irrigation'), which (when operational) would reduce the actual costs/ha. Whether this is indeed a realistic assumption remains to be seen, as the estimated investment in Majes-II reaches around 235 million US$ (see chapter 4). Curiously, the investment disparities in Majes-I are not reported in World Bank reports. World Bank experts (Williams 1995) maintain that Sub-Sahara irrigation systems are among the most expensive, poorly-planned irrigation projects in the world, when these actually cost three times less (31,000 US$ /hectare) than the MIP. The Ministry of Economic Affairs (2006) is aware that, with the same budget as spent in the MIP, the State could have incorporated more than 200,000 ha of new coastal land into agriculture, or improved irrigation in at least one million ha of land in the Andes (taking as a reference the public investments in the Coporaque Canal). It is shameful that the State only invested 0.2% of the total amount invested in the MIP in the 16 communities of the Colca Valley, when their water needs (especially those of the communities located at the right bank of Colca River) can be ranked as urgent (See chapters 4 and 5).

I assume that the promoters of agricultural modernization in Peru had (and perhaps have) no confidence in the returns to public investments in medium and small irrigation systems in Andean communities. In their view, such investments would only contribute to the desired state of modernity (and yield acceptable returns) after the existing messy and unruly systems of (individual and collective) land and water rights would be corrected and made uniform by legal force. This is precisely the intention of the neoliberal policies, initiated in 1990. On the premise of fostering economic development, the rulers of the de-facto government changed the Constitution of 1979 with the Constitution of 1993, to allow the buying and selling of community lands. Although the

new Constitution discursively proclaims to 'respect' the rights of indigenous peasant communities and explicitly recognizes cultural differences, in practice it establishes the legal conditions to expropriate communal resources (through its issuing of decrees such as: D.L. No 653, 667, 25902, 26505, etc., see also Chapter 3).

The 'programme of land entitlement and rural properties' (PETT, in Spanish) and the 'programme of formalizing water rights' (PROFODUA) set up to register land- and water titles, are reflections of these efforts. Under these programmes, widely sponsored by international funds such as the Inter-American Development Bank (IDB or BID), collective rights to water and land became the object of liberalization policies and markets. PETT and PROFODUA define development and justice in terms of individual economic welfare and in terms of rights belonging to (male) individuals. Although PROFODUA included the possibility of titling water rights to groups or 'blocks' (the word 'blocks' was used to avoid having to use the term 'collective' rights), clear preference was given to the individual registration of titles of coastal water user organizations. Hence, when the programme started its work in the Andes, financing suddenly came to a halt. Consequently, when Andean communities tried to formalize and defend their collective rights to local water sources against powerful external actors (such as mining companies), they have still no legal backing. Instead, obtaining legal protection for them implies facing endless bureaucratic procedures and unaffordable costs. In practice, PROFODUA has thus institutionalized the dispossession of water from Andean communities in favour of large- scale irrigation systems. This is also because communities have no chance to claim rights to water sources that are already diverted to large-scale irrigation systems. The rights to these waters have now been formally registered (privatized or stolen in the terms of Swyngedouw 2005) in the names of coastal farmers. It is not surprising, then, that much water and land is concentrated in those large-scale systems. For instance, Castillo (2004) reports that only in 1994, 77.6 % of the total area of irrigated agricultural land (on the Coast) was managed under a system of 'large-scale agriculture', comprising 3 % of all farming units, while 84.4% of farming units manage 10.5 % of the total area of agricultural land.

The correction and standardization efforts of the law have not been gender neutral. They have institutionalized a further masculinization process of rights to land and water (at least on the Coast), a process that already started during the land parcelling of the Agrarian Reform. As analysed in chapter 3, the male biased headship of households, and hence the formal registration of men as official members of the water user organization and of the community, endowed men with the right to legal titles and helped them to become first *titulars* (or title-holders). Although PETT and PROFODUA considered the wives as second *titulars* and as having the same rights as their husbands, the cases in Coporaque reveal that this did not always work in practice. Especially in situations of marital conflict and divorce, women were vulnerable to losing their rights. Some researchers argue that formal registration of women in WUAs is not a concern for most Andean communities, since it does not influence the materialization of their water rights (or their actual access to water) (Gerbrandy and Hoogendam 1998, Gutierrez and Cardoma 1998). This is somewhat true, especially in those communities where official water norms and authorities have not completely permeated local norms yet, and where collective ownership of land and water remains valid and provides women and orphan peasants some measure of support and security. Yet, too much reliance on the continued existence of such community safety nets seems naive, in view of the new wave of liberalization policies that is encroaching every rural community. Such policies of

formally registering and formalizing titles risk becoming instruments of legitimizing exclusion, individualization and the masculinization of water rights.

PETT and PROFODUA definitely have paved the way for consolidating the dispossession and accumulation of land and water in favour of an extractive system of production (Bebbington 2009, Boelens 2008, Cadena 2008, Escobar 2008, Parajuli 2007). The more visible beneficiaries of this system have been agro-industrial enterprises, like *Leche Gloria* in the Majes Irrigation system, or the asparagus agro-export companies like the *Sociedad Agrícola Virú, Damper Trujillo* and *Green Peru* in the Chavimochic irrigation system, or *Camposol* in the Olmos Irrigation system. In this sense, regional and spatial inequalities are intrinsic to profit-seeking capitalism, with its 'expansionist trend' that itself is inherently imperialist. The accumulation of capital produces development and underdevelopment as mutually determining phases of uneven, combined movements of capital (Ghosh 2007). Van der Ploeg (2006, 2008) calls this Empire, or the 'visible hand of the market', which I in turn would like to call the 'visible children of power'. Indeed, the displacement, expropriation, and expulsion of peasants from their lands (such as those from the Sihuas Valley) and the suppression of indigenous modes of production has constituted one of the distinguishing features of the history of capitalist growth[168]. However, the making and un-making of water (in-)security and the dispossession and accumulation of water have not been straightforward or easy. Marginalized and displaced people have always responded in different ways to policy interventions and practices which have aimed to dispossess and accumulate local resources, as elucidated in the next section.

8.4. People's responses: building alternative water security realities

Irrigation interventions, which threaten local water security, also create opportunities for ethno-water politics at different levels and domains of action (household, community, watershed and national). Andean women and men have contested manufactured water insecurities and exclusion in a wide range of heterogeneous interlinked practices. The cases referred to throughout the chapters of this book demonstrate that these responses sometimes range between open (public) counter-movements, peaceful or violent confrontations, or covert or hidden practices. In some cases, predominant practices, discourses and knowledge have been appropriated, transformed, repositioned and embedded into local dynamics, generating place-based water alternatives. People's responses have resided, first and foremost, in locally redefining the meanings and practices of external interventions in their own terms and in constructing politics from below. What has thus characterized Andean water struggles and history is that resistance by people has been firmly anchored in local water traditions and place-based identities. People's struggles for water security and justice initiated at very local level triggered struggles at higher levels. The decisive actions taken by the Cabanaconde community to dynamite the MIP canal, a visible symbol of modern irrigation expert knowledge and power, encouraged the rest of the Colca Valley communities (organized under FREDIVEC) to demand water justice from State politicians, often succeeding in their attempt. Women's actions were central to this struggle, whether by confronting the armed forces face to face in Cabanaconde, or by submerging the senior representative of the State

[168] See also Albo 2002b, Arce 2000, Crush 1995, Escobar 2007, Ghosh 2007, Harvey 2003, Ploeg, 2008, and Topovich 2010

authority (the provincial sub-prefect) in the water tank (of the main square of Chivay) in reaction to his authoritarian and macho behaviour during the FREDIVEC demonstration against the MIP (see also Chapter 5). The well-known case of the water war in Cochabamba was also initiated locally by *campesinos,* and later on joined by the entire population of the urban area. Likewise, women played decisive role in this war (see, Bustamante et al. 2005).

As analysed in chapter 5, resistance takes place not only by going in the opposite direction, or by generating contradictions and counter-movements, it also materializes in a more creative and positive manner. Coporaqueños constructed their people's irrigation project (*Canal Coporaque*) by recreating the design and knowledge of the MIP. They saw themselves as the 'other' MACON (Majes Corporation) when constructing their irrigation canal, but in contrast to MACON who built the MIP canal with high technology and investments, they constructed the *Canal Coporaque* working like ants (*operación hormiga)* with local knowledge and technology. Yet, they also used modern technology (such as the rock drilling machine), asked advice and assistance of engineers and requested the economic support of the central government or NGOs (such as Desco). Though making use of 'modern' knowledge and technology, they mainly worked in the local way to construct rights to water, rights to be considered a legitimate social water actor (*comunero(a)),* and rights to ownership –hence control- over their irrigation system. Coporaque's own irrigation project was a place-based alternative to projects designed and decided by others, like the MIP or even the attractive 'U-pipe' (siphon) project proposed by CAPRODA. As Escobar (2008) points out, people's projects are basically alternatives to modernity and represent a radical, visionary approach to redefining and reconstructing power asymmetries from the perspectives of cultural, economic and ecological difference.

The construction of alternative water realities includes people developing strategies to wisely use the water that is available. In the case of Coporaque, these strategies included more efficiently using the water by adopting the *mita* system, looking after the proper maintenance of the irrigation infrastructures (*Yarqa Haspiy),* respecting local norms and water authorities, the proper fulfilment of customary traditions, and the punishment of free riders (such us Alex and Anton, referred to in chapter 6). Together, all these strategies and efforts also help to reinforce and constitute the hydraulic community as a stable constellation of social and political relations around water.

8.5. Limits of people's resistance

However, there are also limits to people's agency and capacity to resist. People's capacity to construct place-based alternatives can be abated, especially when operating in a context of continuous political marginalization, when vital resources (such as land and water) are being constantly plundered, or when local identity and culture have crumbled. Hence, the leaders of the multi-communal irrigation project of the right bank of the Colca Valley (described in chapter 5) had to give up on their attempt because of two main reasons: the apathy and lack of interest of central government politicians to support the communities, and the obstinacy of the AUTODEMA engineers to negotiate with the multi-communal leaders for delivering at least 1 m^3/s of water in the river downstream of the dam-intake of Tuti. The MIP had already diverted the entire water flow from the Colca River to the *Pampas de Majes.* In the same vein, farmers of the Sihuas Valley had to migrate to the *Pampas de Majes* and sell their labour force because it had become

impossible to productively manage their own agricultural lands, after those had been salinized or buried by sand, due to the bad irrigation practices in *Pampas de Majes* (as described in chapter 4). In both cases people's capacity to respond or resist was undermined. In the first case, the attitude of politicians and water professionals to consider the water necessities of communities of Colca Valley as being of secondary importance blocked the initiative of the multi-communal effort; while in the second case, AUTODEMA staff in alliance with regional government politicians remained 'blind' to the damage caused to the buried land.

Likewise, women's capacity and agency to resist and get around the patriarchal system can be weakened, even when they have developed personal abilities to resist and manoeuvre. In the rural areas of the Andes, especially land ownership and family networks are fundamental factors in determining women's and men's capacity to bargain in and beyond the household. Laila and Nina could confront their husbands and negotiate roles and responsibilities because they possessed material resources, such as land and livestock. They also had very extensive family networks, which Illa did not have (she considers herself an orphan), reason why she had to endure her husband's mistreatment. Moreover, the *compadrazgo* relationships established between her ex-husband and one of the influential *comuneros* of Coporaque, reduced Illa's capacity to struggle for land and water, after being divorced. Community norms and principles could not protect her from being deprived of these resources, which the community allocated to her ex-husband. In contrast, Lupe managed to gain control over land and water because she had a better fall-back position than her husband. Although Lupe and Leo possessed land and livestock when they married, the moment they divorced Lupe was most informed and took advantage of her extended family network to gain control over fundamental resources. Laila, however, gained authority and respect when confronted by the water users of the *regina,* which she was in charge of to distribute water, by performing water rituals. Therefore, resistance and place-based water alternatives cannot be fully understood if the everyday struggles and negotiations at household level are not also revealed. When Lupe struggled with Leo to control water and land, she also did this to be considered as 'head of the household', a citizenship category invented by westernized culture, and a necessary status (besides being a landholder) to be registered as a member of the *C. Regantes.* By doing so, Lupe (like many other Andean women) also resisted the masculinisation process of water rights in Peruvian society. This is one of the interesting aspects of everyday gendered water politics, which constitutes one of the cores of ethno water politics.

These alteratives to development also raise questions about the position and role of a researcher like me, a question that is related to my third objective. Before embarking on the work of this thesis, I worked for fifteen years with indigenous-peasants from Andean communities in Peru (in Apurímac, Cusco, Arequipa, and Ayacucho) and in Sucre in Bolivia. These experiences constitute a rich and important source of knowledge and inspiration for this study. Although the education I had at the university provided me with a western and an engineering (and thus a-political) lens to 'read' reality, from the re-encounter with Andean people's lives, I learned and started to appreciate what Amílcar Cabral (mentioned by Cadena 2008) points out: that ethnicity has always been referred to by indigenous-peasant women and men not only as a right, but also as a source of liberation from oppression. This perspective is also one of hope, as it creates the courage to continue building place and water or food security from below, giving sense to local development and history. In spite of this strong identification with Andean people, and even though I am an actor in and come from an indigenous community (Silco, Apurímac),

I have made a conscious effort not to essentialize or romanticize ethnicity or the Andean world, but to remain critical and reflective in trying to portray how Andean people make sense of and live ethnicity in every day water reality. Yet, my own positionality did provide an important motivation for this study, and explains my research perspective: I wanted to attempt to do justice to these experiences by representing and understanding Andean water realities in ways that respect and cherish their particularity.

8.6. Wider implications of this research

The ethno-politics of water constitute a useful point of entry to understand and explain water injustices, exclusion and marginalization, as well as processes of water rights' dispossession and accumulation in the Andean context. The ethno-politics of water have always been present in people's struggle for water justice, and presently are increasingly gaining space and allies at different levels of decision and policy making, research and academia, and at international water congresses (such as the last World Water Forum). What is new is that the marginalised or 'othered' people are starting to dispute the monopoly of hegemonic science to decide how water must be interpreted and valued, or how gender must be understood. The strategic mainstreaming of gender and ethnicity in political agendas and policies, as well as the recognition of the agency (rights) of land (*Pacha Mama)* and water (*Yaku Mama*) as living actors in the National Constitutions of Andean countries such as Bolivia and Ecuador are testimony of this. Similarly, the emergence and strategic use of ethnicity in different water struggles, such as those pursued by Cabanaconde, Coporaque or FREDIVEC in the Colca Valley, or in the different water wars of Latin-American countries (Cochabamba-Bolivia, Mapuche-Chile, Quito-Ecuador), or even the last war in Bagua or Sicuani in Peru, indicate the potential strength of ethno-water politics. These struggles indicate a counter-movement effort that questions asymmetrical power relationships, the marginalization of knowledge and technology, the appropriation or expropriation of resources, and that demands respect to self-representation and autonomy; what Cadena (2008) calls alternative indigeneities[169]. Similarly, gender dual politics are increasingly being promoted as a strategy in fostering parity of participation and representation of indigenous women at different levels and areas of decision making. It also became part of the indigenous political project, known as *Sumak kausay,* in the effort to de-colonize normative discourses and intervention.

The concept of ethno-water politics may also help to better understand the heterogeneous responses of marginalized people to protect and defend their fundamental human rights and the rights to vital resources. One of the main characteristics of ethno water politics is that it allows seeing and approaching Andean people not only as a simplistic group with a unique identity, values and interests. Rather, it allows recognizing that Andean community members can be internally differentiated by religion, class, age, ethnicity and gender, while also acknowledging that differentiation is not always synonymous with antagonism. In spite of internal differences, people can collaborate, such as when people pursue their own collective project (for instance the people's irrigation project in Coporaque). What gives people a sense of 'we-ness' is that

[169] Indigeneity as Cadena (2008) calls it is not a new way to be indigenous, but an insurgence of indigenous forces and practices with the capacity to significantly disrupt prevalent political formations, and reshuffle hegemonic antagonisms, first and foremost by rendering illegitimate (and thus denaturalizing) the exclusion of indigenous practices from nation-state institutions. Indigeneity embraces both modernity and non-modernity.

they are a group of excluded and marginalized people whose livelihood mainly depends on water (for irrigation). Water security injustices are therefore also faced as a group. Precisely this specificity is made invisible or visible (according to the winds of managed multiculturalism) by the extractive process of the global movement of capital accumulation, presently accelerated by neoliberal policies.

Consequently ethno water politics, as a political project, may pose tremendous barriers to the movement of global capital, because the demands of marginalized groups bring many water and gender injustices to light. They not only demand secure access to water, but also question on which ground a person (or another entity such as water itself) can be recognized as a legitimate actor, what their rights are, what science is, what power is, what governance is and what other possible roles of the state are. These questions, in the end, raise fundamental doubts about the logic of the extractive capitalist system. Maybe ethno- water politics will demand the return of what Vandana Shiva calls the 'stolen harvest' or what van der Ploeg calls the 'stolen future'.

At a more practical political level, ethno-water politics may facilitate the comprehension and operationalization of the politics of redistribution and recognition aimed at re-dressing water injustices in the Andes. It can contribute to building transformative policies to achieve fair aand a more secure access to water of the marginalized population. This does not mean that this is a simple task; it involves fundamental challenges as to how policy makers and engineers interpret and represent Andean water realities. It may even involve questioning the training of water engineers and the change of the curricula of universities and technical centres of education.

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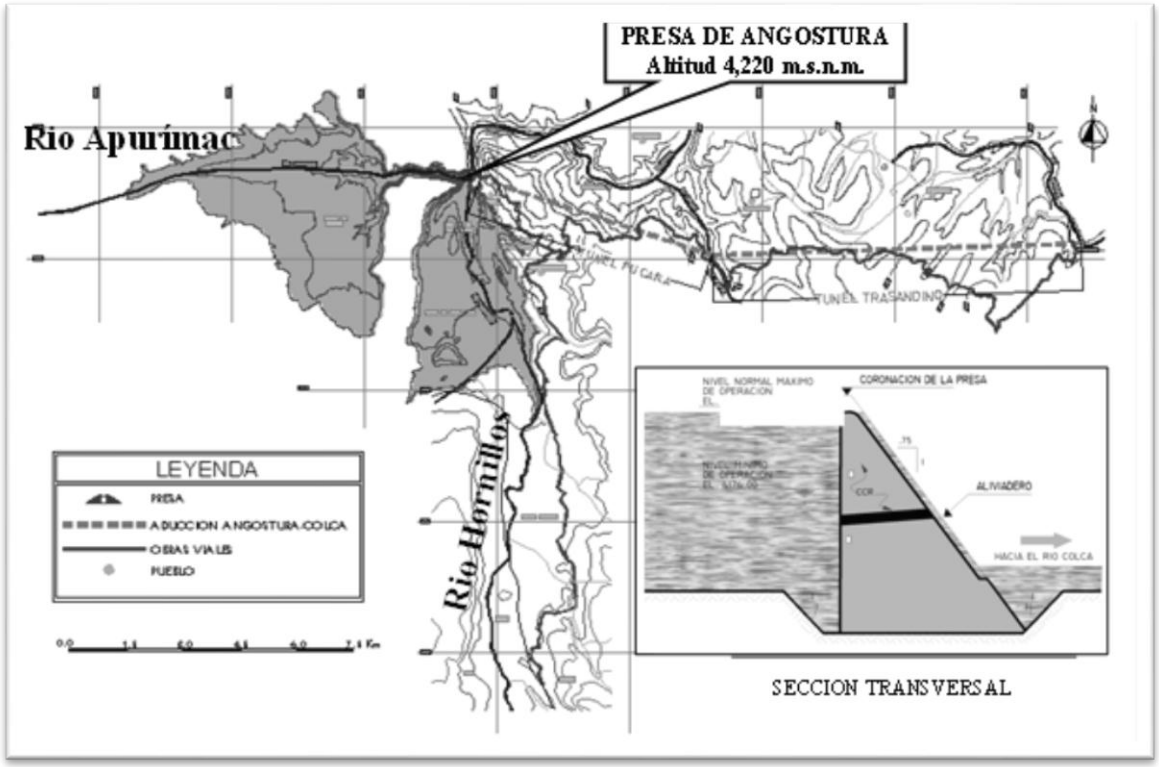
Annexes

Table I: Climatological data of the Colca Valley (average/month/series of 10 years)												
Variables	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Av. Temp. (ºC)[1] 1996-2006	10,8	10,8	10,67	10,3	8,95	8,1	8,14	9,1	10,2	11,8	12,1	11,8
Av. Ppt [1] (mm/month) 1996-06	105,3	129,0	104,82	33,1	2,85	0,1	3,95	4,5	13,8	9,9	12.0	63,3
Av. Ppt [2] (mm/month) 1973-82	96.7	83.0	70.10	28.0	2.40	1.2	1.90	11.3	16.8	16.8	16.8	42.7
Evaporation[3] (mm/day) 1993-98	2,7	2,7	3,12	3,0	3,13	3,8	3,95	3,2	4,4	5,2	4,3	4,1

[1] Source: SENAMHI – Arequipa. (1996 – 2006). Reported by Valdivia (2007).
[2] Source SENAMHI, reported by Treacy (1994)
[3] Source: Cáceres (2003)

Map I: The trans-Andean channel-tunnel to transfer water from Angostura to Majes-II



Source: Vera Ballón (2006)

Table II: Water balance Canal Coporaque – Mallku Qocha Subsystem

Month	Water availability (l/s)	Crop demand (l/s)	Balance (l/s)	Balance (m^3/month)	Percentage of surplus (%)	Percentage of deficit (%)
January	157,50	154,59	2,91	7 790,46	0,87	-
February	180,50	63,18	117,32	283 824,10	31,75	-
March	160,00	71,30	88,70	237 576,92	26,58	-
April	94,50	32,87	61,63	159 752,18	17,87	-
May	63,90	32,45	31,45	84 234,91	9,42	-
June	57,30	30,07	27,23	70 587,68	7,90	-
July	49,70	31,00	18,70	5 0094,46	5,60	-
August[1]	0,00	0,00	0,00	0,00	0,00	-
September	57,80	76,33	-18,53	-48 019,92	-	3,32
October	91,40	226,31	-134,91	-361 349,06	-	24,97
November	96,00	328,40	-232,40	-602 381,91	-	41,63
December	125,50	287,99	-162,49	-435 203,98	-	30,08

[1] Month of infrastructure maintenance works or *Yarqa Haspiy*

Total water surplus (Jan– Jul):	893 860,70 m^3/year
Total water deficit (Sep – Dec):	-1 446 954,87 m^3/year
Total annual balance:	-553 094,17 m^3/year

Figure 1: Water Balance Canal Coporaque-Mallkuqocha

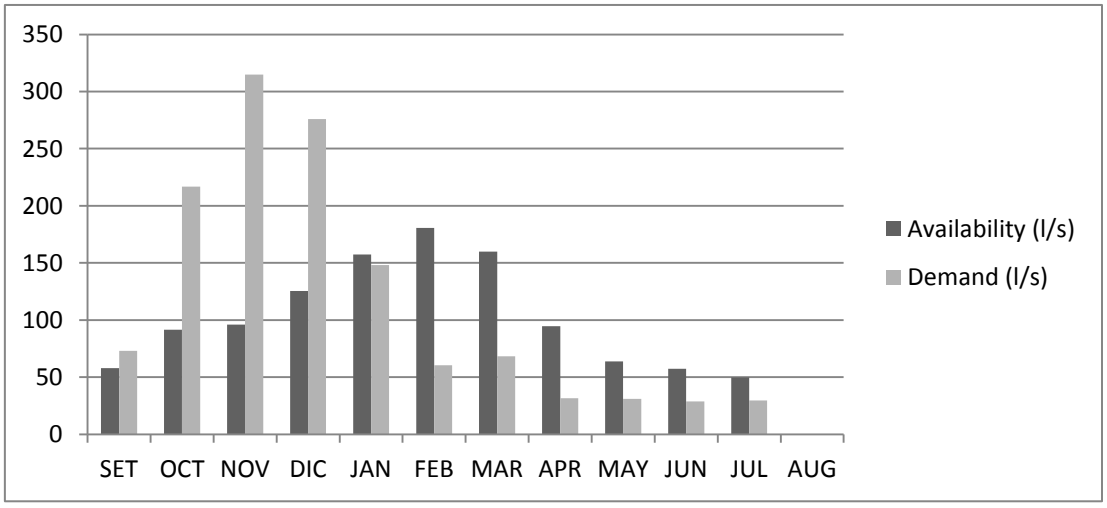


Table III: Water balance Aqenta-Santa Rosa subsystem

Month	Water availability (l/s)	Crop demand (l/s)	Balance (l/s)	Balance (m^3/month)	Percent. Of surplus (%)	Percent. Of deficit (%)
January	73,60	128,96	-55,36	-148 283,58	-	8,24
February	90,20	54,04	36,16	87 479,45	29,14	-
March	55,80	50,65	5,15	13 798,22	4,60	-
April	46,30	23,65	22,65	58 701,08	19,56	-
May	33,20	23,35	9,85	26 374,38	8,79	-
June	26,50	21,64	4,86	12 602,65	4,20	-
July	29,10	22,31	6,79	18 194,42	6,06	-
August[1]	31,00	0,00	31,00	83 030,40	27,66	-
September	39,20	70,83	-31,63	-81 981,72	-	4,55
October	42,10	201,17	-159,07	-426 065,60	-	23,67
November	61,50	293,03	-231,53	-600 126,43	-	33,34
December	47,50	250,46	-202,96	-543 602,68	-	30,20

Total water surplus (Jan– Aug):	300 180,60 m^3/year
Total water deficit (Sep – Dec):	-1 800 060,01 m^3/year
Total annual balance:	-1 499 879,41 m^3/year

Figure 2: Water Balance Aqenta-Santa Rosa reservoir

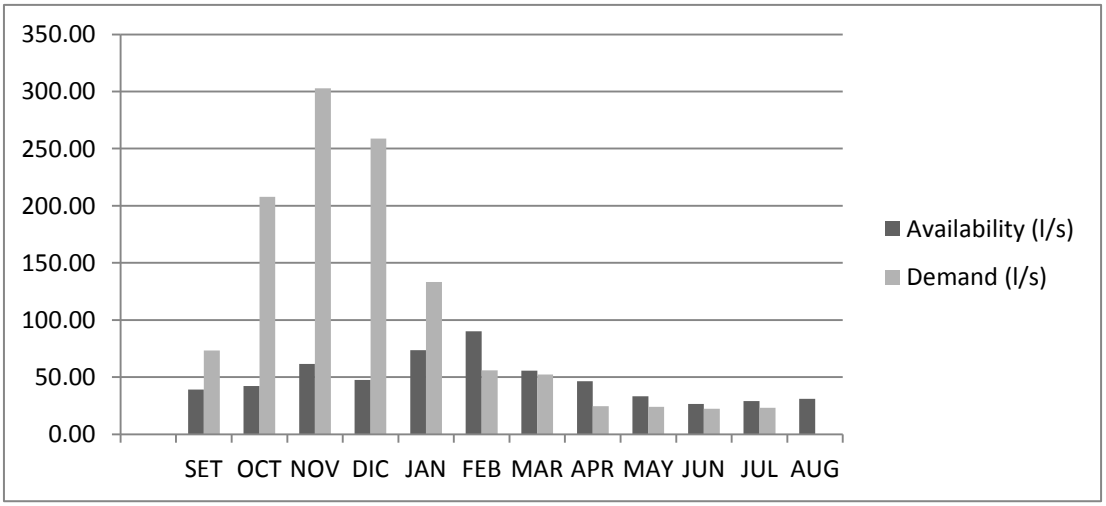


Table IV: Water balance Wallallikuchu-Chilliwitira Subsystem

Month	Water availability (l/s)	Crop demand (l/s)	Balance (l/s)	Balance (m^3/month)	Percent. Of surplus (%)	Percent. Of deficit (%)
January	15,92	8,34	7,58	20 302,64	8,93	-
February	18,00	4,59	13,41	32 433,75	14,27	-
March	12,98	2,78	10,20	27 325,05	12,02	-
April	11,96	2,24	9,71	25 179,56	11,08	-
May	10,95	2,21	8,74	23 403,13	10,30	-
June	9,63	2,05	7,58	19 652,64	8,65	-
July	10,50	2,11	8,39	22 459,11	9,88	-
August[1]	11,29	0,00	11,29	30 240,00	13,31	-
September	12,18	2,83	9,36	24 255,93	10,67	-
October	13,66	12,92	0,74	1 986,23	0,87	-
November	14,05	19,04	-4,99	-12 931,74	-	73,14
December	14,28	16,06	-1,77	-4 749,26	-	26,86

Total water surplus (Jan-Oct)	227 238,03 m^3/year
Total water deficit (Nov-Dec)	-17 681,00 m^3/year
Total annual water balance	209 557,03 m^3/year

Grafico 3: Water Balance Wallallikuchu-Chilliwitira

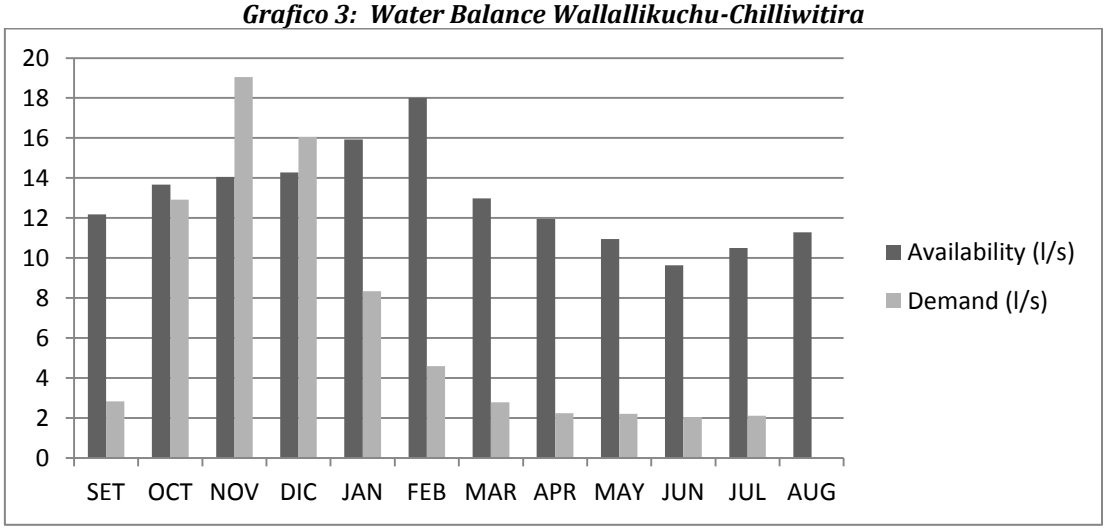


Table V: Water balance Qachule-Chusñapampa Subsystem

Month	Water availability (l/s)	Crop demand (l/s)	Balance (l/s)	Balance (m^3/month)	Porcentaje of surplus (%)	Porcentaje of deficit (%)
January	33,00	20,87	12,13	32 480,96	8,89	-
February	36,40	8,91	27,49	66 499,52	18,20	-
March	33,90	10,49	23,41	62 695,37	17,16	-
April	25,30	7,13	18,17	47 090,69	12,89	-
May	20,70	7,04	13,66	36 582,07	10,01	-
June	16,40	6,52	9,88	25 596,88	7,01	-
July	16,60	6,73	9,87	26 445,38	7,24	-
August[1]	16,90	0,00	16,90	45 264,96	12,39	-
September	17,60	8,82	8,78	22 748,97	6,23	-
October	18,40	31,85	-13,45	-36 030,96	-	29,15
November	24,00	44,51	-20,51	-53 170,48	-	43,01
December	26,50	39,35	-12,85	-34 413,66	-	27,84

Total water surplus (Jan – Sep):	365 404,81 m^3/ year
Total water deficit (Oct – Dec):	-123 615,09 m^3/ year
Annual balance:	241 789,71 m^3/ year

Figure 4: Water Balance Qachulle-Ch'usña

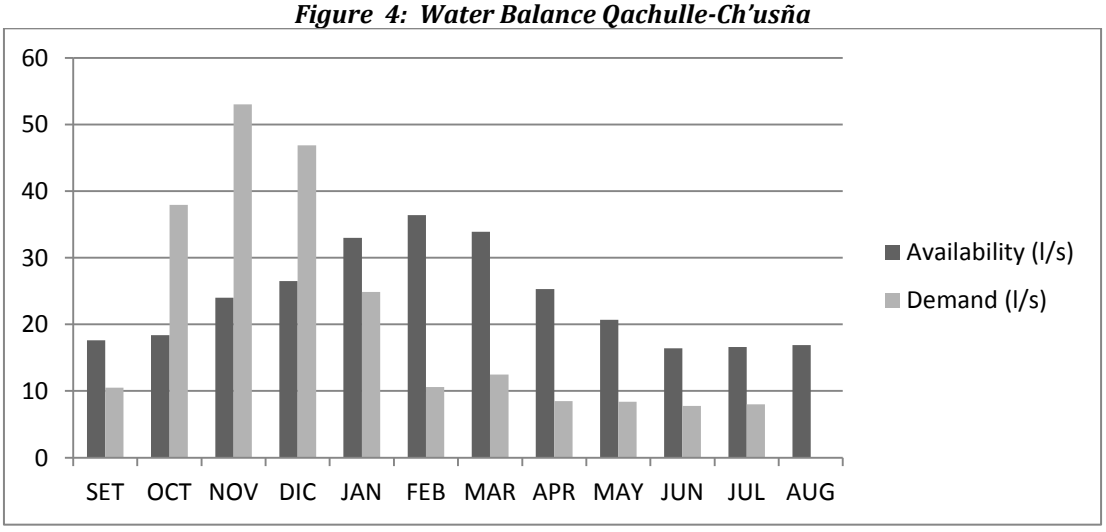


Table VI: Water balance Ch'aqere Subsystem

Month	Water availability (l/s)	Crop demand (l/s)	Balance (l/s)	Balance (m^3/month)	Percent. Of surplus (%)	Percent. Of deficit (%)
January	30,40	6,11	24,29	65 051,16	7,84	-
February	33,80	1,47	32,33	78 219,35	9,42	-
March	29,30	3,14	26,16	70 076,13	8,44	-
April	28,10	0,30	27,80	72 055,33	8,68	-
May	29,90	0,30	29,60	79 288,52	9,55	-
June	32,30	0,28	32,02	83 008,17	10,00	-
July	27,20	0,28	26,92	72 092,47	8,68	-
August[1]	32,90	0,00	32,90	88 119,36	10,61	-
September	30,20	4,19	26,01	67 423,86	8,12	-
October	28,10	7,52	20,58	55 130,41	6,64	-
November	30,50	12,69	17,81	46 152,95	5,56	-
December	31,00	11,00	20,00	53 577,10	6,45	-

-	Total water surplus (enero – diciembre):	830 194,82 m^3/year
-	Total water deficit :	0,00 m^3/year
-	Annual Balance:	830 194,82 m^3/year

Figure 5: Water Balance Ch'aqere

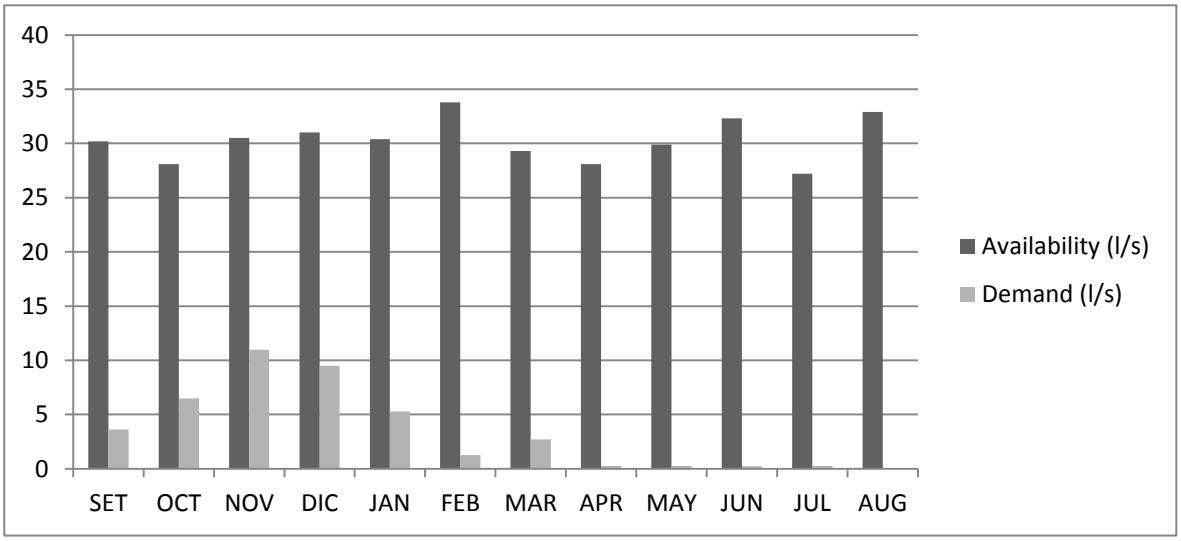


Table VII: Soil Characteristics of Coporaque

Subsystem	% sand	% silt	% clay	Categorization of texture	Da g/cm^3	FC %	WP %	OM %	pH
Qqantumayu Sahuara*	48,40	35,55	16,10	Loam	1,35	19,02	9,55	3,54	6,14
Coporaque*	41,52	33,71	24,97	Loam	1,30	19,56	9,78	2,70	6,13
Chilliwitira-Wallalliccucho	37,28	56,36	6,36	Loam Silty	1,38	28,58	14,29	3,65	6,20
Qachulle	39,08	44,62	15,50	Loam	1,35	17,26	8,63	3,26	6,55
Ch'aqere	55,28	34,36	10,6	Loam Sandy	1,40	16,01	8,01	2,38	7,60
Average				Loam	1,36	20.08	10.05	3.11	

Source: Valdivia, 2007

Da: Density of undestorbed soil sample
FC: Field capacity
WP: Wilting point
OM: Organic matter

Photo I: Congresswoman Paulina Arpasi (2001-2006)

(source: nodiscrimine.blogspot.com/2008/07)

Photo II: Congresswomen Hilaria Supa, and María Sumiri (2006-2011)

Photo III: The two water mayors of Coporaque Hanansaya and Urinsaya, and the minor traditional authorities celebrating the water festivities

Photo IV: Family offering gifts to the water mayor and his wife

Resumen

Esta tesis es el resultado de una investigación multidisciplinaria que busca explicar las injusticias hídricas y amenazas a los derechos de agua de los campesinos indígenas de los Andes de Perú. Para hacerlo, he enfocado mis estudios en las comunidades campesinas del Valle del Colca, localizada en los Andes occidentales de la región Arequipa. Los resultados de este estudio también han sido contrastados con toda la información relevante que he adquirido durante los 15 años de trabajo en el desarrollo rural en los Andes (Apurímac, Arequipa, Cusco, y Ayacucho, así como una experiencia de consultaría en Sucre-Bolivia). Para realizar este estudio, se propusieron tres objetivos. El primero trata de contribuir al análisis de la interacción entre etnicidad y género y de qué manera son parte inherente de las etnopolíticas contemporáneas del agua. El segundo objetivo busca aportar al debate del rol de la intervención estatal y programas de apoyo financiero internacional en el riego y desarrollo de las comunidades campesinas. Cómo estas intervenciones influyen en (pero también cómo éstas son influidas por) las etnopolíticas de agua; cómo pueden llevar a generar realidades alternativas de seguridad hídrica. Finalmente el tercer objetivo intenta promover el debate sobre el proceso de 'hacer investigación' y de generar nuevos conocimientos. En este proceso el investigador no es solo un actor (externo) que indaga, sino también un actor que tiene su propia identidad, y que se identifica con los procesos sociales y científicos que le rodean. Esta investigación involucra no solo el conocimiento y la experiencia que he adquirido como promotora del desarrollo rural, y más tarde como investigadora, sino también se enlaza con mi auto-identificación, con mi propio proceso de redescubrir y reconocer mi identidad Andina.

En el capítulo I explico las razones que dieron origen a esta investigación y la selección del área de estudio (Valle del Colca), describiendo su ubicación en el contexto histórico y geográfico. Se formula el tema, los objetivos, las preguntas, y el marco teórico para abordar la investigación. El Valle del Colca, y en específico la comunidad campesina de Coporaque donde he enfocado el estudio, es particular para entender los procesos y luchas para lograr la seguridad hídrica local. Las comunidades poseen un acervo cultural hídrico que se remonta a épocas pre-inkas. En parte responde al rol central que cumple el agua escasa , no solo en asegurar las estrategias de supervivencia sino también en las políticas de lucha y organización interna de las comunidades. Pese a que actualmente los pobladores del Valle están diferenciados de acuerdo a la tenencia de tierra (*mayorista, minorista*), el color de la piel y los rasgos étnicos (blanco, cholo, mestizo, indio, etc.), así como la experiencia urbana/moderna, todos ellos se consideran descendientes o herederos de la cultura Collagua y Cabana cuando tienen que defender sus intereses de agua en frente de terceros que tratan de amenazar la seguridad hídrica local. Cultura, identidad (étnica y género), prácticas locales de manejo del agua, escasez de agua, derechos de agua y luchas por la inclusión social, así como de resistencia, están sistemáticamente entrelazados y han constituido las formas de política diaria local. Adquieren su real significado en tanto se los sitúa en el proceso histórico de ocupación e intervención de este valle por las diferentes culturas (Tiwanaku, Collagua/Cabana, Inka, Española, y post-Española). Históricamente, y pese a que cada una de estas culturas ha tratado de imprimir sus propias políticas de acceso y derechos de agua (y tierra), los pobladores locales han sabido resistir las diferentes intervenciones. Lo han hecho de manera frontal, o adaptando selectivamente las políticas y prácticas intervencionistas para luego insertarlos creativamente en la dinámica y cultura hídrica local. La piedra angular de este proceso ha constituido la determinación de los habitantes del valle en mantener y legitimar permanentemente las normas y prácticas tradicionales del agua. El

agua en este caso, no solo ha constituido el objeto de lucha e interés (en tanto recurso escaso) de los pueblos del Valle del Colca, sino que también ha sido visto como un actor social con identidad femenina y masculina (gendered identity), y suprema (divina). Es el 'padre' o la 'madre' creadora de los ancestros, que hace posible la vida de todo ser vivo, por lo que necesita ser reverenciada, respetada, y hasta defendida en caso de amenazas. Para analizar y entender el significado de esta visión dual (de género) e interdependiente para las prácticas y luchas de acceso al agua, el concepto de etnicidad e identidad basadas en la visión y costumbres locales (place-based identity) brindan interesantes aportes. Sin embargo, etnicidad e identidad adquiere su significado cuando un grupo interactúa con otros grupos, quienes en el interés que pueden tener por acceder y controlar el agua también tratan de controlar el significado y el valor que se le da al agua (en tanto actor y recurso natural). Este proceso también incluye el control del significado que se atribuye a la etnicidad, a la identidad (étnica y género), a los recursos naturales y al territorio. Es así que las amenazas contra la seguridad hídrica local, así como los procesos de resistencia, se inician en las luchas por controlar el significado y el valor que se otorgan al agua, la tierra, la identidad, y el territorio. Este proceso de lucha cultural es explicado en esta tesis desde la perspectiva de la 'política cultural' (cultural politics), referida por McCann (2002) y Peters (1984).

La historia del control del agua en el Valle del Colca, así como en los Andes en general, demuestra que esta lucha también incluye el esfuerzo de los grupos de poder por tratar de erigir e institucionalizar una supuesta superioridad étnica, de género y tecnológica de su cultura dominante. Clave para este proceso ha sido la invención de ciertos términos o conceptos binarios, el cual generalmente ha asociado todo lo negativo con lo indígena, mientras que todo lo positivo con la cultura dominante. Términos como 'civilizado/atrasado' (o salvaje), 'productivo/improductivo', 'masculino/femenino', 'valiente/cobarde', 'moderno/tradicional', son algunos ejemplos. Lo interesante de este proceso, es que estos conceptos se presentan y naturalizan como apolíticos, y neutrales; sinónimos de desarrollo y progreso. En el caso de la historia del riego del Perú, y especialmente al inicio del siglo XX, estos conceptos e ideas han sido muy bien utilizado por las políticas de riego estatal para justificar la intervención, el desplazamiento (de los menos desarrollados, o menos masculinos, o de lo tradicional) y la apropiación de las tierras y el agua, en favor del 'desarrollo' de grandes proyectos de riego en los desiertos ubicados a lo largo de la Costa. La materialización de estos proyectos, en parte, han sido inspiradas en conceptos desarrollados alrededor de la 'Misión Hidráulica' (Molle et al. 2009, Wester 2008. Como toda intervención de desarrollo, éste también genera 'contra-desarrollo', manifestado en respuestas heterogéneas de resistencia local; los mismos que dan origen a formas alternativas de entender y hacer desarrollo local. Como ya se manifestó en el párrafo anterior, en los Andes estas respuestas heterogéneas se han basado en las formas de hacer política cultural local basada en la etnicidad, y entender el desarrollo en los propios términos locales. Central en estas respuestas alternativas ha sido el dinamismo y legitimación de las formas locales de construir los derechos de agua, así como de la autoridad y autonomía local. Los conceptos de derecho local del agua, así como la funcionalidad y dimensiones de estos derechos, desarrollados por Boelens and Zwarteveen (2003), son centrales en este análisis.

Estas estrategias de construir realidades alternativas de manejo de agua, principalmente basados en la cultura dual y tradicional del agua, pueden ser vistas como una forma de hacer política desde abajo, a lo que llamo la 'etnopolítica del agua' (ethno-water politics). Etnicidad, género, política cultural, intervención en el desarrollo del riego, y alternativas locales son entonces los conceptos principales que ayudan a conceptualizar y entender la

etnopolítica del agua. Para realizar esta investigación, básicamente he recurrido a la etnografía y a la etno-historia, complementado con datos generados durante la investigación-acción y el estudio intensivo de literatura generada por los cronistas españoles e indígenas.

En el capítulo 2 describo y analizo el proceso y rol históricos del agua, en la construcción de la etnicidad y afiliación de la identidad étnica y de género de las primeras y sucesivas culturas Andinas. El agua también es un elemento determinante en la emergencia de las elites (religiosas y políticas), así como en la estructuración de la sociedad. La concepción del agua como una deidad femenina y masculina es apropiada y usada estratégicamente por las elites religiosas y los gobernantes a fin de controlar el acceso y los derechos al agua, así como el derecho a gobernar. La representación dual de la identidad y rol del agua también se manifiesta en la organización social y ejercicio del poder en la sociedad Andina. Hombres y mujeres tendrían iguales posibilidades de ejercer liderazgo en los diferentes niveles de la organización social, política y religiosa. El capitulo explica cómo, a través de la historia, se trastoca esta dualidad, desplazando a las mujeres de las posiciones de liderazgo. Este proceso que se hace notable a partir del noveno Inka (Pachakuteq) y que se profundiza durante la conquista Española y posterior etapa Republicana del Perú. En estas dos últimas etapas definitivamente se prohíbe la participación de las mujeres en general en los espacios de toma de decisiones y debates públicos. Como resultado, estos espacios se masculinizan, y con ellos también el espacio público del debate y manejo del agua. A partir de la conquista Española no solo se desplaza a las mujeres y denigra su identidad, sino que también la identidad, la cultura, el conocimiento y la tecnología indígenas en general son catalogados como inferiores frente a la Europea. Esto justifica el derecho y tarea de los conquistadores para gobernar y dominar, así como de apropiarse de sus territorios, tierras y otros recursos (mano de obra). Entonces etnicidad y género son redefinidos durante la colonia, así como los diferentes roles y derechos, incluido los derechos a la tierra y el agua. Se establecen los límites y se institucionalizan las normas. En cuanto a los derechos de acceso al agua, éste es reglamentado bajo una ley que es copia de las leyes de agua de España, la que favorece el control total de este recurso por parte de los hacendados. Este hecho se repite durante la República con la promulgación del Código de Agua de 1902, el que es copia del Reglamento de Agua Española 1879.

El Capítulo 3 continúa describiendo el proceso legal de control del agua y apropiación de las tierras de las comunidades indígenas por los hacendados después de la promulgación del Código de Agua de 1902. Igualmente analiza las oportunidades que brindan las legislaciones (como la Constitución de 1920) a la población indígena para que pueda defender sus derechos a agua y tierra, así como sus derechos de ser reconocidos como ciudadanos en el proceso de la construcción Nación-Estado. Los movimientos intelectuales indígenas de los años 20s y 30s, así como el afán de 'modernizar', 'mejorar la productividad', e impulsar la 'educación' para promover cambios hacia el desarrollo del País, creó un ambiente político que consideró necesario la inclusión de los indígenas en el proyecto educativo, para que se conviertan en actores 'productivos'. También, con ciertos límites, ellos podían ejercer el derecho a voto, siempre en cuando no fueran analfabetos. Sin embargo, el derecho femenino a voto todavía no fue relegado hasta 1955. El capítulo también analiza paralelamente, cómo las políticas de redistribución de la tierra y las reformas de la ley de aguas, así como las políticas de reconocimiento de los derechos y de la cultura de la población indígena promulgados durante la Reforma Agraria y el período de la implementación de las políticas neoliberales, fortalece o amenaza las posibilidades de las comunidades campesinas para asegurar o defender su derechos de agua. El agua

siempre ha constituido el objeto central del deseo de modernizar y reformar al país; el cual, conjuntamente que los conceptos e ideas que aportaban teorías como la 'misión hidráulica' se constituyen en pilares de la intervención y desarrollo del riego en el País. Ingenieros hidráulicos como Charles Sutton, contratados por el Estado, se encargan de desarrollar estudios de factibilidad con la finalidad de trasvasar o transferir agua de diferentes fuentes (ríos o lagos) ubicados en los Andes para irrigar a gran escala los desiertos de la costa.

El capítulo 4 se analiza cómo los trasvases de los ríos y lagunas de los Andes pueden amenazar la seguridad hídrica de los pobladores de las comunidades Andinas. Se describe el caso del trasvase Río Colca (tributario de la cuenca Colca-Majes-Camaná) para irrigar los desiertos de 'Pampas de Majes' en Arequipa. El proyecto de riego, más conocido como Proyecto de Irrigación de Majes), excluye como posibles beneficiarios a las comunidades campesinas del Valle del Colca ubicadas en ambas márgenes del Río Colca. Las necesidades de agua de riego de estas comunidades son marginales frente a las necesidades de agua de Pampas de Majes. El capítulo también explica los diferentes efectos que genera el trasvase del río, no solo en el Valle del Colca, sino también en el Valle de Siguas, un valle inter-costero circundante a las Pampas de Majes. También se presenta un análisis comparativo de los costos de inversión pública en la construcción, mantenimiento y funcionamiento de la irrigación Majes (en su primera etapa) en relación con las inversiones en infraestructura hídricas de las comunidades campesinas del Valle del Colca.

En el Capítulo 5 explico y analizo las diferentes respuestas que los pobladores del Valle del Colca desarrollan frente a la intervención y exclusión del cual son objeto por el proyecto de irrigación Majes, así como la nueva realidad que los confronta con la escasez del agua. Los conceptos de contra-desarrollo y alternativas a la modernidad son usados para analizar estas respuestas; las mismas que varían desde reclamos y movilizaciones pacíficas y localizadas, hasta la toma de medidas violentas (explosión de una parte del canal Majes con dinamita). El ejemplo de lucha y reivindicación de uno de las comunidades del valle (Cabanaconde) –que logra que se construya una válvula en el canal Majes para irrigar sus campos (Gelles 2000) – es seguido por las comunidades de la margen izquierda (por donde pasa el canal Majes), cuyos líderes se unen para iniciar un proceso de negociación colectiva con la autoridad autónoma de la irrigación Majes (AUTODEMA). Igualmente se describe y analiza otras respuestas alternativas de las comunidades, como Coporaque, cuyos pobladores deciden diseñar y construir su proyecto de riego (Canal Coporaque), basado en formas locales y tradicionales de construir derechos de agua, autoridad y autonomía. Este canal representa para los Coporaqueños no solo la resistencia de un pueblo frente a una política que quiere renunciar sus derechos a usar las aguas del Río Colca, sino también una protesta contra la ostentación (en términos de inversión y tecnología moderna) y el favoritismo del Estado por este tipo de proyectos. Se analiza cómo las diferentes formas de hacer política desde abajo son centrales para entender la etno-política del agua.

En el Capítulo 6 y 7 se profundiza cómo es que la etno-política del agua adquiere su significado en la práctica diaria de la organización del riego en las comunidades del Valle del Colca, y específicamente en Coporaque. Los usuarios y usuarias del agua tratan de cumplir, negociar, transformar y dar credibilidad a los acuerdos colectivos, las normas y rituales tradicionales, las nuevas normativas oficiales, a fin de legitimar sus derechos de agua y asegurar la materialización de estos derechos. Conceptos de equidad, reciprocidad, justicia, eficiencia, cumplimiento de acuerdos y respeto a las normas y a las

autoridades del agua, así como a las deidades acuáticas, se entretejen continuamente y forman parte o moldean las ideas que tienen los usuarios acerca de la seguridad hídrica colectiva e individual. Individualmente, los usuarios y usuarias desarrollan su propia agencia, recurriendo a diferentes estrategias (relaciones de compadrazgo, redes familiares, mostrarse vulnerables, etc.) para satisfacer su propio beneficio personal o familiar, en el interés que tienen por acceder o controlar el agua. El capítulo 7 específicamente detalla esta lucha de poder e intereses duales (hombre-mujer) al interior y fuera de las unidades familiares (household).

Finalmente, en el capítulo 8, retomo los objetivos planteados para este estudio y trato de mostrar los posibles aportes e implicaciones de mi trabajo, primeramente al debate actual acerca de la propiedad constitutiva e histórica de la etnicidad y género en las prácticas y luchas de las comunidades Andinas – tanto para construir y defender sus derechos a la seguridad hídrica, como para participar en los procesos sociales y políticos en condiciones iguales. En segundo lugar, trato de llamar a reflexión cómo la intervención en el riego, o los profesionales del agua, deben investigar y aprender acerca de las formas heterogéneas locales para enfrentar las necesidades de agua y la exclusión o inclusión vertical por las políticas de intervención. Está central aquí el significado que representa el pasado, la historia, los símbolos, los ritos y la dualidad de género en la construcción de los derechos locales, de la identidad colectiva y de los proyectos alternativos de desarrollo local. La etno-política del agua, entonces, brindaría una posibilidad para facilitar este proceso de aprendizaje.

Summary

This thesis is the result of a multidisciplinary research which tries to explain water injustices and threats to water rights experienced by indigenous peasants of the Peruvian Andes. For this research, I have focused on peasant communities in the Colca Valley, located in the western Andes of the Arequipa region. I combined and compared the results of almost two years of intensive field work with the information and experiences I had previously obtained while working (during 15 years) in rural development projects in the Andes (Apurímac, Arequipa, Cusco, and Ayacucho, as well as conducting a consultancy in Sucre, Bolivia). For this study, three objectives were proposed. The first objective is to contribute to the analysis of the interactions between ethnicity and gender, and to understand how these form an intrinsic part of the contemporary ethno-politics of water. The second objective is to contribute to the debate on the role of state interventions and international financial aid programmes on irrigation development and peasant communities. As irrigation interventions affect (but at the same time are influenced by) the ethno-politics of water, I have asked how these will be able to generate alternative realities of water security. The third objective is trying to promote a debate on the process of 'action research', a process in which the researcher is not a mere (external) actor who investigates, but also someone who with an own identity, who identifies him- or herself with the social and scientific processes around him or her. In this respect, this research is deeply intertwined with my own self-identification, with my own process of rediscovering and recognizing my own Andean roots and identity.

In chapter 1, I explain the reasons of this research and the selection of the study area (the Colca Valley) and describe the research location within its historic and geographical context. In this chapter also, the research theme, objectives, research questions and theoretical framework are set forth. The Colca Valley, and specifically the peasant community of Coporaque on which I have focused my study, is a particular case for understanding local water security. Here, peasant communities have a rich cultural water heritage which goes back to pre-Inka times. This responds partially to the central role which the scarce resource water fulfils, not only allowing for survival but also playing a central role in the internal organization of the community. Although the villagers of the Valley are actually differentiated according to land ownership (*mayorista, minorista*), skin colour and ethnical characteristics (white, *cholo, mestizo*, indian, etc.), and exposure to cities or 'modern' life, all of them consider themselves descendants or heirs of the Collagua and Cabana cultures at the hour of defending their water interests against third parties. Culture, identity (ethnic and gender), local water management practices, water rights and struggles for social inclusion are deeply intertwined and constitute forms of daily local politics, the real significance of which become apparent when locating them in the historical process of occupation and intervention in this valley by different cultures (Tiwanaku, Inka, Spanish and post-Spanish). Even though all these different cultures have tried to access and control water, and to impose their own forms of water rights and management to water (and land), throughout history local villagers have succeeded in resisting such interventions. They have done so either through frontal action or through selectively adapting interventionist policies, creatively inserting them into their own local water dynamics and culture. Water, in this case, has not only been the object of struggle and interest (as a scarce resource) of the people of the Colca Valley, but has also itself been regarded as a social actor with a feminine and masculine (gendered) and

supreme (divine) identity. Water is considered the creating 'father' or 'mother' of the ancestors, the enabler of life of all living creatures and something which needs to be reverenced, respected and defended in case of threats.

In order to analyze and comprehend the meaning of this dual (gendered) and interdependent vision in terms of practices and struggle for accessing water, the concept of place-based identity (referring to ethnicity and identity as based on local visions and customs) is useful. Struggles to access and control water include struggles over the meanings and values given to water (as an actor and a natural resource), and therefore often also extends to struggles over the control over the meaning attributed to ethnicity, to identity (ethnic and gender), to other natural resources and to territory. Threats to local water security, as well as processes of resistance, thus happen partly through struggles to control the meanings and values attributed to water, land, identity and territory. This process of cultural struggle is explained in this thesis from a perspective of 'cultural politics' as referred to by McCann (2002) and Peters (1984).

The history of the struggle to control water in the Colca Valley, like in the Andes in general, shows that this struggle also includes the efforts of dominant groups to institutionalize their ethnical, cultural and technological superiority. This happens for instance through the use of binaries which associates everything indigenous with negative terms, and all that belongs to the dominant culture with positive ones. Examples are: 'civilized'/'backward'', 'productive'/'unproductive'; 'masculine'/'feminine'; 'brave'/'cowardly'; 'modern'/traditional'. It also happens through processes of depolitisation and naturalisation, with development and progress for instance depicted in evolutionary terms. In the case of the irrigation history of Peru, in particular at the beginning of the 20th century, these concepts and ideas were used in the policies of state irrigation, to justify the displacement of (the less developed, the less masculine, the traditional etc.) people and the appropriation of land and water in favour of 'development': of large irrigation projects in the coastal desert – a typical example of the so-called 'hydraulic mission' (Molle et al. 2009, Wester 2008). Like all development interventions, these also generate 'counter-developments' – manifested in heterogenic replies of local resistance – and provoke alternative forms of local development. As stated in the aforementioned paragraph, in the Andes these heterogenic replies are based on forms of local cultural politics, based on ethnicity and the understanding of development in local terms. Local forms of constructing water rights and water management have proved crucial in these alternatives. To understand local water rights, as well as their embeddedness and different dimensions, I used the conceptualization as developed by Boelens and Zwarteveen (2003).

Strategies of constructing alternative realities of water management, principally based on the existing dual and traditional water culture, can be regarded as a form of bottom-up politics, which I call 'ethno-water politics' or 'ethno-politics of water', which is comprised of the heterogeneous resistance and struggles over (rights to) resources, ethnicity, gender, and culture. In terms of research methods, I have basically recurred to ethnography and ethno-history, complemented by data generated by means of action-research and an intensive literature study of records written by Spanish and indigenous chroniclers.

In chapter 2 I describe and analyse the role of water in the construction of ethnic and gender identity affiliations in the early Andean cultures. I show that water is a determining element in the emergence of (religious and political) elites and the

structuring of society. Elite rulers strategically appropriated and used the existing conception of water as a feminine and masculine deity in their attempts to control water, and to justify their right to govern. The dual (feminine and masculine) notion of water was also apparent in the social organization and exercise of power in the Andean society, with men and women having equal opportunities to assume positions of leadership. In the chapter, I explain how, throughout history, this gender duality has gradually disappeared, displacing women from leadership positions. This process started with the ninth Inka (*Pachakuteq*) and deepened during the Spanish *conquista* and the later Republican era of Peru. In these last two historical stages, the participation of women in public decision making arenas even became totally prohibited. I thus show how, through history, public decision making became ever more masculine. Also the more public domains of water management gradually became the exclusive domains of men. From the Spanish *conquista* onwards, women were not only displaced as leaders, but women in general came to be seen as inferior to men. Similarly, indigenous ethnic identity, culture, knowledge and technology were ranked as inferior to those of the Europeans, a ranking that served to justify the right of the European *conquistadores* to govern and dominate, and to appropriate territory, land and other resources (labour). During the colonial era, therefore, ethnicity and gender were substantially redefined, just as (and alongside) a redefinition of the rights to and management of land and water. Rights of access to water were regulated by a law copied from the Spanish water laws, which favoured the total control of this resource by large land-holders (*hacendados*). This was repeated during the Republican (post-colonial) era, with the promulgation of the water code in 1902, once more a copy of the Spanish water regulation of 1879.

In chapter 3, I continue to describe how this new law (the water code in 1902) sanctioned processes of water and land appropriation from indigenous communities by large land-holders. I also analyse the opportunities offered by diverse subsequent legislations (such as the Constitution of 1920) to the indigenous population. New laws and legal instruments allowed the indigenous population to defend their rights to water and land, as well as their rights to be recognized as citizens in the nation-state building process. Indigenous intellectual movements in the 1920s and -30s, together with an overall ambition to 'modernize' (through improvements in productivity, literacy and education), created a political framework that explicitly included indigenous people, and aspired to 'equalise' them to the rest of the Peruvian citizens by (also) turning them into 'productive'(and 'modern') actors. This era also, for the first time and within certain limits, allowed Indigenous people to exercise their voting rights, provided they were literate. Nevertheless, voting rights of women were postponed until 1955. The chapter also shows how policies of land, and the water law reform, together with policies to recognize the rights and culture of the indigenous population promulgated during the Agrarian Reform and the period of implementation of neoliberal policies, strengthened or threatened the opportunities of peasant communities to secure or defend their water rights. Water figured prominently in the desire of State politicians to 'modernise' the country, with the idea of a 'hydraulic mission' justifying large-scale interventions in irrigation development in the country. Hydraulic engineers like Charles Sutton, contracted by the State, were made responsible for feasibility studies with the aim of transferring water from different sources (rivers and lakes) in the Andes to large-scale irrigation projects on the coastal deserts.

In chapter 4 I analyse how the transfer of rivers and lakes of the Andes can threaten the water security of the villagers of Andean communities. I describe the case of the water transfer from the Colca River (a tributary of the watershed Colca-Majes-Camaná) to

irrigate the desert of *Pampas de Majes* in Arequipa. This irrigation project (better known as the Majes irrigation project or the MIP) did not include the peasant communities on both banks of the Colca River among its potential beneficiaries. The irrigation water needs of these communities were considered of lesser importance as the water needs of *Pampas de Majes*. The chapter also explains the different effects the river transfer generated, not only in the Colca Valley but also in the Sihuas Valley, an intercoastal valley which surrounds *Pampas de Majes*. In addition, I present a comparative analysis of the public investment costs of the construction, maintenance and functioning of the Majes irrigation project (in its first stage) in relation to the investment in the water infrastructure of the peasant communities of the Colca Valley.

In chapter 5 I explain and analyse the different reactions and answers of the villagers of the Colca Valley to the marginalisation, exclusion and water dispossession they faced because of the Majes irrigation project. I propose to use the concepts of counter-development and alternatives to modernity to analyse these reactions and answers. They vary from peaceful meetings and formal claims, to violent measures (such as the demolition of a part of the Majes channel with dynamite). I describe one example of the struggle of one of the communities in the valley (Cabanaconde) whose villagers succeed in having a valve built in the Majes channel, allowing them to irrigate their plots (Gelles 2000). Another example is that of the communities on the left bank (where the Majes channel passes), whose leaders united to initiate a process of collective negotiation with the autonomous irrigation authority Majes (AUTODEMA). Similarly, other alternative reactions of communities are described and analyzed, like those of the villagers of Coporaque who decided to design and build their own irrigation project (Coporaque channel) based on local and traditional forms of defining water rights and organising water management. For the people of Coporaque, this channel not only represented resistance against a policy which deprives them of their rights to use of water of the Colca River, but also is a protest against the pilferage (in terms of investment and modern technology) and favouritism of the State that this type of projects embody. In the chapter, I demonstrate how politics from the grassroots level are crucial for understanding and shaping ethno-water politics.

In chapter 6 and 7 I delve deeper into the meanings of ethno-water politics by investigating the the daily practice of irrigation organization in the communities of the Colca Valley, and specifically in Coporaque. I show how male and female water users try to comply with, to negotiate, to transform and to give credibility to collective agreements, traditional norms and rituals. I also show how they use and incorporate new official (state) regulations in everyday water management, thus legitimising their water rights and assuring their materialisation. Rules about equity, reciprocity, justice, and efficiency guide actual water use and management practices, and these rules are deeply intertwined with the respecting of water authorities and water deities, shaping the ideas users have about their collective and individual water security. Linked to, but sometimes also going against, these ideas male and female water users develop individual strategies to secure water, often relying on social relations of godfathership and family networks. Chapter 7 more specifically zooms in on the intra household and community power struggles that sometimes may occur around and through water, and between men and women.

Finally, in chapter 8, I once again retake the objectives set forth for this study and show the possible contributions and implications of my work. I first start with the present debate around constitutive and historical characteristics of ethnicity and gender as manifested in the practices and struggle of Andean communities, for the construction and

defence of their water security rights, as well as for the rights to equally participate in social and political processes. Secondly, I reflect about irrigation interventions, or about what water professionals should and can learn about heterogeneous local forms of satisfying water needs, and about the processes of vertical exclusion or inclusion that intervention policies provoke, Crucial is the significance of historic symbols and rites and the existence of gender duality in the construction of local water rights, of collective identity and in shaping alternative projects of local development. The concept of ethno-water policies can play an important role in helping water professionals understand this.

Samenvatting

Deze thesis is het resultaat van een multidisciplinair onderzoek waarin een verklaring wordt gezocht voor de onrechtvaardigheden rondom water zoals ervaren door indiaanse boeren in de Peruaanse Andes. Ik heb mijn studie gericht op de boerengemeenschappen van de Colca vallei, in de westelijke Andes van de regio Arequipa. Ik heb de resultaten van bijna twee jaar veldwerk in dit gebied gecombineerd en vergeleken met de informatie en ervaringen verkregen tijdens de 15 jaar daarvoor, waarin ik werkte in rurale ontwikkelingsprojecten in de Andes (Apurímac, Arequipa, Cusco en Ayacucho, evenals een ervaring gerelateerd aan een consultancy in Sucre, Bolivia). Dit onderzoek had drie doelstellingen (zie hoofdstuk 1). Het eerste doel is het leveren van een bijdrage aan de analyse van hoe de interactie tussen etniciteit en gender deel uitmaakt van de huidige ethnopolitiek ten aanzien van water. De tweede doelstelling is een bijdrage te leveren aan de discussie over de rol van staatsinterventies en internationale financiële hulpprogramma´s in irrigatieontwikkeling en boerengemeenschappen. Hoe beïnvloeden deze interventies (en in hoeverre worden deze interventies beïnvloed door) de etnopolitiek van water en hoe kunnen deze leiden tot alternatieve scenario´s van hydraulische veiligheid? Het derde doel van dit onderzoek is het stimuleren van het debat over 'actieonderzoek' . In dit proces is de onderzoek(st)er niet uitsluitend een (externe) actor die vragen stelt, maar tevens een actor met een eigen identiteit die zich identificeert met sociale en wetenschappelijke processen om haar heen. Wat dit betreft, is dit onderzoek ook verweven mijn eigen zelfidentificatie, en met mijn proces van herontdekking en erkenning van mijn identiteit als *Andina*.

In hoofdstuk 1 ga ik dieper in op het waarom van dit onderzoek en op de keuze van het studiegebied (de Colca vallei). Ik beschrijf de historische en geografische context van het studiegebied, en formuleer de doelstellingen, onderzoeksvragen en het theoretisch kader van het onderzoek. De Colca vallei, en met name de boerengemeenschap Coporaque waarop ik de studie heb gefocust, is een bijzonder gebied als het erom gaat begrip te krijgen van de strijd om water en voor water zekerheid. De gemeenschappen in de vallei beschikken over een rijk cultureel erfgoed als het gaat om water, dat zelfs ouder is dan de periode van overheersing door de Inka´s. Dit erfgoed weerspiegelt het grote belang van water, niet alleen om te overleven, maar ook in de politieke en interne organisatie van de gemeenschappen in de vallei. Hoewel de bevolking van de vallei momenteel gedifferentieerd is volgens grondbezit (*mayorista, minorista*), huidskleur en etnische trekken (blank*, cholo, mestizo*, indiaans, enz.) en de mate van blootstelling aan stedelijke of moderne invloeden, beschouwen ze zich allemaal als afstammelingen van de Collagua en Cabana-cultuur als het gaat om het verdedigen van waterbelangen tegen derden. Cultuur, identiteit (etnisch en gender), lokale waterbeheerpraktijken, waterrechten en strijd voor sociale inclusie zijn nauw met elkaar verweven in hoe het recht op water verdedigd. Dit wordt duidelijk in de historische context van bezetting en interventie van deze vallei door verschillende culturen (Tiwanaku, Collagua/Cabana, Inka, Spaans en postkoloniaal). Ondanks dat deze culturen getracht hebben om hun eigen beleid ten aanzien water rechten en water beheer (en land) door te drukken, heeft de plaatselijke bevolking zich steeds hiertegen verzet. Deze strijd heeft soms de vorm van verzet aangenomen, en nam soms de vorm aan van selectieve aanpassing aan extern beleid, waarbij deze creatief in de plaatselijke hydraulische cultuur en dynamiek werd ingepast.

De hoeksteen onder dit proces is de diepliggende overtuiging van de valleibewoners om permanent traditionele normen en praktijk rond water te behouden en te legitimeren. Water is in dit geval niet alleen het onderwerp van strijd en belangen (als schaarse hulpbron), maar tevens een sociale actor met een vrouwelijke en mannelijke (gendered) goddelijke identiteit. Water is de scheppende 'vader' of 'moeder' van voorouders die het leven van alle levende wezens mogelijk maakt en die geëerd en gerespecteerd moet worden, en verdedigd in geval van bedreigingen.

Om de betekenis van deze visie op water te begrijpen voor de strijd over de toegang tot water, gebruik ik het concept *place-based identity*: identiteit op basis van plaatselijke visies en gewoontes. De strijd om water als hulpbron is tevens aan strijd om de betekenissen en waarden die aan water worden toegekend, en strekt zich daarom uit tot onenigheid over wat etniciteit identiteit, natuur en territorium betekenen. Bedreigingen van de lokale water zekerheid, en het verzet daartegen, vinden altijd ook plaats rondom strijd over de betekenis en waarde die wordt toegekend aan water, land, identiteit en territorium. Dit proces van culturele strijd wordt in deze thesis behandeld vanuit het perspectief van 'culturele politiek' (*cultural politics*), zoals gebruikt door McCann (2002) en Peters (1984).

De geschiedenis van de strijd om water in de Colca vallei, evenals die van de Andes in het algemeen, toont aan dat groepen machthebbers altijd geprobeerd hebben hun overheersing te legitimeren door hun etniciteit en technologie voor te stellen als superieur. Cruciaal hierbij is het gebruik van bepaalde binaire opposities die alles wat *indiaans* is negatief duidt, en alles van de dominante cultuur als positief. Voorbeelden zijn 'beschaafd'/'achterlijk' ('wild'); 'productief'/'onproductief'; 'masculien'/'feminien'; 'dapper'/'laf' ; 'modern'/ 'traditioneel'. De superioriteit van een cultuur wordt ook geponeerd door depolitisatie en naturalisatie, met ontwikkeling gekenschetst in evolutionaire termen. In het geval van de irrigatiegeschiedenis van Peru in het begin van de 20ste eeuw, werden deze termen handig gebruikt in het staatsbeleid voor irrigatie ter legitimering van overplaatsing (van de minst ontwikkelden of minder 'mannelijken') en van de inbeslagname van land en water ten gunste van 'ontwikkeling': grote irrigatieprojecten aan de Peruaanse kust – een typisch voorbeeld van de 'hydraulische missie' (hydraulic mission) (Molle et al. 2009, Wester 2008). Net als alle ontwikkelingsinterventies, genereert ook de 'hydraulische missie' een 'tegenontwikkeling' die zich uit in heterogene reacties van plaatselijk verzet, welke op hun beurt plaats bieden aan alternatieve vormen van lokale ontwikkeling. Zoals in de vorige alinea al werd geschreven, worden in de Andes deze heterogene reacties in belangrijke mate geënt op plaatselijke culturele gebruiken. Centraal hierin staan van lokale waterrechten en de lokale waterbeheersorganisatie. Om deze te begrijpen, maak ik gebruik van de conceptualizering van Boelens en Zwarteveen (2003).

Alternatieve waterbeheersscenario´s – die gebaseerd op de duale en traditionele watercultuur – kunnen beschouwd worden als een vorm van politiek 'van onderaf', iets wat ik 'etnopolitiek van water' zou willen noemen (*ethno-water politics*), bestaande uit strijd om water, etniciteit, geslacht (gender), en cultuur (betekenisgeving). Voor de uitvoer van dit onderzoek heb ik vooral gebruikt gemaakt van etnografische en etno-historische methoden, aangevuld met gegevens verzameld tijdens actieonderzoek en een intensieve literatuurstudie van Spaanse en indiaanse geschiedschrijvers.

In hoofdstuk 2 beschrijf en analyseer ik de historische rol van water in de constructie van etniciteit en gender identiteit in de vroegere Andesculturen. Ik laat zien dat water een

bepalend element is in de opkomst van (religieuze en politieke) elites en in de structurering van de samenleving. Elite heersers eigenden zich bestaande ideeën rondom water als vrouwelijke en mannelijke godheid strategisch toe, om op die manier toegang tot en rechten op water te verkrijgen, naast het recht van bestuur. De notie van water als zowel mannelijk als vrouwelijk werd weerspiegeld in de sociale organisatie en de uitoefening van macht in de Andessamenleving. Mannen en vrouwen konden allebei politieke leiders zijn. Het hoofdstuk laat zien hoe deze dualiteit in de loop van de geschiedenis verdwijnt en vrouwen uit leidinggevende posities worden verwijderd. Dit proces begint vanaf de negende Inka (*Pachakuteq*) en wordt versterkt tijdens de Spaanse *conquista* en de latere onafhankelijke Republiek Peru. In deze twee laatste fases wordt de deelname van vrouwen aan publieke besluitvorming zelfs helemaal verboden. Politiek krijgt als gevolg hiervan een steeds mannelijker karakter. Dit geldt ook voor waterbeheer. Vanaf de Spaanse *conquista* worden niet alleen vrouwen geweerd en hun identiteit gedenigreerd, maar ook worden de indiaanse identiteit, cultuur, kennis en technologie gekenmerkt als inferieur ten opzichte van de Europese. Dit geeft Europeanen het recht op bestuur en dominantie, en op toe-eigening van territorium, land en andere hulpbronnen (arbeid). De herdefiniëring van etniciteit en geslacht tijdens de koloniale tijd was dus een inherent onderdeel van een politiek van kolonisatie, en maakte deel uit van strategieën om rechten op land en water te verkrijgen. Waterrechten werden gereglementeerd middels een wet die een kopie was van de Spaanse waterwet en waarin totale controle over hulpbronnen wordt toegewezen aan grootgrondbezitters (*hacendados*). Dit bevoordelen van grootgrondbezitters wordt voortgezet tijdens de Republiek (periode na de Spaanse kolonisering) met de uitvaardiging van de waterwet van 1902, een kopie van het Spaanse waterreglement uit 1879.

In hoofdstuk 3 wordt dieper ingegaan op hoe deze nieuwe wet (uit 1902) grootgrondbezitters de kans gaf zich water en land van land van indiaanse gemeenschappen toe te eigenen. Ik analyseer eveneens de kansen die diverse opeenvolgende wetten (zoals de grondwet van 1920) bieden aan de indiaanse bevolking om hun rechten op water en land te verdedigen, en hun recht op erkenning als burgers in het opbouwproces van de natiestaat. Het hoofdstuk laat zien hoe de landhervorming en de hervorming van de water wet, de politiek van erkenning van de indiaanse bevolking, en de neo-liberale periode de mogelijkheden van de boerengemeenschappen voor het veiligstellen of verdedigen van hun waterrechten respectievelijk versterken of bedreigen. De indiaanse intellectuele bewegingen van de jaren ´20 en ´30 , samen met een algehele ambitie om het land te 'moderniseren' (door productiviteitsverhoging, alfabetisering en onderwijs), zorgde voor een politieke context waarin de indiaanse bevolking serieus werd genomen. Indianen moesten 'gelijk gemaakt' worden aan de rest van Peru door ze (ook) productief en geletterd te maken. Zij kregen, ook actief stemrecht, zolang ze geen analfabeet waren. Het stemrecht van vrouwen werd echter uitgesteld tot 1955. Water speelde een centrale rol in deze algehele moderniseringsdrift, met het idee van de 'hydraulische missie' als sleutelbegrip ter legitimatie van de ontwikkeling van irrigatie in het land. Hydraulische ingenieurs zoals Charles Sutton, kregen van de Staat de opdracht tot uitvoer van haalbaarheidsstudies voor het afleiden van water uit de Andes, om hiermee de kustwoestijnen op grote schaal te kunnen irrigeren.

In hoofdstuk 4 wordt geanalyseerd hoe de afleiding van water uit de Andes de water zekerheid van dorpsbewoners uit Andesgemeenschappen kan bedreigen. Hierbij wordt de case beschreven van de afleiding van de rivier Colca (zijrivier van het stroomgebied Colca-Majes-Camaná) om het woestijngebied *Pampas de Majes* in Arequipa te kunnen irrigeren. Het irrigatieproject, beter bekend als het Majes irrigatieproject, sloot

boerengemeenschappen aan beide oevers van de Colca vallei uit als mogelijke doelgroep. De irrigatiewaterbehoefte van deze gemeenschappen werd als minder belangrijk gezien als de waterbehoefte van *Pampas de Majes*. Het hoofdstuk toont de verschillende effecten die de afleiding van de rivier heeft, niet alleen op de Colca vallei, maar ook op de Sihuas vallei, een tussenliggende kustvallei rondom de *Pampas de Majes*. Hierbij presenteer ik ook een vergelijkende analyse van de hoogte van de overheidsinvesteringen voor de bouw, het onderhoud en de bedrijfsvoering van het Majes irrigatieproject (eerste fase) in vergelijking met de publieke investeringen in de hydraulische infrastructuur van de boerengemeenschappen in de Colca vallei.

In hoofdstuk 5 verklaar en analyseer ik de verschillende reacties van de bevolking van de Colca vallei op de interventie; op de marginalisering en uitsluiting waarvan zij het slachtoffer zijn door het Majes irrigatieproject en op de waterschaarste die het gevolg is van het project. Ik gebruik concepten als *tegenontwikkeling* en *alternatieven voor moderniteit* om deze reacties te duiden. Deze variëren van vreedzame plaatselijke petities en bijeenkomsten tot gewelddadige maatregelen (zoals het opblazen met dynamiet van een deel van het Majes-kanaal). Eén voorbeeld is dat van de strijd van één van de gemeenschappen in de vallei (Cabanaconde) wie het lukt toestemming te krijgen een uitlaat te bouwen in het Majes-kanaal, waarmee zij vervolgens hun velden kunnen bevloeien (Gelles 2000). Een ander is dat van de gemeenschappen op de linkeroever (waar het kanaal Majes loopt). Leiders van deze gemeenschappen verenigden zich om collectief te onderhandelen met de autonome irrigatieautoriteit Majes (AUTODEMA). Ik beschrijf ook het voorbeeld van Coporaque, waar de bevolking besluit tot het ontwerp en de bouw van een eigen irrigatieproject (kanaal Coporaque), zich baserend op plaatselijke en traditionele waterrechten en waterbeheer. Kanaal Coporaque vertegenwoordigt voor de bewoners van Coporaque niet alleen hun verzet tegen een politiek die hun water afpakt, maar ook een protest tegen de verkwisting van publieke gelden die kenmerkend is voor grote infrastructurele werken. In het hoofdstuk laat ik zien hoe de verschillende vormen van het bedrijven van politiek van onderaf de etnopolitiek van water vormgeven.

In hoofdstuk 6 en 7 ga ik dieper in op de wijze waarop de etnopolitiek van water betekenis krijgt in de dagelijkse praktijk van de irrigatie organisatie in de gemeenschappen van de Colca vallei en met name in Coporaque. De gebruikers en gebruiksters van water proberen te voldoen aan de geldende regels en normen, en respecteren daarbij zowel de lokale autoriteiten als de water goden. Okk incorporeren ze formele wetten en regels in hun dagelijkse water gebruiks praktijken. Concepten als gelijkwaardigheid, wederkerigheid, rechtvaardigheid en efficiëntie zijn hierbij leidend, en vormen samen met het respect voor wereldse en bovenwereldse machten ingrediënten voor de ideeën van gebruikers over collectieve en individuele water zekerheid. Individueel ontwikkelen de gebruikers en gebruiksters hun eigen strategieen, waarbij ze terugvallen op relaties (peetouderschap, familiebanden). In hoofdstuk 7 ga ik meer specifiek in op deze machtsstrijd binnen en buiten huishoudens rondom en over water.

In hoofdstuk 8 neem ik ten slotte nogmaals de doelstellingen van dit onderzoek onder ogen en laat ik de mogelijke bijdragen en implicaties van mijn werk zien. Ik begin met de actuele discussie over de bepalende en historische kenmerken van etniciteit en gender zoals die tot uiting komen in de strijd om water van Andesgemeenschappen, zowel bij de opbouw en verdediging van hun water zekerheid als bij het verwerven of behouden van hun recht om deel te nemen aan sociale en politieke processen. Op de tweede plaats probeer ik op te roepen tot bespiegeling over de wijze waarop irrigatie interventies, of waterprofessionals, zou(den) kunnen leren van heterogene plaatselijke vormen van het

omgaan met water en met de verticale exclusie of inclusie die vaak het gevolg is van interventiebeleid. Hierbij staat de betekenis centraal van geschiedenis, symbolen, rites en genderdualiteit in de opbouw van lokale rechten, collectieve identiteit en alternatieve projecten van plaatselijke ontwikkeling. Het begrip etnopolitiek van het water biedt een handvat tot een dergelijke bespiegeling.

Curriculum Vitae

Juana Vera Delgado was born in Silco, Apurímac in Peru on 27 December 1961. She studied Agricultural Engineering at the Agricultural University 'La Molina' in Lima, where she specialized in Ecological Agriculture. After graduating as an engineer, with the thesis: 'The Residual Effect of the Use of Phosphate Rock and Alpaca Manure on the Crops of Barley and Maize', she worked in rural development projects in the Andes of Apurímac, Cusco, and Arequipa between 1987 and 1997. During her work trajectory, Juana developed her expertise on gender and irrigation. Mid 1997, she started her Master of Science (MSc) studies in Management of Agriculture Knowledge System (MAKS) at Wageningen University, the Netherlands, graduating in 1999. She did her MSc thesis with the departments of Rural Sociology and Irrigation & Water Engineering, obtaining a distinction with her thesis: 'Engendering the Debate of Irrigation Development. Gender Interface and Irrigation System concepts as Starting Points'

After graduation she worked as a consultant on Gender and Interculturality in Ayacucho-Peru, for the Dutch development organization SNV (Nederlandse Ontwikkelingsorganisatie). Later on, she collaborated with the Water Law and Indigenous Rights (WALIR) network, doing research on gender and water in Andean countries (Bolivia, Peru and Ecuador). She published a number of articles in books and journals, and edited some films about Water Traditions and Gender in the Colca Valley. She started her PhD study with the Irrigation & Water Engineering Group at Wageningen University in 2005, doing her field research in the Colca Valley, in Arequipa, Peru. In 2008 she got an award for being an outstanding female PhD candidate, issued by the 'Storm-van der Chijs Fund'. Alongside doing her PhD study, Juana also was invited as a guest lecturer in courses of Wageningen University and at the Institute for Water Education (UNESCO-IHE). In addition, she contributed (as a teacher) in the Inter-Andean Course on Water, Law, Agronomy and Anthropology coordinated by WALIR, and in the 'Integrated Water Resource Management' and 'Water Justice' courses coordinated by Concertación.

Training and Supervision Plan (TSP)

Completed Training and Supervision Plan
Name: Juana Rosa Vera Delgado
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Wageningen School of Social Sciences

Name of the activity	Department/ Institute	Year	ECTS*
A) Project related competences			
Ceres Orientation	Ceres	2005	5.5
Presentation Tutorial	Ceres	2005	5
Methodology of Social Research	Ceres	2005	2.5
Academic Writing II	Language Centre	2005	2
Writing research proposal		2005	6
B) General research related competences			
Competence assessment	WGS	2007	0.3
Information Literacy	WGS	2007	0.6
Scientific papers presentations			
"Use of discourses and gender/ethnic identities for protecting water security in the Andes of Peru"	CERES-ISS	2005	1
"...Y se llevaron nuestras aguas...". Seguridad Hídrica y Derechos de Agua en el Contexto de la cuenca Colca-Majes-Siguas.	WALIR, Catholic University of Peru	2006	1
'Seguridad Hídrica base para lograr la Seguridad Alimentaria'	San Agustin University of Arequipa,	2006	1
"The political legitimacy of the 'marginals. The modernist fallacy of an irrigation project in the watershed of Colca-Majes, Peru".	EIDOS	2008	1
"Gender and ethnicity bias and the process of water appropriation and expropriation"	Concertación-IWE	2008	1
"La marginalización de los derechos y las prácticas de manejo del agua de los campesinos-indígenas del Perú. Consideraciones de género y etnicidad".	Ecomujer, FIAN, GenaNet, Verdi	2008	1
"La Normalización de la Corrupción hídrica. Consideraciones de género y etnicidad"	GWA, WIN, FUDEU/FANCA	2008	1
"Políticas de Seguridad Hídrica y la construcción de los sesgos de etnicidad y género en los Andes de Perú".	53^{0} ICA	2009	2
"La seguridad hídrica y los procesos de acumulación de los derechos de uso del agua en los Andes: una cuestión de política cultural".	IWE-WUR, CBC-Cusco	2009	1
"The Maculinization of Water Management In Peru"	Gender Group, WUR	2009	1
"The cultural Politics of Water Security in the Peruvian Andes"	WASS PhD day	2010	1
C) Career related competences/personal development			
Guest lectures (Delft, WUR, Peru)		2007-2011	1
Total (minimum 30 ECTS)			34.9

*One ECTS on average is equivalent to 28 hours of course work