‘From paper to reality: Irrigation Management Transfer in the El Pisque Irrigation System, Ecuador’

M.Sc. Thesis by Yiseña Tiaguaro Rea

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‘From paper to reality: Irrigation Management Transfer in the El Pisque Irrigation System, Ecuador’

Master thesis Irrigation and Water Engineering submitted in partial fulfillment of the degree of Master of Science in International Land and Water Management at Wageningen University, the Netherlands

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Table of Contents

List of Figures

List of Tables

List of Photos

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Abstract

Since the early 1980's under pressure of The World Bank water management in Ecuador was influenced by neoliberal policies. As part of these policies an Irrigation Management Transfer (IMT) programme was implemented during the period 1994 to 2001. This research reveals the institutional changes that took place in Ecuador from 1994 onwards. First it alanyzes how the IMT programme was established and implemented in Ecuador by an implementing unit (UEP-PAT) that bypassed the established water bureaucracy and that worked with external foreign consultants. In the second part of the analysis this thesis provides a critical analysis of the the design, implementation, and implications of this programme based on a case study of the El Pisque irrigation system. This system is located in the northeast Ecuadorian Andes. IMT in the el Pisque irrigation system was used by large agro-export companies to secure their control over the irrigation system. With the support of Utah State University an internal normative framework for the Water User Association and its Tertiary Unit Organizations (Juntas Modulares) was created. This framework enabled small and medium sized farmers to contest the power position of the agro-export companies and challenge the decision making procedures at both organisational levels. The thesis also shows how the Water Users Organization has effectively delivered water to its users and expanded the irrigation systems since the implementation of IMT. An important mechanism for the Water Users Association to ensure this service is the collection of the irrigation fee and the ' professionalisation' of the staff of the organization. As such the Water Users Association has become a new institution at local level. In this sence the thesis shows that both internal as well as external networks (with high politicians) are important for the sustainability of the Water Users Association and the irrigation system. Finally, the latest institutional reforms linked to irrigation management at the national level are presented. These water reforms have reshuffled irrigation responsibilities in the state domains but have until now not affected the established water management practices. This study reveals how political negotiations and alliance building between different groups at multiple levels were established and led the outcomes of the Ecuadorian IMT programme and later the development of the WUA of the El Pisque irrigation system. The results of the study contribute to a better understanding of the Ecuadorian IMT process and more broadly to the different natures and outcomes of neoliberalism in water governance.

Key words: irrigation management transfer, water rights, organising practices, water user associations

Resumen

El aparato institucional del sector hídrico en el Ecuador comienza a sufrir cambios a partir de los 80, a través de políticas neoliberales impulsadas por el Banco Mundial. Como parte de estas políticas el Programa de Transferencia de la Gestión de Riego (TGR) fue introducido durante el período 1994-2001. La presente investigación se enfoca en los cambios institucionales que en materia de aguas sufrió el país a partir de 1994 y analiza críticamente el diseño, implementación e implicaciones del programa, a través de un estudio de caso realizado en el Sistema de Riego El Pisque. Este caso muestra como el programa de TGR fue liderado por grandes compañías agro-exportadoras quienes estratégicamente maniobraron sus recursos para asegurar el control sobre el manejo del sistema de riego. De la misma manera, este caso ejemplifica las múltiples luchas internas durante los primeros años de desarrollo de la Junta de Usuarios de Riego. Asimismo, indica cómo las acciones conducidas por los líderes de la organización conllevaron a una diferenciación interna del manejo del sistema y crearon como base de su gestión la dependencia sobre el recurso económico. Finalmente, la investigación provee una revisión sobre las últimas reformas institucionales que en materia de riego han sido implementadas. El estudio se enfoca en las negociaciones y alianzas políticas que emergieron a diferentes niveles y que conllevaron a la implementación de la TGR a nivel nacional y posteriormente local. Los resultados de este estudio contribuyen a un mejor entendimiento del proceso de transferencia de la gestión de riego en el contexto Ecuatoriano y desde una amplia perspectiva, a comprender la influencia de las políticas neoliberales en la gobernanza del agua.

List of Acronyms

AEJUR	*Asociación Ecuatoriana de Juntas Generales de Agricultores Usuarios de Riego;* Ecuadorian Association of General Boards of Farmers-Irrigators
ARD–Lotti Rural	*Consorcio Asociados para el Desarrollo Rural;* Associates Consortium for Development – Lotti
BID	*Banco Inter Americano de Desarrollo;* Inter-American Bank Development Bank
BIRF	*Banco Internacional de Reconstrucción y Fomento*; International Bank for Reconstruction and Development
CAIC	*Comisión para la Auditoría Integral del Crédito Público*; Commission for the Integral Audit of Public Credit
CDES	*Centro de Derechos Económicos y Sociales*; Centre for Economic and Social Rights
CDRs	Corporaciones Regionales de Desarrollo; *Regional Development Corporations*
CEDEGE	*Comisión de Estudios para el Desarrollo de la Cuenca del Río Guayas*; Studies Commission for Stying the Development of the Guayas River Watershed
CNC	*Consejo Nacional de Competencias;* National Council for Competences
CNR	*Caja Nacional de Riego;* National Agency for Irrigation
CNRH	*Consejo Nacional de Recursos Hídricos;* National Council of Water Resources
CONGOPE	*Consorcio de Gobiernos Provinciales del Ecuador;* Cosortium of Provincial Goverments in Ecuador
CORSICEN	*Corporación Regional de la Sierra Centro*; Regional Corporation for the Central Andes
CORSINOR	*Corporación Regional de la Sierra Norte*; Regional Corporation for the Northern Andes
CODELORO	*Corporación de Desarrollo Regional de El Oro*; Corporation for the Development of the El Oro Region
COOTAD	*Código Orgánico de Organización Territorial, Autonomía y Descentralización;* Legal Code for the Territorial Organization, Autonomous, and Decentralization

CREA	*Centro de Reconversión Económica del Azuay, Cañar y Morona Santiago;* Centre for the Economic Reconstruction of Azuay, Cañar, and Morona Santiago
CRM	*Centro de Rehabilitación de Manabí;* Manabí Rehabilitation Centre
DAI	*Alternativas de Desarrollo*; Development Alternatives
DRI	*Desarrollo Rural Integral;* Project for Developing Integral Rural
FAO	Food and Agricultural Organization of the United Nations
GAD	*Gobiernos Autónomos Descentralizados;* Decentralized Autonomous Governments
GADP	*Gobiernos Autónomos Descentralizados Provinciales;* Decentralized Autonomous Provincial Governments
INAMHI	*Instituto Nacional de Metereología e Hidrología;* National Institute of Meteorology and Hydrology
INAR	*Instituto Nacional de Agua para Riego y Drenaje;* National Institute for Irrigation and Drainage
INERHI	*Instituto Nacional de Recursos Hídricos;* National Institute for Water Resources
INIAP	*Instituto Nacional Autónomo de Investigaciones Agropecuarias*; Autonomous National Institute of Agricultural Research
JGUSRP	*Junta General de Usuarios del Sistema de Riego "El Pisque"*; General Water Board of the "El Pisque" irrigation system
MAG	*Ministerio de Agricultura y Ganadería*; Ministry of Agriculture and Livestock
MAGAP	*Ministerio de Agricultura, Ganadería, Acuacultura y Pesca;* Ministry of Agriculture, Livestock, Aquaculture, and Fisheries
MF	*Ministerio de Finanzas;* Ministry of Finance
PNR	*Plan Nacional de Riego;* National Plan for Irrigation
PREDESUR	*Programa Regional para el Desarrollo de las Provincias del Sur;* Regional Development Programme for the Southern Provinces
PRONADER	*Programa Nacional de Desarrollo Rural;* National Programme for Rural Development
SENAGUA	*Secretaria Nacional del Agua;* Water National Secretary
SENPLADES	*Secretaría Nacional de Planificación y Desarrollo*;National Secretary for Planning and Development
SIDEG S.A	*Siderúrgica Ecuatoriana;* Ecuadorina Steel Industry

SIPAE	*Sistema de Investigación sobre la Problemática Agraria en Ecuador;* System for Investigating the Agrarian Problems in Ecuador
SNC	*Sistema Nacional de Competencias;* National System of Competences
SRD	*Sub-secretaría de Riego y Drenaje;* Sub-secretary for Irrigation and Drainage
USU	*Universidad del Estado de Utah;* Utah State University
WB	*Banco Mundial;* The World Bank
WUA	*Asociación de Usuarios de Agua;* Water User Association

CHAPTER 1. INTRODUCTION

1.1 Introduction

Irrigation Management Transfer (IMT) programmes were applied since mid of 1980's by many governments around the world under the influence of neoliberal policies. IMT comprises to transfer the responsibility of management of irrigation systems from governmental agencies to non-governmental organizations, such as water user associations.

Ecuador was not an exemption where IMT was applied. Since the early 1980's the institution for water management in the country was influenced by the structural adjustment policies. Under these policies the National Institute for Water Resources (Instituto Nacional de Recursos Hídricos; INERHI) was dismantling. This was replaced by the National Council of Water Resources (Consejo Nacional de Recursos Hídricos; CNRH) and Regional Development Corporations (Corporaciones Regionales de Desarrollo, CDR's). At the same time, IMT was implemented by the establishment of the Executive Unit of Technical Assistance Project (Unidad Ejecutora del Proyecto de Asistencia Técnica, UEP-PAT) in 1994.

The irrigation management transfer had instigated organizational changes at the national and local levels. However, the knowledge on how its intervention influenced at the local level is insufficient. Therefore, this document has attempted to explore on how the transfer process affected the development of water user associations on its forms of water rights, autonomy, and organizing practices.

To deeply dig into the outcomes of IMT policy, I had studied a case study. This refers to El Pisque irrigation system. This thesis offers a comprehension on how the alliances and political negotiations intertwined at the moment to define common interests at multiples levels. Furthermore, by means of this case I reveal that the implementation of this policy responded to a social construction process of interest groups who used and moulded this policy to secure the control over irrigation system. Towards the end, it reveals that the interaction among crucial actors led the current management of the irrigation system.

On the other hand, in the recently years, the term 'transfer of irrigation competences' has risen into the government agenda as part of legal and institutional rearrangement in irrigation management. Additionally, this research also provides a revision on how the current transfer process of irrigation competences from the State to provincial government took place.

After this introduction, this research has four chapters. Chapter 2 reviews the general process of IMT implementation at the national level in order to provide an overview of characteristics of this policy. Chapter 3 contains the history of the irrigation management of the El Pisque irrigation system and the social construction of the policy by interest groups. Chapter 4 reviews the development of the Water User Association highlighting the most important elements of the water rights' content. Chapter 5 presents the current transfer of irrigation competences from the State to provincial

governments as part of the legal and institutional changes in the recently years. Finally, Chapter 6 provide the conclusions of this research.

1.2 National Context: a ´quick' overview on institutional rearrangement of irrigation management

The institutional irrigation management in Ecuador has had several changes in the last years. A first period referred from 1966 to 1993. The irrigation management at the national level was in the hands of the National Institute for Water Resources (Instituto National de Recursos Hídricos; INERHI). This was characterized by the direct intervention of the State in the irrigation sector by means of supporting for the infrastructure development and irrigated agriculture production (INAR, 2010) (see chapter 2).

A second period began from 1994 to 2007. At the end of 1994, National Institute for Water Resources (Instituto Nacional de Recursos Hídricos; INERHI) was replaced by the National Council for Water Resources (Consejo Nacional de Recursos Hídricos; CNRH) and Regional Corporations by means of the Law of Modernization of State, Privatization, and Provision of Public Services and Executive Decree 2224. As part of these reforms the Irrigation Management Transfer (IMT) took place (see chapter 2). In 2004, the State reformed the Water Law (1972) by means of demolish of water basic fee for public irrigation systems which were transferred at the end of 1990's. The participation of water users was a crucial aspect during the abolishment process (see chapter 3). This period was characterized by a minimum participation of the State and several decentralization and alignment processes of the private sector in the irrigation management (INAR, 2010).

A third period regards from 2008 to 2010. During this period the irrigation management was a transition stage. Here, some changes took place (INAR, 2010): a) investment for improving irrigation infrastructure at the national level[1]; b) institutional rearrangement; and c) development of a new normative framework.

Going through to the institutional rearrangement, the National Institute for Irrigation and Drainage (Instituto Nacional de Agua para Riego y Drenaje; INAR) was formed in 2007[2]. This was part of the Ministry of Agriculture, Livestock, Aquaculture, and Fisheries (Ministerio de Agricultura, Ganadería, Acuacultura y Pesca; MAGAP). The CNRH's and CDR's responsibilities were transferred to MAGAP and INAR. At the same line, the Water National Secretary (Secretaría Nacional del Agua, SENAGUA) established in 2008. SENGAGUA has a Ministry level and its influenced area bears a watershed level (INAR, 2010). Its responsibilities regard to control, planning, and regulation of water.

At the end of 2010 by means of Executive Decree No. 564, the INAR's responsibilities are transferred to MAGAP and the Sub-secretary for Irrigation and Drainage (Subsecretaría de Riego y Drenaje) was

[1] In the Correa's presidency, the investment made in the irrigation sector exceeds 200 million dollars.

[2] Executive Decree No. 695 established in the Official Register No. 209

established. The Sub-secretary is part of the Vice-ministry of Rural Development in the Ministry of Agriculture and Livestock (MAGAP, 2011). The recuperation of the State' role in the water management is the most important characteristic of this period.

1.2 Local Context: introducing to the area of study

This section provides a general description of the area of study and its main important characteristics.

1.2.1 Location

The El Pisque irrigation system is located in the northeast of the province of Pichincha in the Ecuadorian Andina region. It belongs to the El Pisque micro-basin which is part of the Pacific Ocean of Esmeraldas. Eastward is the Cayambe volcano and *Cordillera Oriental*; westward is the *'Nudo de Mojanda'*; northward is the Cusín Hill (Zapatta et al., 2011). The El Pisque micro-basin is one of the main Andina Valleys, which is chacterized by fertile and very suitable land for agricultural production.

This irrigation system provides water for several urban and urban-rural parishes located in the cantons of Quito (El Quinche, Guayllabamba, Checa, Yaruquí, Tababela, Pifo and Puembo) and Cayambe c (Ascázubi, Otón, Santa Rosa de Cusubamba) (See Figure 1).

During the last years the area of study had had many changes. Some projects are being implemented such as the new international airport of Quito, tourism projects located between Checa and El Quinche, housing projects, and expansion of the main road between Cayambe and Quito (Panavial project). For this reason, it has been recognized as the main important developed area in the province of Pichincha.

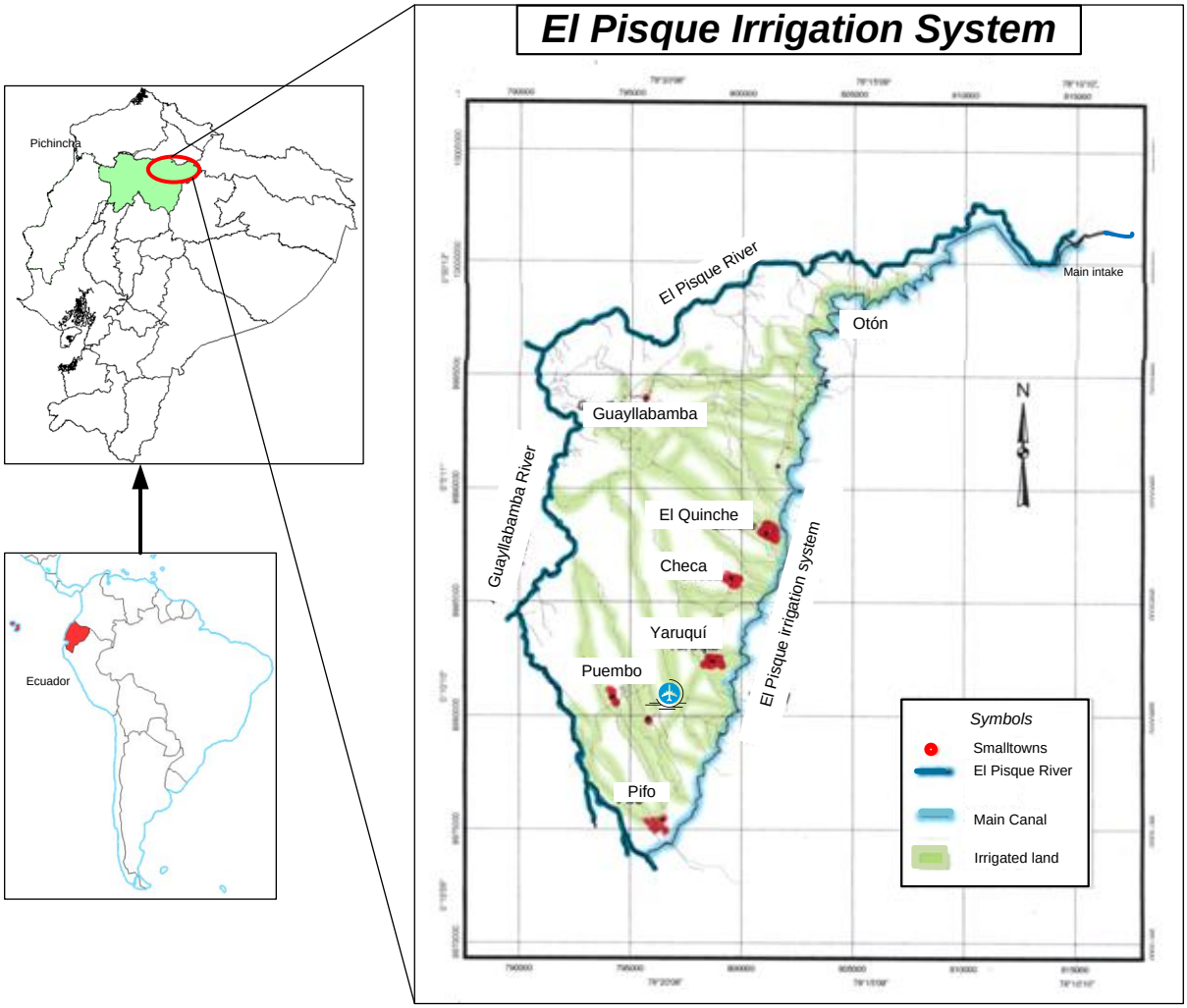

Figure 1. Location of the El Pisque irrigation system

Source: Modified of Cisneros and Oñate, 2001

1.2.2 Infrastructure

The infrastructure was designed for irrigating 10.000 hectares. In 1986 the total irrigated area was 6.082 ha (Whitaker et al., 1990); in 1994 it was increased to 8.538 ha (Corsinor, n.d); and currently, 9.913 ha (Water User Association, 2011). This means the irrigated land has been increased constantly but the irrigation infrastructural is almost full.

The irrigation infrastructure is composed by open canals and tunnels. The main canal has 58 Km length, including 41 tunnels. Along the main canal there are 59 water intakes in total which refer to secondary canals. Every secondary canal has a *modular area*. The secondary canals have 181.56 Km length, which majority of them are open canals (173 Km). A siphon (0.206 km length) is located after parish of Yaruqui allows transporting water to parishes of Puembo and Pifo. This siphon is entitled as 'Guambi' because it crosses over the *Guambi* river (Figure 2).

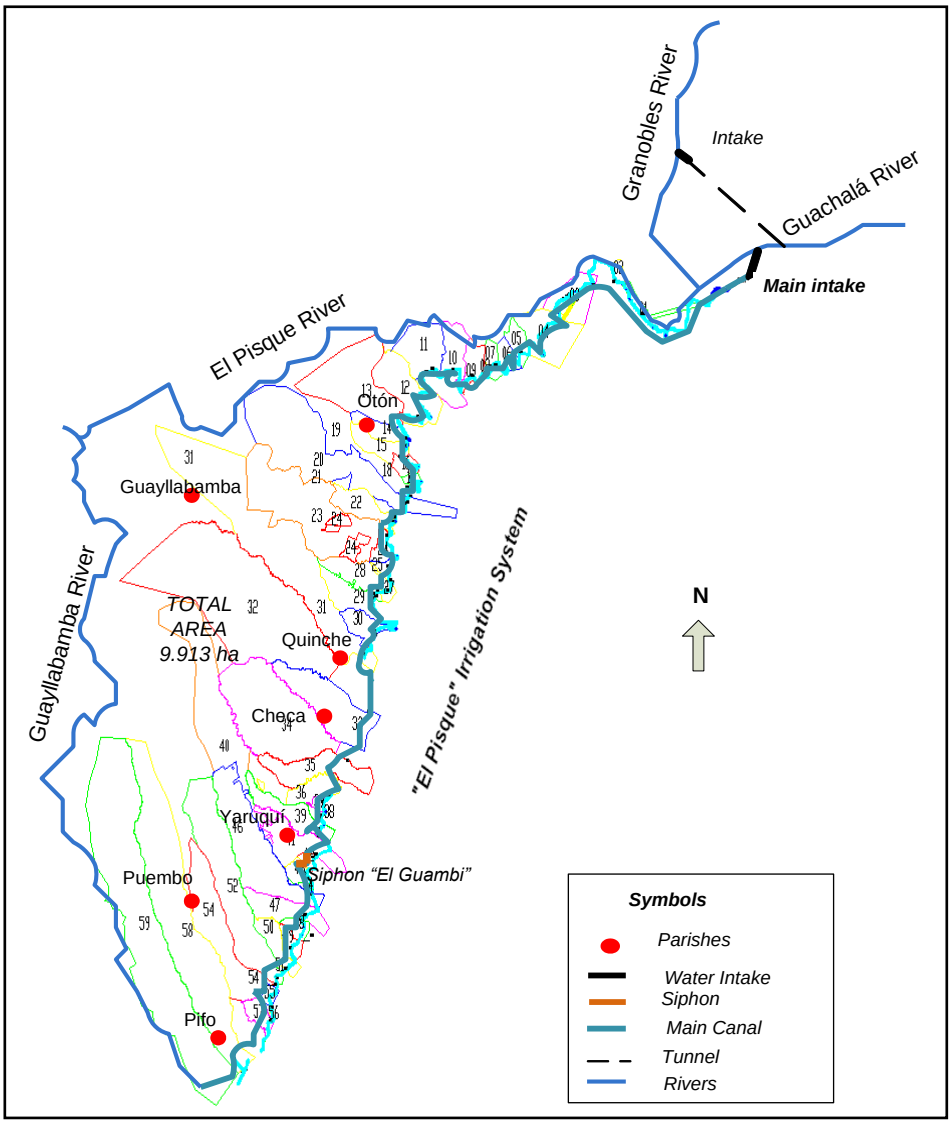

Figure 2. Infrastructure of the El Pisque irrigation system

In accordance with the legal authorization (concession), the irrigation system is allowed to receive water from the Guachalá and Granobles rivers in an amount of water of 5.200 litres/second as maximum, 4.000 litres/second as minimum, and 2.800 litres/second as medium (JGSRP, 1999). However a CORSINOR's report refers that the amount of water from the Guachalá river is 5.000 l/s, which will increase by means of the Granobles river and ancient irrigation systems (*acequias)*[3] to 7.000 litres/second (Corsinor, n.d). In contrast, the WUA´ database reveals a water flow of 7.898 litres/second (JGSRP, 2011). Hence, there is not a clarification of the amount of water that the system can use. Assuming that the first data is correct, the system is exceeding of its actual water concession. The extra-water that the system is using probably is coming from the ancient *acequias;* some of them deposit water to the main canal. This will be a reason why it is taking more water that its legal authorization.

[3] Acequias such as: Cinturas, Alumbral, del río Uravía, El Quinche, Coyago, Guambi

The El Pisque irrigation system provides water for diverse water-users. In total there are 5.961 water-users and 9.913 irrigated hectares. The multiples water users are: producers who cultivate short-cycles crops, companies and flower producers, industries, and cooperatives. Furthermore, it also provides water for cooperatives and public enterprise for drinking water.

1.3 Problem statement

The irrigation management transfer policy had instigated organizational changes at the national and local levels. However, the knowledge on the relationship between policy intervention and its implementation at the local level is insufficient, specifically on how this process took place and how influenced on the functioning of the WUA. The problem statement will be summarized as follows:

Lack of knowledge about the relationship between the historical transfer process and the current management practices of the El Pisque irrigation system

1.4 Objectives

The objective of this research is to establish empirical evidence on the implementation of the irrigation management transfer policy at the local level by means of a case study. This will reveal how this process took place, its main actors and organizing practices and how these have influenced on the irrigation management carried out by the Water User Association.

The results of this research attempts to provide some interesting elements in order to be incorporated in the current debate of the transfer process in Ecuador. Thereby, this will indicate what we can learn from those transfer processes.

This research will be both explanatory and descriptive. Explanatory in the sense, that I will explain the relationship between implementation of IMT policy and the current management of the irrigation system as well as the implementation of the current transfer in irrigation competences from the State to provincial governments within the legal and institutional rearrangement framework. Descriptive, in the sense, I will detail the historical context on both processes.

1.5 Concepts and Approaches

The main concepts and approaches applied in this research will be explained in the following paragraphs.

1.5.1 Irrigation Management Transfer

According to Vermillion (2001) irrigation management transfer is "*to transfer the responsibility and authority of the management from governmental agencies to nongovernmental organizations, such as water user associations (WUA)*[4]" (Vermillion, 2001:12). Furthermore, he mentions that the IMT

[4] WUAs are organisations of water users for irrigation management. Such organisations are also known as Irrigation Associations, Water Users Co-operative Societies, Water Management Committees, and several other names. They can have or not have legal status, as societies, co-operatives or corporate bodies. They can be

could be defined *"as the contraction of the government's role in irrigation management and the corresponding expansion of the role of non-government institutions in irrigation management"* (Vermillion, 1991:8). Moreover, the transfer could be total or partial depending on every case. Occasionally, the transfer process will be called as re-organization, handover, or privatization processes (Vermillion, 2001).

FAO (1999) refers that IMT include several transfer levels: i) decision-making (or governance); ii) ownership of scheme infrastructure (which is normally considered privatization); iii) water rights from government to water users; iv) turning over to water users a part of the management responsibilities, such as water delivery, canal maintenance, and fixing the water fees, while final approval of operation and maintenance (O&M) plans and budgets are subject to government approval (FAO, 1999 in Van Vuren et al., 2004).

Giejer (1998) summarized the following reasons to explain why IMT take place: i) it reduces government expenditure on irrigation system operation and maintenance; ii) it improves system performance and productivity and it responds to pressure of external funding agencies; and iii) it responds to broader national democratization and privatization policies, and programmes (Oorthuizen, 1998 in Van Vuren et al, 2004).

The reasons for the adoption of IMT depend on the local context. According to FAO (1999), governments such as the Mexican and Chilean have adopted IMT to improve their financial and physical sustainability of irrigation systems, while in Andhra Pradesh (India) to improve water management and agricultural productivity. Other examples come from Philippines, where the government adopted this policy to cope with constraints on government budgets. Farmers can also promote IMT as was occurred in USA (Columbia Basin) and Australia in order to gain control over the irrigation system and improve the water service. At the same time, there were farmers who had exerted pressure on governments in order to take over management of irrigation system, especially to gain control on the collecting of irrigation fees and stopping an increase in irrigation expenditure. This took place in Colombia (Coello and Saldana system) and Dominican Republic (FAO, 1999 in Van Vuren et al., 2004).

The main objective of the transfer process is that a government transfers all responsibilities relating to irrigation management or part of them to water users organizations and/or private sector and depending on the context it can be applied from the government's initiative or farmers.

1.5.2 Water rights

This research focuses on the implications of IMT policy on water rights of the El Pisque irrigation system. For that reason, it is important to conceptualize them. According to Beccar et al. (2002) water rights are *"authorized demands to use (part of) a flow of water, including certain privileges, restrictions, obligations, and penalties accompanying this authorization, among which a key element*

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big or small in number of members and area of operation. They have been initiated by water users themselves, government agencies or NGOs (Jordans, 2003).

is the faculty to take part in collective decision-making about system management and direction" (Beccar et al. 2002: 3 in Boelens, 2008: 57).

Water rights involve not only social relationships but also consist of a diversity of components such as privileges, restrictions, obligations and penalties. To understand the functioning and use of water rights, it is necessary to look at ***water rights' contents*** and how these are manifested in different situations (Boelens, 2008). At the same time, it is very important to clarify who has the power to authorize and define who will be a water-user and who will not. In other words who will establish 'the rules of the game' (Boelens, 2008) as an authority

Water rights´ contents and autonomous

Boelens (2008) mentions that water rights involved some 'bundle' of rights which will include some privileges relating to *operational rights and control rights* (Boelens, 2008).

Access and operational rights are related to everyday system functioning (O&M). These rights include privileges to use part of the water flow, to use the irrigation infrastructure (water intake, conduction, distribution infrastructure), to access management information of the irrigation system and the right to be eligible in order to represent of all water users; as well as the right to participate in political and organizational linked to irrigation management (Boelens, 2008).

Control rights refer to authorized permissions to control irrigation water management and decide about resource use. These concern the privileges to take part in the decision-making process on system management; incorporation of water-users to the water user organization and/or exclusion of water-users of them; the right on decision-making process concerns on modifications in the hydraulic system, on transferring the ownership of water or infrastructure; and also the right on take part in decision-making on changes of internal normative (Beccar et al., 2002; Cf. Schalger & Ostrom, 1992; Boelens & Doormbos, 1996; Gerbrandy & Hoogedam, 1998 in Boelens, 2008).

There is a closed relation between autonomy and control rights. *Autonomy* is a manifestation of control rights. Control rights are related to take part in collective decision-making process in the irrigation system. For example, a WUA will have the right to use part of the water flow but do not control on the distribution of this water flow, i.e. it has no autonomy. Autonomy gives the capacity to take part in the decision-making process (control rights) inside of a collective (WUAs).

Dynamics of water rights

Water rights can be altered or adjusted depending on social, economic, ecological, and climate (Boelens, 2008) and political changes. Thereby, these changes influence on the modification of water rights which is linked to new power relationships and equity perceptions (Boelens, 2008).

The policies such as irrigation management transfer are clear examples on how its implementation influences on the management of irrigation systems. For example, Rap (2004) mentions that in the Left Bank irrigation system (Mexico) IMT policy has not led to complete self-sufficiency of the WUA. In line with this, the institutional efforts in order to increase the water fee collection had blocked to the WUA into a network which makes it depends on agro-industry, subsidy providers, and producer

elites (Rap, 2004). This indicates that IMT policy influenced on the formation of new relationships among water users.

At the same time, Boelens and Urteaga (2006) mention that it is common that water policies and strategies intervention of water management, do not take into account local knowledge of water rights neither the local definitions of indigenous about "collectivity", "property", "optimum production", "social justice" and "sustainable management" (Boelens and Urteaga, 2006). The fact that many policy-makers and/or external agencies do not take into account that their intervention will modify power relationships and adjust the relationship between right and duties, is why many policies and irrigation projects had failed.

Reference rights and materialized rights

The reference rights are defined by Boelens (2008) as *"rights formulated according to the prevailing norms and principles in a particular normative framework"* (Boelens, 2008: 73). The reference rights give the specifications on which kind of faculties and privileges which a right-holder will have as well as their characteristics. The particular regulatory framework can be at the national level or local level. In the first case refers to the normative established in the national water regulations (known as 'legal reference rights) and the second one refers to a local normative framework (know as local reference right) which will adopt some element from the first (Boelens, 2008). Whereas 'materialized rights' refers to "*actual water use and distribution practices, and to actual decision-making process about these practices"* (Boelens, 2008: 73). These rights are linked to the informal arrangements among water users in order to deal with the daily management of the irrigation systems, which are not necessarily supported by formal regulations (Boelens, 2008). Here, it will be linked to the power relationship in order to access water in practice.

1.5.3 Organising practices

As this research is linked to irrigation system transferred carried out by water user associations, which have dealt their irrigation systems in order to manage, operative, and administrative them, therefore, it is important defined them. Rap (2004) mentions that an organization is not a result of a stable social order, instead this resulted of actor's interaction, practices, strategies, as a recursive network (Rap, 2004). Thereby, I have used this concept in order to understand that the current Water User Association (WUA) of the El Pisque irrigation system is a result of negotiations, practices, and strategies used by actors who were involved before, during, and after the transfer process. At the same time, this approach has been taken also to analyse the legal and institutional rearrangement of irrigation management.

Rap (2004) establishes a term to define all practices which are linked to access and control over resources in irrigation management. This is organising practices which are defined as *"sets of socio-technical practices that organise the access to and control over resources such as water, maintenance machinery, administrative means and other political and economic resources involved in irrigation management"* (Rap, 2004:10). In order to operalize this concept, the author proposes its study based on the analysis of two dimensions of control: socio-technical and economic and politico-institutional (Rap, 2004). I prefer to entitle 'socio-technical practices' and 'economic and politico-institutional practices' in order to familiarize with these concepts.

Socio-technical practices: This refers to a target of practices made by human actors who mobilized non-human resources (technological artifacts, physical materials, paper inscriptions, etc) in the irrigation management. (Mollinga, 1992 in Rap, 2004). Law (1994) defines that irrigation management is practised by means of human networks and non-human networks which are reflected in materials (Law, 1994 in Rap, 2004). This has served to identify which socio-technical networks (humans and non-humans networks) were involved during the introduction of IMT policy and the current legal and institutional rearrangement in irrigation management.

Economic and politico-institutional practices: These refers not only practices but also projects, strategies and alliances which emerge between different interest groups in order to (re) establish economic and politico-institutional control over important resources (Rap, 2004). In line with that, these groups of actors according to their interests mobilize resources, including their own capacities and materials, in order to achieve their goals (Long and van der Ploeg 1995 in Rap, 2004). Thereby, that before and during the transfer process some actors were involved who in a point of the policy cycle joined their forces in order to reach their own interests.

In accordance with Rap (2004) the institutional projects, a concept developed by De Vries, is a useful weapon to identify the differential manners in which IMT can be implemented. This is based on how the relationship between the institutions and their clients must be governed. Furthermore, this is related to the different ways in which the state managers have to deal diverse negotiation process in order to comply with requirements made by State. Whereas policy implementers act in a diverse ways depending on the field domain in which they immersed and in accordance to their socio-political compromises (de Vries, 1992 in Rap, 2004).

This approach is very useful in this research because allows an understanding that policies and reforms are a result of the interaction, alliances, strategies, and networks among actors who use resources (humans and non-humans) in order to achieve their objectives.

1.5.4 Power

Power can be understood in three ways: 1) as a capacity of human action to achieve outcomes (Giddens, 1976 in Mollinga, 2003); 2) as the ability to act or be acted upon, or to affect or be affected by something (Webster, 1984 in Mollinga, 2003) and 3) a specific meaning relates to that men have power 'over' others: this is a power as domination (Giddens, 1976 in Mollinga, 2003). This concept is useful because allows to understand how the social power around irrigation system can exert on the decision-making process carried out by WUAs. Here, I had identified not only the external social power (water agencies, policy makers, local governments) but also internal social power (leaders of WUAs, landowners, flower companies), and how they interact to achieve outcomes (management of the irrigation system, institutional reforms). In addition, by means of a profound understanding of the historical process of the irrigation management in the El Pisque irrigation system, I had understood how the social power (mainly, internal) were changing (strengthening) according to time and how this influence on the current management of the irrigation system.

1.5.5 Policy as a process

Taking into account the interactive model proposed by Grindle and Thomas (1990), the implementation of a policy *"is part of a process in which a new policy is particularly vulnerable"* (Grindle and Thomas, 1990:1166). It consists of a series of choices made by policy makers as a response to obstacles and changing conditions. According to the characteristics of the policy, the reactions of who oppose it or interested parties can emerge and exert pressure on the policy makers' decisions; influencing on any stage of the policy (formulation, implementation). These characteristics influenced on the nature of the reactions which can be on the public or bureaucratic contexts (Thomas and Grindle, 1990).

In accordance with Long and van der Ploeg (1989) "*policy refers to set of processes which involve the reinterpretation or transformation of policy during the implementation process, such that there is in fact no straight line from policy to outcomes"* (Long and van der Ploeg, 1989: 227). This definition bears out that Thomas and Grindle mention. That policy is not a lineal process instead it is susceptible to being changed in accordance the reactions from bureaucrat circles and/or citizens.

Law (1994) mentions that IMT can be analysed as a socially constructed process. It is political in nature, because it involves struggles, conflict and negotiation among interest groups trying to control others and the crucial resources involved (Law, 1994 in Rap, 2004). This process can be constructed by policy implementers and other actors in local arenas (Rap, 2004).

In this research, the IMT policy has been seen as a dynamic process, which resulted from the interactions of different actors who can influence on the different stages of the policy cycle. It can be characterized by conflicts and struggles in order to control resources.

Conceptual framework

In this sub-section, I will link the different concepts and approaches explained in order to be applied in this research.

The intervention of the State via different policies, as IMT policy leads to changes in the irrigation management which are related to water rights, autonomy, organizing practices, power relationships, and control of the resources. Whichever external intervention will affect each one of these elements.

The local context can be affected by different social, political, economical, legal, and institutional levels. In this case, I will focus on the political level; however, whichever change in these levels can affect each other. The introduction of IMT can be analyzed as a process in which water rights, autonomy, power relationships, organising practices can be affected. By means of a deep understanding of these concepts can be understood the current management of the irrigation system. At the same time, the legal and institutional rearrangement of irrigation management in the Ecuadorian context is also a clear example that will affect each one of these elements. Hence, this study will focus on the effects of IMT on water rights, autonomy, and organizing practices taking into account the power relationships among main actors and their different control strategies over

resources in their daily practices. It determines the current management of the irrigation system by WUA.

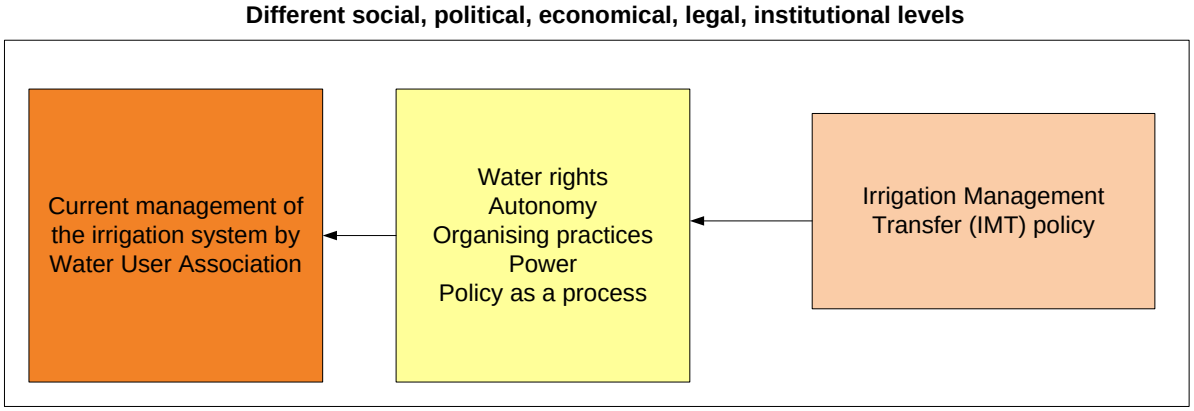


Figure 3. Schematic representation of the framework used to analyse the current management of irrigation system.

1.6 Main Research Question

The main research question is detailed as follows:

> *How did the transfer process in the early 1990's affect the development of the El Pisque irrigation system by Water User Association on its forms of water rights, autonomy and organising practices?*

To respond this question, I elaborated several sub-questions that guided me in the process of data collection and analysis. These are linked to the transfer process (90's) and the current management of the irrigation system concerning on its water rights, autonomy, and organising practices.

-How was the general process for introducing IMT in Ecuador?
-How did the historical and political context of transfer process occur at the local level?
-How did the interaction among actors involved in the transfer process and their intervention practices lead to the current organizing practices, autonomy, and water rights of water-users?

Additionally, this research attempted to understand the national context of the current legal and institutional rearrangement of irrigation management in which is a new transfer process takes place. This refers from the State to provincial governments. For that reason I have formulated an additional question:
- How was implemented the current transfer of irrigation competences from the State to provincial governments?

1.7 Methodology

The construction of knowledge is a social construction in which there is an interaction between the knower (researcher) and the known (investigated field) which are part of that (Zwarteveen, M., 2011). In this research, I will reveal my own perceptions on the design, implementation and outcomes of IMT, the main actors and their interests and strategies involved in the transfer process

by means of a case study. This refers to the El Pisque irrigation system. As Puch (2005) mentions a study case is a depth study in order to develop a full understanding of a case as possible (Puch, 2005 in Tight, 2010). By means of this case it was possible to have an understanding about the particularities of the irrigation system, the different relationships among actors involved in the transfer process as well as the diverse struggles and conflicts which emerged from this interaction.

The El Pisque irrigation system is the second biggest irrigation system transferred in the Andes region in terms of water users. Due to the fact there is not a sufficient knowledge on the management of this system, I decided to choose it and to understand its own particularities.

In order to construct this case study, I used the following methods: literature review, interviews, participative workshop, and participant observation. This allows me to collect quantitative and qualitative information.

In the first stage of my field work, I had a first meeting with the WUA's representatives. In this meeting some members of the WUA's directory analysed a research proposal that I sent them several months ago. After two hours of conversations, they decided to approve the realization of my research. This helped to have an initial perception on the organizational level of the WUA. The fieldwork took place from July 2011 to September 2011.

Subsequently, I concentrated initially on the preparation of interview guides. This refers to semi-structured interviews for understanding of the historical context of the irrigation system and the IMT process. I used the semi-structured interviews because this is a method in which it does not constrain totally the interviewee' responses nor it gives them complete freedom to answer the questions. This means that it is the between flexibility/rigidity and specificity/generality in terms of contents, structure, and interview questions. Furthermore, it also allows collecting depth information in order to reduce the probabilities of misunderstanding and to apply for the majority of the population (Kumar, 2005). In addition, I used the semi-structured interviews on my previous researches in which I achieved good results for data collection.

The historical interviews were focused on the historical process of the implementation of IMT, the main actors involved in the transfer process, water rights before, during, after of the transfer, formation of the WUA, and the current management of the irrigation system by the WUA.

I began to explore the historical context of the irrigation system by means of semi-structured interviews which were applied to ex-officials of public institutions. These belonged to engineers, ex-*canaleros* (ex-canaleros), ex-workers during the management of the National Agency for Irrigation (Caja Nacional de Riego, CNR); National Institute for Water (Instituto Nacional de Recursos Hídricos; INERHI), and National Council of Water Resources (Consejo Nacional de Recursos Hídricos; CNRH); and Corporation for the Northern Andes (Corporación Regional de la Sierra Norte, CORSINOR). At the same time, I applied interviews in order to understand how the transfer process took place. These were made to initial WUA's representatives and water users who knew many aspects relating to the initial years of the irrigation management of the case study. In line with that, I applied interviews to public officials who participated in the transfer process in the Northern Andina Region. Some of them were considered as key actors because they were "witnesses" of the whole process. These

interviews were made in the study area and outside of this in accordance with the availability of time of interviewees.

Based on the participant observation, I explored the water distribution practices and maintenance activities of the irrigation system. I accompanied to the WUA's field staff in their daily practices. Some of them have been working in the WUA from the initial years of its formation. This helped to complete the information that I acquired in the previous stage. At the same time, I followed them in order to know the physical characteristics of the main canal and secondary canals as well as to understand the interaction between "*canaleros"* (water guards) and farmers. This helped to familiarized with the study area and occasionally I did some appointments with farmers who were the WUA's members.

In order to understand on the WUA' administration, I observed the daily life in the office and understand the relationship between water users, administer, and operative staff. Furthermore, by means of the daily life in the office, I understood the internal struggles and conflicts between leaders of the WUA and administrators.

In order to comprehend the decision-making process and the extent of autonomous of the organization, I assisted some of the meetings of the WUA. This was very useful because allowed me to recognize the most influenced members, kind of participants, which kind of the criteria they use in order to resolve any problems, and the internal power relationships.

As part of this research was the current and institutional change of irrigation management, I applied some interviews to officials who work in the public institutions such as Ministry of Policy, National Secretary of Planning (Secretaría Nacional de Planificación, SENPLADES), Consortium of Provincial Governments in Ecuador (Consorcio de Gobiernos Provinciales del Ecuador, CONGOPE), Ministry of Agriculture, Livestock, Aquaculture, and Fisheries (Ministerio de Agricultura, Ganadería, Acuacultura y Pesca). At the same time, I did interviews to academics who are involved in the irrigation affairs.

All the collected information was completed by means of a literature review, documents provided by the WUA, and official documents. The last month of my fieldwork, I presented my preliminary results to the WUA's directory. It was very important because I obtained some of inputs from them. This method I have used in previous researches as a way to "validate the results" and to compare my preliminary results vs. water user' points of view.

CHAPTER 2. IMT in 90's

2.1 Introduction

Since the early 1980's the institution for water management in Ecuador has been influenced by neoliberal policies (CDES & SIPAE, 2008). Under these policies the National Institute for Water Resources (Instituto Nacional de Recurso Hídricos; INERHI) has been affected by its responsibilities being replaced by projects or programmes supported by international funding, which were the 'initial signs' of its dismantling. The official dismantling of INERHI took place during the 1992-1994 period, because of legal changes that led to the replacement of this institution by a National Council of Water Resources (Consejo Nacional de Recursos Hídricos; CNRH) and Regional Development Corporations (Corporaciones Regionales de Desarrollo, CDR´s). At the same time, the Irrigation Management Transfer (IMT) was implemented by the creation of the Executive Unit of Technical Assistance Project (Unidad Ejecutora del Proyecto de Asistencia Técnica, UEP- PAT) with international funding.

The materialization of UEP-PAT´s objectives were established during the period 1994 to 2001 by means of three international consultants, which gave technical support in implementing the transfer process from regional corporations to water user associations (WUAs). The external consultants were located in the Andean and Coastal regions to apply UEP-PAT's programmes in all irrigation systems, which had been selected for transfer. However, the local conditions modified the implementation of these programmes.

In order to understand how IMT was incorporated into the government agenda and how this began to take shape during the implementation process, I propose in the first section to review the main historical and political context that influenced changes in the irrigation sector, highlighting UEP-PAT's intervention as the most important 'entity' in the transfer process. In the second section, I explain how this policy was taking shape in accordarce with to local conditions as a result of the interaction of main actors such as international consultants, regional corporations, and water users.

2.2 Preparing the ´field´ for IMT implementation

To implement IMT, the first step was to re-organize the public institutions with the support of international funding agencies. These changes began in the mid 1980's and were more profound in the early 1990's. To understand how IMT became established in 1994, it is necessary to look more closely at the historical and political changes as part of the water reforms in Ecuador. To reach this level of understanding, I divided the background into three periods: a) the first period from 1988 to 1992. The preparation of decentralizing the responsibilities of the National Institute of Water Resources (Instituto Nacional de Recursos Hídricos; INERHI); b) the second refers to the official dismantling of INERHI from 1992 to 1994; and c) the third introduces UEP-PAT's intervention into the transfer process from 1994 to 2001. The changes occurring in these three periods led to a transfer of the public irrigation systems from the state to water user associations.

a) Preparing the way to decentralize of INERHI's functions (1988-1992)

INERHI was the main authority on water management in Ecuador from 1966 to 1994. INERHI had three principle roles , which are defined in the Water Law (1972): a) to plan, administer, and regulate all water resources (privately, publicly, in rural and urban areas); b) to plan and administer all activities related to irrigation, drainage, and flood control; and c) to study, construct, and operate irrigation systems. In line with this, prior to and subsequent to the establishment of INERHI, other public agencies were linked to water management[5] (Whitaker, Colyer, and Alzamora, 1990).

During the period 1985 – 1988, 87% of INERHI's(average) budget was invested in the construction and operation of irrigation systems, being its main focus (Whitaker, Colyer, and Alzamora, 1990). The decentralization of INERHI's functions started during the Rodrigo Borja presidency (1988-1992), when several projects from The World Bank and the Inter-American Development Bank replaced the INERHI's responsibilities. The Social Welfare Ministry through the National Programme of Rural Development (Programa Nacional de Desarrollo Rural; PRONADER)[6] and Project of Development Integral Rural (Desarrollo Rural Integral, DRI) assumed INERHI's main responsibilities and extended them to several provinces (CDES & SIPAE, 2008). Among PRONADER's responsibilities was *"rehabilitation and implementation of rural infrastructure mainly on roads, irrigation, marketing facilities, and contribution in flood control*" (CAIC, 2008). It caused a 'de-structuring' in INERHI, whose impact on irrigation management at national level was diminishing.

b) The official dismantling of INERHI (1992-1994)

Partial dismantling of INERHI (necessitated substituting its main role) and eventually it was demolished completely. Therefore, the Sixto Durán presidency (1992 – 1996) implemented the Law of State Modernization, Privatization, and Provision of Public Services (Ley de Modernización del Estado, Privatizaciones y Prestación de Servicios Públicos) in 1993. This law included a plan for privatizing some public institutions, in order to reduce government expenditure and increase efficiency by means of private sector participation (Whitaker, 1996).

The main consequences resulting from 'institutional dismantling' were: a) weak presence of the water authority at the national level; b) dispersed and sectoral institution; c) contradictions between decentralization policies and the current institutional schemes; d) conflicts between public institutions for assigning resources and responsibilities (especially among Provincial Councils and Regional Development Corporations) (CDES & SIPAE, 2008).

Moreover, this law represented legal and political justifications to establish the Executive Decree No. 2224 in 1994, which brought about two important changes in irrigation management. On the one hand, this Decree was the legal foundation for implementing IMT by means of Irrigation the Project Unit (Unidad de Proyectos de Riego; UPR). This Unit was responsible for putting into effect all Technical Assistance Project activities (Proyecto de Asistencia Técnica, PAT) in the irrigation sector

[5] CEDEGE, CRM, CREA, PREDESUR, INAMHI, and national and regional public institutions linked on operation of irrigation systems (Provincial and Municipal Governments, MAG, INIAP, CAME).

[6] 31% of PRONADER's budget was invested on irrigation infrastructure and flood control. This program had a bank credit from World Bank of 112,7 million dollars.

(Official Register 558, 1994) in the World Bank credit framework. The UPR's functions were "*…to administer and give logistic support to the Technical Assistance Project operating in the irrigation sub-sector…Furthermore, it should advise and coordinate with the public institutions on policies and water resource management in Ecuador. Moreover, it will also make evaluations and studies"* (CDES & SIPAE, 2008). Subsequently, UPR changed its name to Executive Unit of Technical Assistance Project (Unidad Ejecutora del Proyecto de Asistencia Técnica, **UEP-PAT**). UEP-PAT was created as an administrative unit and is part of the Ministry of Agriculture and Livestock (Ministerio de Agricultura y Ganadería; MAG).

On the other hand, this Decree established the National Council of Irrigation Management (Consejo Nacional de Recursos Hídricos; CNRH). Initially, the Ecuadorian Government intended to re-allocate INERHI for the purpose of decentralizing its functions and to maintain and regulate its operations, but it was eventually replaced (see Annex 1). According to Cremers et al. (2004), the reduction and separation of state tasks and incipient regionalization were reasons for replacing the INERHI (Boelens, et al., 2004). In order to achieve some of these objectives, the Regional Development Corporations (Corporaciones Regionales de Desarrollo, CRD's), were allocated their own budgets and operated autonomously[7] (Official Register 558, 1994). The administration, operation, and maintenance functions of the public irrigation systems were transferred to these Corporations with CNRH's cooperation (Boelens, et al., 2004).

CNRH's functions involved regulating the administration of public irrigation systems and legalizing their transfer to water users. Therefore CNRH´s purpose was related to funding, guaranties, and mechanisms for collecting public investment funds, which could then be transferred. Furthermore, this institution used alternative methods if water users failed to meet their obligations (Registro Oficial 558, 1994). Whereas one of CDR´s function was to hand over irrigation and drainage to water users (Boelens, et al., 2004).

On the other hand, MAG allowed UEP-PAT to be incorporated in the same bureaucratic circles in which it operated. Including UEP-PAT in the Ministry was in line with the loan bank's conditions and this project had to report on its performance to the Ministry as stipulated in the bank agreement: *"…the borrower keeps the UEP-PAT in the MAG and this had to 'respond' directly to the Minister through of its responsibilities satisfactory with bank…"* (CDES & SIPAE, 2008). However, there were not any control mechanisms on UEP-PAT's performance as mentioned by MAG´s staff, who felt 'uncomfortable' UEP-PAT's autonomous way of working, because there was no any control neither was there any monitoring or technical evaluation made by the Ministry (CDES & SIPAE, 2008). This reveals that one of the MAG's roles during transfer process was providing physical conditions rather than controlling, monitoring, and supervising UEP-PAT's activities, i.e. the Ministry allowed UEP-PAT to work freely without any kind of supervision.

CNRH's and MAG´s roles were more concerned with facilitating the implementation and setting up of UEP-PAT rather than ensuring that the transfer process was made in the correct way.

[7] CORSICEN, CORSINOR, and CODELORO. In 1997, it was created CODERECH (Execute Decree 745) and in 1999, it was created CODERECO (Execute Decree 1496) (Hendriks & Mejía, 2003a)

c) UE-PAT's intervention and the transfer process (1994-2001)

Once it had been achieved "institutional restructuration" in the irrigation sector (as it demonstrated previously) the Ecuadorian government was granted credit[8] by The World Bank of 20 million dollars[9] to implement UEP-PAT. An important point to mention here is that UEP-PAT was designed at least four years prior to its official establishment by International Agencies. A preliminary report and a final study were made by BID/WB and FAO/FC respectively, about the investment in the irrigation sector in 1990, which reveals institutional re-organisation was a condition for getting a bank loan. Moreover, this manifests the intention of international banks to introduce institutional reforms in the government's agenda.

> *...there is a necessity to implement institutional reforms ... providing that the institutional scheme is adequate, the banks (i.e. BID and WB) will grant financial support to the irrigation sub-sector along economic resources and technical assistance" (*Preliminary report on the irrigation sub-sector, BID/WB, 1990).
>
> "*Future bank credits in support of irrigation projects will depend on how the institutional broad re-organization is finalized*" (Final study of the irrigation sub-sector, FAO/CP, 1990)

In October, 1994 the Ecuadorian government and the International Bank for Reconstruction and Promotion (Banco Internacional de Reconstrucción y Fomento; BIRF)[10] signed an agreement to finance the setting up of UEP-PAT with additional government resources (CDES & SIPAE, 2008). The original objectives of this agreement were: a) to decentralize the operations and expenditure of the public institutions in the irrigation sub-sector; b) to promote the sustainable participation of the private sector as a mean of improving their use and making irrigation systems more efficient; c) to develop an administrative framework to regulate and secure the future investment in irrigation systems at the national level. After the initial supervisory mission made by the BIRF in 1995, which had two objectives: d) to modernize the public institutions connected with the irrigation water management; and e) to improve the policies and to design of the irrigation and drainage projects.

Within the UEP-PAT's framework, an inventory of irrigation projects at the national level was prepared. By means of IDEA foundation's Director and Morris Whitaker, a pre-selection of the liable pilot projects to be transferred was begun. Initially, IDEA included 142 irrigation projects viable to be transferred, which regarded to 56 under operation, 21 under construction, and 65 under study. However, at the end, 10, 10, and 9 respectively (total 29 pre-selected irrigation projects) were chosen. Morris Whitaker was a key actor during the negotiation process between the national government and the World Bank (WB). He participated during the preparation and revision of the official documents related to UEP-PAT and engaged in the WB meetings. Furthermore, he was encouraged to review and translate the official document for the government. In June, 1999, UEP-PAT and Whitaker signed a contract to perform all activities of the project (CDES & SIPAE, 2008).

[8] The World Bank accorded credit to this bank credit under the reference 3730-EC
[9] This credit was part of Ecuador's external debt
[10] BIRF was the first institution of the World Bank Group. It was created in 1944.

Thereby, he became part of the UEP-PAT´s staffs during the transfer process. This indicates that before implementing the process, a closer relationship with IDEA's officials was formed. This will explain why UEP-PAT was created without consideration the bureaucrat circles.

On signing the loan agreement, UEP-PAT had the resources both financial and physical to work on the transfer process. The intention was to work from 1994 to 1999, however, it was only finished in 2001, which caused pressure to renegotiate more credit. The loan agreement included the hiring of external consultants, who developed the transfer of the irrigation systems. In 1995 UEP-PAT began the hiring process under the supervision of the WB and planned to put the work into effect in 1997. The external consultants worked until 2001, increasing contractual costs from 9 million approximately dollars (CDES and SIPAE, 2008).

The specific objectives of UEP-PAT were: i) to decentralize the management of the irrigation systems to water users, by transferring administrative, operational, and maintenance responsibilities from the government to water users (this process did not include the transfer of ownership of the water infrastructure); ii) to reduce the public expenditure in administration, operations, and maintenance of the public irrigation systems; iii) to increase the production and the users' livelihoods, via active participation in the integrated water management; iv) to improve the provision of services as well as the design of an investment and cost recovery for administration, operation, and maintenance (Hendriks & Mejía, 2003a).

International consultants were contracted by UEP-PAT during the planning and implementation stages, so that the transfer process could be accomplished. The international consultants were: Utah State University (Universidad del Estado de Utah; USU), Development Alternatives (Alternativas de Desarrollo, DAI), and Associates Consortium for Rural Development – Lotti (Consorcio Asociados para el Desarrollo Rural, ARD).

Their main responsibility was to provide technical assistance to CDR's and WUA's at the field level, following three programmes initiated by UEP-PAT:

a) Organizational strengthening: this focused mainly on the ongoing process, training water users in operational, administrative, and maintenance activities, and also leadership
b) Rehabilitation of the irrigation infrastructure: this concerned on improving the physical conditions of the irrigation infrastructure, planning activities, budgeting, and taking preventative and corrective measures to maintain the irrigation systems
c) Agricultural development: It focused on training farmers to improve agricultural production and marketing

UEP-PAT proposed the transfer of 7 irrigation systems, as ´pilot projects´ (1 by CDR) and this number was eventually increased to 19. By June 2000, 24 irrigation systems had been transferred and 35 by 2001 (Hendriks and Mejía, 2003; Vasquez, 2003). UEP-PAT was the most prominent 'entity' that transferred maintenance, operations, and administrative responsibilities to water users. It transferred 35 of the 39 irrigation systems in total at the national level.

From 1994 to 1995 not one irrigation system was transferred, because UEP-PAT focused on the hiring consultants who would provide technical support selected on merit and under the supervision of the WB (CDES & SIPAE, 2008).

Thereafter the transfer process was beginning to take effect and with the support of consultants by the end of 1996, showed signs of a 'slow track' (Rap, 2004). From 1996 to 2000, the majority of public irrigation systems had been transferred to water users at the national level, i.e. 24 irrigation systems over a period of four years. Finally, fast tracking took hold in 2001. The external consultants transferred 15 irrigation systems in this particular year i.e. more than 50% of the number of irrigation systems which had been transferred during the period 1996-2000. The transfer process by UEP-PAT was effectively finalized in June, 2001 with a total area of 92.855 ha transferred into 35 irrigation systems. This is illustrated in the following figure.

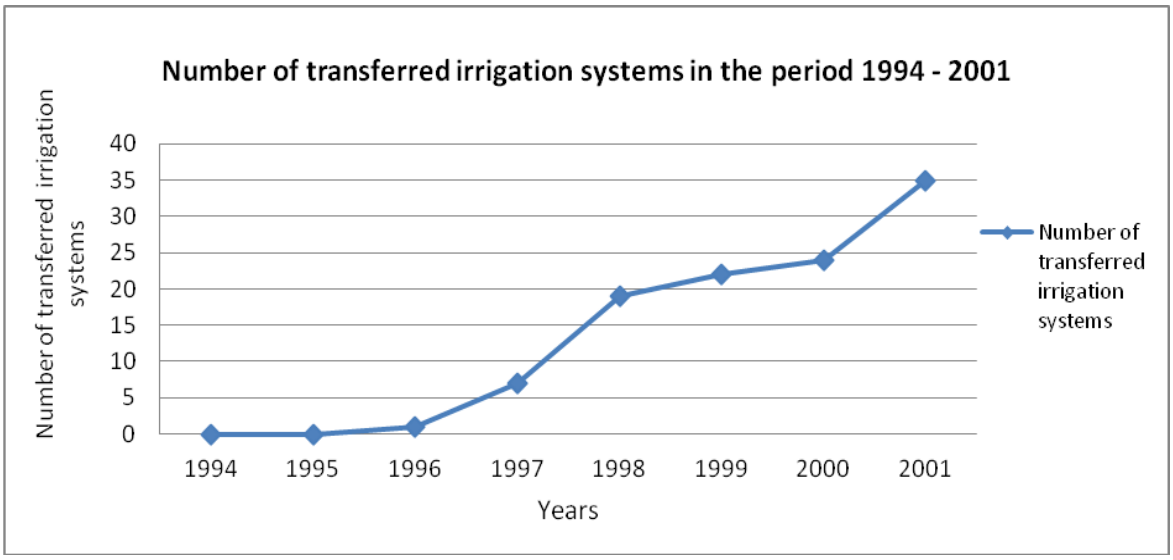


Figure 4. Number of irrigation systems transferred during the period 1994-2001

An interest point worth mentioning here is that UEP-PAT not only focused on the transfer process during its seven years of work, but it was also obliged in addition to prepare the National Strategy to Manage Water Resources. The Ministry of Agriculture and Livestock (Ministerio de Agricultura y Ganadería, MAG) decided that CNRH and UEP-PAT had to prepare this strategy. Its preparation was set out in the conditions for the loan to support whatever procedure was related to developing water resources. Writing of the document started in 1996 and was finished in 2000. The final document was entitled 'Integral Management of Water Resources in Ecuador: problems, policies, and strategies'. It cost of more than a million USD (CDES & SIPAE, 2008). This demonstrates that UEP-PAT´s participation not only focused on the transfer process but also on broader scope aspects concerning the plan of irrigation management at the national level in coordination to MAG and CNRH.

> *"It is necessary that this country (referring to Ecuador) has a National Strategy to Manage Water Resources, as a prior condition to carry out future operations related to the development of water resources, with bank finance"* (Memorandum No. SCP-DGCEM 94-167 in CDES and SIPAE, 2008)

These three periods reveal how was shaping the introduction of IMT on the Ecuadorian government's agenda, together with the World Bank´s powerful influence. Going through the perspective of Grindle and Thomas (1990) that policy is an interactive process, I identified that the World Bank was the main source for pressuring the incorporation of IMT policy on the government

agenda at least four years before establishing officially. The characteristics of the policy were focussed on political and technical factors. The political factor was characterized by the persuasiveness of the international pressure exerted by the World Bank to include the institutional reforms in the governments' needs. As part of these reforms, IMT took place. In the same line, by means of a technical analysis (previous studies and reports made by WB, BID and FAO on irrigation sub-sector) provided the technical elements to justify the incorporation of reforms on the policy agenda. This was a strategic management from policy makers to determine the necessity of institutional reforms in the irrigation sector. When the government did it, this was given the technical and economic support by the WB in the form of credit. Thus, the institutional re-organization of irrigation management ensued from the WB's initiative as a condition for the loan.

2.3 Implementation of IMT

Once re-organize the water sector' institutional it was possible the introduction of IMT which count with the international funding. Through a loan agreement between the Ecuadorian government and the World Bank, UEP-PAT was established in order to provide the technical assistance during the transfer process. Following the establishment of UEP-PAT, the contracting international consultancies took place. These consultancies began implementing UEP-PAT´s programmes and provided technical support to CDR´s and WUA´s at the field level (see Figure 5). In this section, I will focus on IMT´s implementation, taking into account the main role of the international consultants, CDR´s and WUA´s during this process.

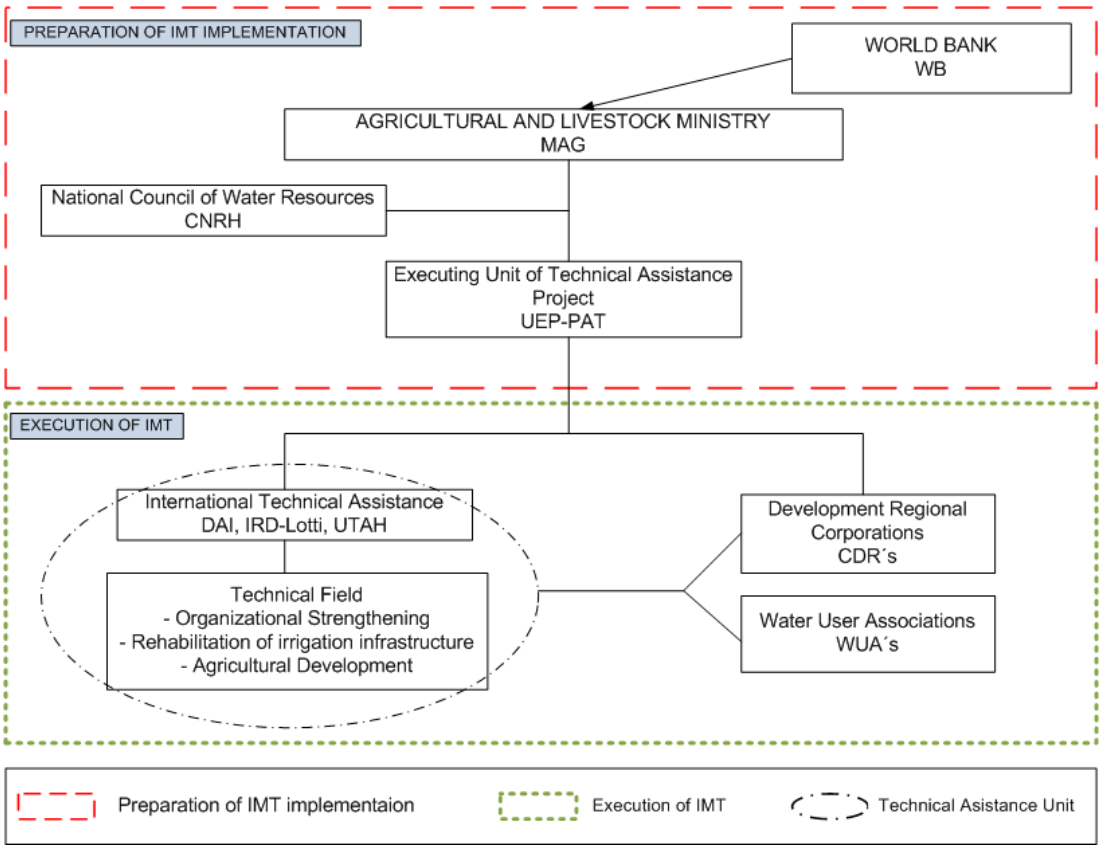


Figure 5. Institutional diagram of IMT process

Source: Adapted from Vasquez, 2003

2.3.1 International Consultants and Regional Development Corporations

UEP-PAT transferred 35 irrigation systems, which represent 41% of the total irrigation systems at the national level with the help of international consultants. In terms of irrigated areas, it represents 60% (92.855 ha) of sum total of irrigated land (154.006 ha) in Ecuador (SENAGUA, 2008).

To undertake the transfer process, international consultants were located both in the Coastal and Andean regions to implement of UEP-PAT´s programmes (see Annex 2). On the one hand, USU worked in the Northern and Central Andes, where CORSICEN, CODERECH and CORSINOR used to be located. This consultancy organization transferred 8 irrigation systems which represents 26% of the sum total of transferred irrigated land. On the other hand, DAI worked in the Southern Andes in which CREA and PREDESUR regional corporations used to be located. This consultancy organization transferred 15 irrigation systems which represents 7% of the irrigated land. Finally, IRD-Lotti was set up in the Coastal region and transferred 12 irrigation systems representing 67% of the total amount of land irrigated land during this process. This consultancy took action in the area of CEDEGE, CODELORO, and CRM were located (See Figure 6).

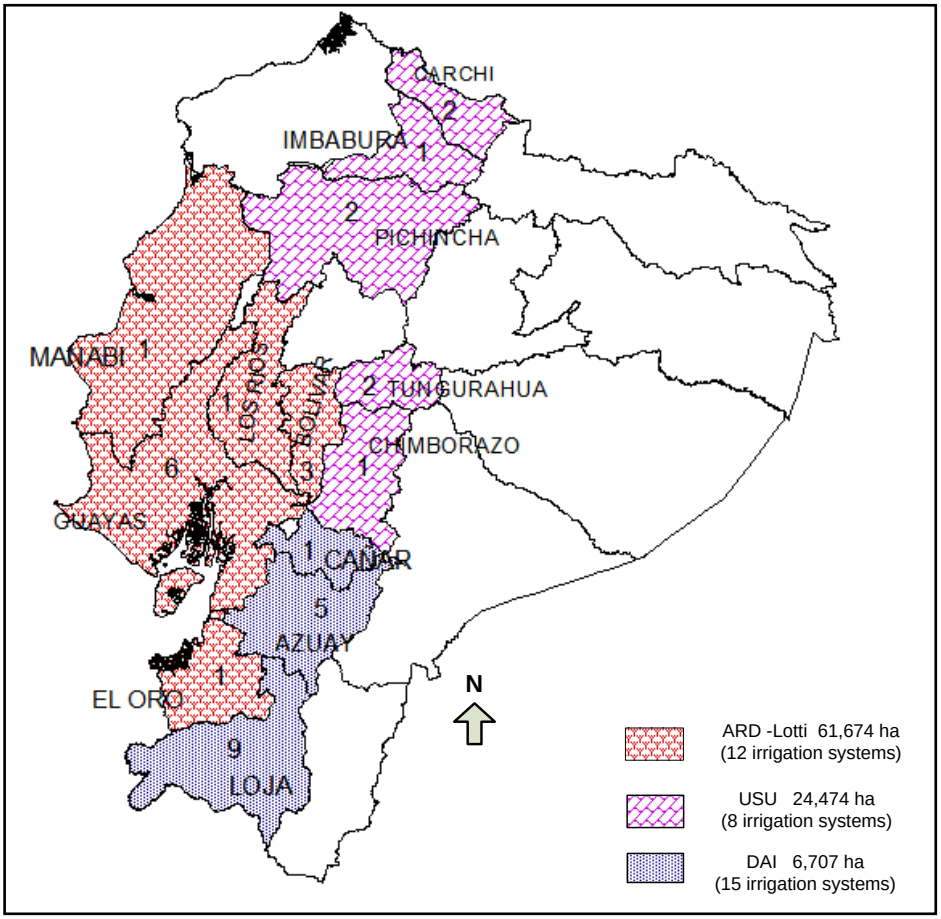


Figure 6. Irrigation systems transferred by international consultants

The main role of the CDR´s in carrying out the transfer process was to coordinate activities between the international consultants and WUA´s in accordance with all the programmes being implemented. International consultants managed the economic resources allocated to implement the various UEP-

PAT´s programmes at the field level, via CDR´s. For example, in the organizational strengthening programme the main role of CDR´s was to coordinate with consultants to arrange and/or supervise training courses for water users. In the rehabilitation of the irrigation infrastructure program, CDR´s were instructed to obtain and deliver the materials, tools, and equipment to WUA´s; to deal with minor operations and maintenance works; and supervise these tasks with the consultants. Moreover, in the agricultural development programme, CDR´s monitored agricultural development plan and supervised of agricultural training for water users. This indicates that the management of the economic funding was a coordination between CDR´s and consultants without taking into account any budget control by the water users, i.e. that these agencies had complete autonomy over all expenditure in the different programmes.

On the other hand, the consultancy teams were formed mainly by foreign staff who received a monthly wage of 18.000 USD each, additionally UEP-PAT covered minor expenditure (international flights, social activities. etc.) for the members of staff (CDES & SIPAE, 2008). A national team supported the transfer process and they were specifically given minor tasks by the international consultants to coordinate with the CDR's. During the implementation process, expenditure focused mainly on consultant´s payments rather than benefiting the water users for rehabilitation irrigation canals and O&M training as mentioned by Moscoso (2008): *"85% of the credit bank in the UEP-PAT framework was used to pay for administration, goods, and wages of consultants and 15% for the rehabilitation of irrigation canals and training water users"* (Moscoso, et al., 2008). This reveals that the UEP-PAT funding was used mainly for the benefit of the consultants rather than improving the physical conditions of state irrigation systems and developing human capacities in the WUAs. It is important to take into account that some irrigation systems had been in operation for several years such as the Poza Honda where the water users took over the system with ´fixed problems´ relating to infrastructure (Chong, 2003). According to Hendriks and Mejía (2003) "*the most frequent problems is relate to infrastructure and many organizations do not have the investment capacity to make repairs when sudden failures occur*" (Hendriks & Mejía, 2003a).

This information demonstrates that the lack of investment during the transfer process meant that infrastructural problems had to deal by water-users themselves. The problems that WUAs had to deal with not only focused on rehabilitation of infrastructure but also on the resultant consequences such as loss of water during transportation, causing a lower amount of water to be delivered to water users. This reduction will result in struggles to access water and conflicts will arise among water users. The resultant conflicts meant that the WUA had to have the ability to resolve these problems as well. Moreover, the lack of investment in rehabilitation infrastructure indicated that the WUA´s had to anticipate additional expenditure in their budget for such works, thus removing the possibility for investment in other areas. In other words, the problems resulting from the lack of support to WUA´s by consultants, led to several organizations developing their own strategies to deal with its problems during and after the transfer process.

2.3.2 Water User Associations

During implementation of the transfer process, WUAs had to comply with several ´requirements´ in order to have access to do it. Among these requirements were: motivation, organization, and

development of capacities by water users (Hendriks & Mejía, 2003a). Subsequently, the official transfer agreement was signed by the WUA so that the irrigation systems could commence and be managed, by them taking on some of the responsibilities required by the State.

a) *Motivation*

Firstly, water users needed to feel motivated to take on the O&M responsibilities. In some of cases, the most important motivation was related to providing a better service than CDR's (Hendriks & Mejía, 2003). In some of the irrigation systems there was an infrastructure ('abandoned'), in the sense that many operations and maintenance works were not neglected by public institutions during the final years that they were active. The possibility that these irrigation systems could be managed by water users, created an opportunity to improve the water irrigation services. Furthermore, this possibility created expectations of a reduction in costs to manage these systems, for example, the expenditure on O&M works, because the water users could provide an opportunity to 'dispense' with administrative bureaucracy in public institutions (CDR's), because the farmers always considered that administrative staff were in excess, earning high salaries, hence they could hire fewer administrative workers to manage their systems. However, there were also organizations which were not interested in the management of the irrigation systems.

b) Organization

Another important requirement was to form a water user association in every irrigation system. These associations were not all formed at the same time and for the same reasons. As for example, in the Manuel J. Calle irrigation system, WUA was formed five years before the irrigation system was formally transferred to water users, because they feared the irrigation system would be managed by 'big private companies' via the Modernization and Privatization. For this reason, they decided to take the system in own their hands and manage it themselves. This situation did not arise in the El Pisque irrigation system, where the water user association was formed one year before the formal transfer took place, because they had serious problems with part of the infrastructure and as the public institution did not have the economic resources to resolve it, they decided to deal with this problem themselves. In other cases, there were the establishment of some fictitious organizations (Plan Nacional de Riego, 2011) in order to justify the UEP-PAT's performance.

To enable the formal transference to take place, it was necessary that WUA's had legal membership, which allowed transfer process to be undertaken in a formal way. The organizational strengthening, as part of three UEP-PAT's programmes, was the ´supported´ necessary for the WUAs to get a legal membership. On becoming legal members a document entitled 'Tripartite agreement to rehabilitate and reinforce services between WUA, CDR's, and UEP-PAT' was signed. On the basis of this agreement the water users had official access to UEP-PAT's programmes during the transfer process. However, they were not implemented by every irrigation system in the same way as will be detailed in the next paragraphs.

c) Capacity development by water users

In implementing the transfer process it was necessary to generate technical, economic, and administrative capacities within water user organizations. The implementation of the programmes was the responsibility of the international consultants in coordination with the CDR's, however the

programmes were not implemented in the same way and/or at the same time in the irrigation systems, causing diverse reactions from the water users associations to deal with the resultant shortcoming. I will use three examples to explain this.

- The transfer process took place from 1997 to 2001, via DAI, in the Chicticay-Paute irrigation system, however this organization was run by itself before the official transfer process began. This organization started in 1993. CREA (CDR) did not have immediate management support for this system during the transfer process, however, when WUA needed information the technicians provided them with it. Within three programmes of UEP-PAT, DAI focused mainly on Agricultural Development, investing 54% of the total budget in the transfer process (see Table 1). This consultancy provided support to producers by means of technical assistance on crops and planning the modernization of irrigation projects. Furthermore, it was a means of support to the organizational strengthening and rehabilitation of infrastructure programmes using a lower percentage than for the agricultural development programme. With the termination of DAI's support (after 2001), the producers had problems with pests-control on their crops and agricultural production was less. They did not receive any support from other public or private agencies during that time. This led to the leaders of water user association to apply strategies for supporting farmers through the water user organization, by means of increasing water fee, pressurization of irrigation in crops diversification, micro-credit in agricultural production, and marketing at the local level (Arroyo, et al., 2011).

- In the El Pisque irrigation system the transfer process started at the end of 1999 and finished in mid-2001. The CORSINOR's support (CDR) was limited. The Utah State University (USU) was consulted for technical support throughout the whole process. This focused on rehabilitating the infrastructure and organizational straightening, which cost 55% and 23% of the total budget for the transfer process, respectively (see Table 1). This system did not receive any financial support for agricultural development. The majority part of the rehabilitation infrastructure programme was used to re-construct an important section that was destroyed towards the end of the 1990´s, is why the water users began to organize things by themselves and sought economic support. Farmers received training in operations, maintenance, and administration skills in less than one year. An additional programme that USU provided for irrigation systems which were under its responsibility, including El Pisque was entitled 'Basic Studies and Modernization', which was implemented mainly by national consultants. However, this was not finalized totally. Subsequent to USU's intervention (2001), the WUA was concerned about the users' census update, straightening of 'modules irrigations' and rehabilitation of secondary canals, and almost anything relating to agricultural development.

- In the Manuel J. Calle irrigation system the official transfer to water users took place in 1998. CEDEGE (CDR) did not play an important role during the transfer process, because it was relinquished of its responsibilities in the irrigation system after WUA took the control in 1993. The economic support from IRD-Lotti was focused mainly on the getting of machinery to the maintenance operations, amounting to 87% of the total budget which had been allocated to the transfer process (see Table 1). Moreover, WUA had technical assistance in agricultural

development; however, this did not have much influence on the area. The organizational strengthening programme was not implemented in the area because it was considered that WUA had had adequate experience here, taking into account that they had managed the irrigation system for quite a number of years prior to implementation of the transfer process. Following the transfer, WUA focused on rehabilitation of canals, cleaning them, and the operational activities.

These three examples indicate that the programmes were implemented in a different way by the consultants owing to the variance of circumstances in the irrigation systems. When the irrigation system had been organized, the organization alignment programme was not a priority and the economic resources were allocated to other areas. For example, in the Chicticay-Paute and Manuel J. Calle irrigation systems, which had a degree of organization, the economic resources were allocated to the agricultural development programme and activities relating to improving the infrastructure. On the other hand, the El Pisque WUA irrigation system was formed one month prior to the official transfer, the most important part of the programme being the rehabilitation of the irrigation infrastructure. The necessity to resolve its infrastructure problem led to this area being given more priority than the other programmes.

Moreover, it is important to highlight that out of three irrigation systems, two had been organized by the water users themselves prior to the transfer process. This means that the organizational level and experience the water users had acquired over several years had an important bearing on which irrigation systems were selected by the international consultants in the transfer process, because the ´terrain had already been prepared'. This factor was advantageous for the international consultants, because it enabled them to get approval from water users via the newly-created WUAs in much less time than they would normally spend implementing programmes in irrigation systems not having any organizational structure at all; and this gave them the opportunity to learn from water user experience.

Furthermore, it became evident to the international consultants that the organization of water users could be an influential factor in selecting an irrigation system as was the case in the Chicticay-Paute and Manuel J. Calle. However, in case of the El Pisque irrigation system the situation was reversed and the support requested from water users to the international consultant (USU) was accepted. It was logical in the sense that the ´success´ of the transfer process was assessed to the number of irrigation systems transferred and their surface area on the national scale as reported by Hendrinks & Mejía (2003) *"Although UEP-PAT had only a limited amount of time, the project was considered to be satisfactory in according with achieving the goals that had been set. It had superseded its original objectives by 400% taking account of the irrigation districts and the number of hectares rehabilitated and transferred*" (Hendriks & Mejía, 2003b).

On the other hand, the time allocated to implementing these programmes was different. In the Chicticay-Paute irrigation system the support lasted for approximately four years, while in the El Pisque and Manuel J. Calle irrigation systems it was less than one and half years. However, some factors not taken into consideration could have influenced the programmes adversely, causing slower development water users´ skills, which affected how they dealt with their problems. This

reveals that the circumstances governing the irrigation systems from the outset were different for each irrigation system and dependent on the development capacities these were (or were not) improved. For example, in Chicticay Paute a credit project to support the agricultural production and modernization of irrigation had been created; while the El Pisque irrigation systems had the economic resources to deal with emergencies relating to infrastructure, however, these did not have an important influence on agricultural development. In the Manuel J. Calle case, WUA used a great amount of effort to 'recuperate' canals through maintenance works and they gave less impetus to reinforcing the organization and agricultural development.

The economic resource attributed to UEP-PAT's programmes, by the international consultants to water users are presented in the Table 1.

Table 1. UEP-PAT's programmes implemented in three irrigation systems during the transfer process.

Irrigation systems transferred	Transfer process		UEP-PAT's Programmes									
			Organizational Strengthening		Rehabilitation of infrastructure		Agricultural Development		Basic studies and modernization		TOTAL	
	Start year	Year finalized	USD	%	USD	%	USD	%	USD	%	USD	%
El Pisque	1999	2001	30.772	23	75.225	55	0	0	29.590	22	135.587	100
Chicticay Paute	1997	2001	21.100	29	11.814	17	38.675	54	0	0	71.589	100
Manuel J. Calle	1998	2001	0	0	*50.000	87	*7200	13	0	0	57.200	100

*These data are approximations

Source: Arroyo, García, and Robles, 2011; Field work, 2011.

d) Water users take charge

Another point worth mentioning is that while executing the transfer process the WUA's signed the formal agreement with CDR, which their acceptance of the responsibilities to comply with these organizations.

Firstly, WUAs were given administrative, operational, maintenance and preservation responsibilities to maintain the irrigation infrastructure at a high level. This infrastructure is the property of the State. Although, this infrastructure is the property of the State on 'paper', some of the WUA's did not receive support from the public sector on problems relating to it in 'practice'. For example, in the Manuel J. Calle irrigation system there is a section of main canal that had been destroyed many years ago, however, the public institution has not resolved it as yet.

Secondly, WUAs had to maintain the irrigation systems in the way in which they had been created (irrigation, drainage, for example).

Thirdly, WUA had to pay the State a 'basic water fee' through CDR's until investment recuperation was established by Water Law (1972) '*Water-user organizations or Water Boards will have to pay the basic water fee annually to the Development Regional Corporations, taking into account the investment made by the State that will be adjusted according to taxes imposed and amortization up to the maximum payment of the investment value*" (Water Law, 1972). In 1993, there was a formula

for recovering public investment through CDR´s. The formula[11] determined the recovery 75% of the investment value over a period of 50 years (Hendriks & Mejía, 2003a).

The majority of WUA's were not able to pay this fee, because the economic resources amassed in the initial years of management were invested in activities relating to its main priorities. For this reason, the WUAs were not able to pay the public institution immediately and the WUA's revenue was not sufficient to pay the basic water fee. For example, in the El Pisque irrigation system, the WUA paid CORSINOR for the first time in 2004 i.e. four years after the transfer process had taken place.

Moreover, it was established in the agreement that the WUA's were authorized to collect a volumetric fee from water users to maintain, operate, and administer the irrigation systems. The volumetric fee was divided between annual O&M expenditure and the number of cubic meters used annually by an irrigation system (Hendriks & Mejía, 2003a). However, in practice this was established by the General Assembly of Water Users without consideration being given to the technical parameters. Each irrigation system had the option to implement the volumetric fee in accordance with its own criteria. For example, in the El Pisque irrigation system, the fee differentiation depended on the area of land; whereas in Manuel J. Calle irrigation system, the water fee was established in according with area of land and water source (surface or groundwater).

This section was focused on the implementation of the IMT. After decision-making on 'necessity' to establish IMT policy on the government´s agenda, the implementation process took place. The decision makers left the implementation in the hands of external consultants (ARD Lotti, USU, DAI) who were responsible to implement three UEP-PAT's programmes. As Grindle (1980) points out that a considerable amount of political participation and accommodation of interests occurs during the implementation of policy (Grindle, 1980 in Thomans and Grindle, 1990). In this case, the interests, needs, and reactions of water users were different in according with every irrigation system. For that reason, no all programmes were implemented at the same time and at the same way. However, they considered that the irrigation systems such as the Manuel J. Calle and El Pisque were systems had enormous advantages to increase the 'success' of the policy, because these had a sufficient area of land.

2.4 Conclusions

This chapter reveals that the introduction of IMT policy on the Ecuadorian government´s agenda responded to the World Bank's powerful influence. The previous studies and reports made by WB, BID, FAO, IDEA on the irrigation sector provided the justifications to incorporate the 'necessity' to re-organize the institutional-apparatus in irrigation management in the country. Once achieved it (as a condition for getting a loan) the World Bank allowed the government to be provided the economic resources to begin the transfer process.

In order to achieve the transfer process´ objectives, UEP-PAT was established. This was an autonomous-technocratic body with own financial and staff resources, which shared the same bureaucratic circles in which MAG operated. However, the State did not have any control on the

[11] Formula ($/ha/year)= (75% x investment – recovered amount) / (irrigable area (ha) x 50 years)

UEP-PAT's decision-making; providing it the opportunity to contract three international consultancies (ARD-Lotti, USU, and DAI) which were located in the Coastal and Andean regions to implement their programmes. Its extent of autonomy led to circumvent the national bureaucracy, interposing it and carrying out its responsibilities with a total freedom.

The initial intentions of the international consultants were focused on the implementation of the UEP-PAT´s programmes just as it was formulated, i.e. all programmes in the irrigation systems selected for transfer. However the reactions, needs, and interests of water users were influential factors which modified it. Thereby, no all programmes were implemented at the same time and at the same way. Age of organizations and reasons of their formation, were important factors, which determined their implementation at the local level. Hence, IMT policy responds to a dynamic process which might be altered at any stage in its life cycle in accordance with the reactions emerged from the local actors (such as WUAs), influencing on the policy managers' decision-making.

CHAPTER 3. The transfer process in the El Pisque irrigation system

3.1 Introduction

There are some assumptions which point out that the largest irrigation systems have been transferred by the State´s initiative, including the El Pisque irrigation system as part of that. In this chapter, I will demonstrate that the transfer process was a social construction by the interaction of economic groups who made decisions in a crisis situation and demanded their inclusion within the process. As a result the local water rights of the water users were modified. In order to understand how the transfer process transformed the existing forms of local water rights and their irrigation practices, in the first section, I will provide an explication on how the irrigation system was carried out by the public management before introducing the transfer process. This will be explained taking into consideration the period 1960-1994. Subsequently, in the second section, I will outline the transfer process itself, taking into account the main actors and their organizing practices during the period 1994 to 2001. The third section refers an overview of the initial stages of the WUA´s management and its role in the decision-making process in managing the irrigation system. Finally, some conclusions are provided.

3.2 Dynamics of water rights during the public institution's management (1960-1999)

In this section, I will explain the public irrigation management before introducing the transfer process, highlighting the operation, access rights, and control rights during the period of management of the National Institute for Water Resources (INERHI) and the Regional Corporation for the Northern Andes (Corporación Regional de la Sierra Norte, CORSINOR). In the same line, I will also explain how the reference water rights were materialized in practice.

3.2.1 INERHI's era (1966-1994)

By means of Agrarian Reforms in 1964 and 1973, the ex-huasipungueros of the *Haciendas*[12] in this area were given access to small plots of land as compensation for the time they spent serving in the haciendas. An example was the Guachalá Hacienda where a part of its land was used by indigenous communities and another part of it was sold for agricultural production (Becker, 1997). The location of plots determined the access to water, whereby, some of ex-huasipungueros had access to water and did not.

At that time, the El Pisque irrigation system was in its final phase of construction, which was begun in 1945 by the *Caja Nacional de Riego* (National Irrigation Agency, CNR)[13]. The construction of the new canal followed engineering technical criteria with little direct input on the part of the farmers. Engineers hired local labour to build canals and tunnels. As water from the El Pisque canal became accessible, some of the ancient irrigation systems (known as *'acequias'*) disappeared because users

[12] The Haciendas in the area had around 2000 ha. Among the haciendas which had most recognition in the area were: Guanguilquí, Monteserrín, Chaquibamba, Chaquibambilla, Cuzubamba, Iguiñaro, Atalpamba.

[13] This institution was established in 1944. Its responsibilities were concerned to plan, construct, and manage the public irrigation systems at national level.

could be able to access water from the El Pisque system. The several *´acequias´* served for the Haciendas and others for indigenous people.

In 1966, CNR was replaced by INERHI, which managed the irrigation system during the period 1966 to 1994 (see chapter 2). INERHI covered the six districts for its completion, as well as its administration, operation, and maintenance activities. In 1972, all water resources were declared public property by a new Water Law (1972)[14]. It meant that the State provided water to water users by means of concessions which were authorized by INERHI. Although, this Law intended to stop water accumulation by haciendas and redistribute it to small-holders, it was much easier for landlords to register their rights than it was for the indigenous peasants (Boelens, 2008).

The El Pisque irrigation system underwent some changes from 1970 to the end of the 1980's. There were fewer water users who rented water from INERHI during the first years of its management, because *acequias* (ancient irrigation system) still provided sufficient water[15]. To increase the number of users, INERHI carried out some additional works to the infrastructure between 1974 and 1980. For example, it worked on the completion of the main canal, including an intake from the Granobles river as well as an expansion of the intake from the Guachalá river, sand traps, delivery boxes, diversion tunnels, and building some secondary canals (CORSINOR, n.d). The total investment made by INERHI until 1988[16] in the irrigation system was 32.12 million dollars covering 93.8% of its completion (Whitaker et al., 1990).

The new hydraulic infrastructure showed certain initial signs which resulted in adverse effects on the ancient *acequias*. Parts of these *acequias*[17] were replaced or abandoned, while others were re-used and re-adapted by INERHI, and some were to processing plants for drinking water, managed by a state agency[18] or local organizations in some cases[19]; whereas others continued operating. This produced a diversity of water users; some of them used water from INERHI, others from *acequias,* and some from both.

Access rights and control rights

For accessing water rights, a farmer had to present all his documentation to the *Agencia de aguas (*Water Agencies*)*[20], via the *Distrito de riego' head* (Irrigation District). In this area, there was an irrigation district known as 'the El Pisque irrigation district' which covered approximately 14.000

[14] The Water Law of 1936, established the water public property to sea and natural resources; private property to medical, mineral, thermal, and water that was originated and terminated in a same property land; and common property was regulated as co-property on rights of use on water and water rights on acequias (Vallejo, 2006). By means of this law, water rights were based on private property, it led to sell or rent water freely of land (Whitaker, 1190).

[15] In accordance with Anderson (1973), the amount of water rented from water users to INERHI was 2.057 litres/second.

[16] 14.012 million sucres the equivalent of 32.12 million dollars in 1988 (rate of exchange 436.19 sucres=1.0 USD). It was the third most expensive of the 35 irrigation systems managed by INERHI. It cost 2.178 USD/ha (Whitaker et al., 1990)

[17] Acequias such as El Quinche, Santo Domingo, and San Lorenzo were replaced by INERHI canal (Knapp, 1992)

[18] The *Empresa Metropolitana de Agua potable Quito* (Metropolitan Company for Drinking Water, EMAPQ) was created in 1960.

[19] Local organizations such as San Vicente Water Board, which uses water from the El Pisque irrigation system and set the purification in process for drinking water. It serves the San Vicente sector exclusively.

[20] These agencies processed water concessions

hectares. Documentation included the title of land property and personal credentials. An applicant underwent a technical inspection by INERHI´s staff to verify the land size in order to assess the water fee payable. To facilitate the water users' registration a *"cabecilla"* (leader; who was generally located at the tail end of the tertiary canal) collected the deeds from his neighbours and delivered them to INERHI. It was a strategy to be a water user, because if this 'leader' did not receive authorization, neither did the rest who were located along the canal. Following this procedure, a water user was available to sign a contract with the district to access a specified volume, determine the price, and duration, taking into account that water rights linked to the land were independent of its usage for certain kinds of crops. By means of the contract, INERHI acted as a provider company and farmers as users were released from O&M responsibilities.

The *canaleros* (water guards) were responsible for the intakes of water, its management and distribution. For water distribution INERHI's staff divided the El Pisque irrigation system into three zones: a) zone 1 covered the area from the main intake to the El Quinche parish; b) zone 2 from Checa to Tababela; and c) the zone 3 covered to Pifo and Puembo. There were five water guards in each zone, as well as a supervisor (zone manager). A *canalero* walked 8 km per day along the main and secondary canals within his zone during the morning and afternoon. The *canaleros* presented a verbal account to their managers. Engineers hired "cuadrillas" (collective workers) for maintenance tasks on the main canal and there was an annual "minga" in the secondary canals. There were 59 intakes from the main canal. Every intake had 10 modules of 20 hectares.

Relating to control rights, were the Irrigation System Manager and the supervisor for the O&M tasks, made decisions about management and system operations. Using irrigation schedules, *canaleros* distributed the water. The amount of water per hectare was based on technical criteria and was established at 0.8 litres/second/ha. INERHI´s officials decided on whether to include members or not. For example they allowed the Metropolitan Company for Drinking Water (Empresa Metropoliltana de Agua Potable; EMAP) to use water from the canal for drinking water, even although, the official water concession of the El Pisque irrigation system was established exclusively for irrigation proposes. If a water user wanted to get a direct intake from the main canal (e.g. a direct pipeline) to his plot, he had to request INERHI's staff for this. Moreover, when a water user did not pay his/her water fee, a financial penalty or denial of the irrigation service was enforced.

In the INERHI´s era the water management in the area was changed, which lead to an alteration in the contents of water rights as well. INERHI established the "rules of the game" (Boelens, 2008) for having access to and the decision-making process concerning this resource. As a consequence of INERHI's management, some ancient water users organizations did not survive as a result of these changes[21]. When the 'INERHI´s canal' provided water to the similar irrigable areas served by some *acequias*, the organizational level of the ancient *acequias* began to lose impetus because, many water users preferred to have access to water without taking part in O&M tasks. Moreover, Water

[21] These ancient organizations were characterized by resolving their own problems, using manual labour from water users and their organizational capacity to manage their irrigation systems automously.

Boards of the ancient water organizations[22] established 'areas' to make managerial decisions jointly about their irrigation systems. Whereas, during INERHI's intervention –through the creation of a new canal in the whole area- decision making on water management was mainly in hands of bureaucrats. Water Boards provided an opportunity to apply control mechanisms on their leaders' decision-making and to demand of accountability process from water users; in comparison to INERHI's era, there was no kind of the control mechanisms enforced by farmers on the engineers' activities, irrigation bosses, or *canaleros* neither were the technical staff held accountable for control measures. Additionally, these organizations offered a chance to water users, for embedding changes in water distribution, improving irrigation infrastructure, and ensuring punishment, whereas INERHI's staff defined the decision-making process concerning these activities. In other words, the management rationale in a farmer-managed irrigation system and a state irrigation system is different; while the first made decisions about irrigation management collectively, decisions made by the second were bureaucratized.

Finally, the creation of the El Pisque irrigation system and INERHI's management produced visible changes in autonomous water organizations. Water users had the possibility to access water from the public institutions without involving manual labour, which caused a decrease in the number of members leading to a reduction in the O&M tasks in the ancient water organizations. As a result some *acequias* were deteriorated and others were abandoned[23]. Thereby, the 'new canal' destroyed the customary rights and social capital of the farmer-managed irrigation system.

Dynamics of water rights

At the end of the 1970's, non-traditional crops such as flowers were introduced, and its exportation at the national level started in the mid of 1980s (Acción Ecológica, 2000) (Annex 3). This was a response to an agricultural organization focusing on agro-exportation economy implemented in Ecuador. Since then, many *valles interandinos* (inter-andina valleys) mainly in the province of Pichincha transforming their landscape using green houses for cultivating flowers.

In this particular area of study, introducing agribusiness (roses, summer flowers, carnations)[24] and poultry companies from the mid of the 1980's, transformed not only the landscape but also water rights, which were re-arranged. Many social struggles and conflicts resulted as a consequence of these adjustments. The reorientation of production for marketing and increasing water users (from 668 in 1968 to 3.065 in 1989) were factors that intensified the internal pressure for accessing these resources (see Annex 4). Although, a farmer had a formal agreement (contract) with the public institution to obtain water rights, it did not mean that he/she had access to the resource in practice. INERHI's staff had a lot of power on how water rights were implemented and materialized.

[22] For example: the *Directorio de Aguas of the Acequia Iguiñaro-Quiche (*Water Board of the Acequia Iguiñaro-Quinche). This Water Board was formed officially in 1946 and located in the El Quinche parish (however, it was formed several years before 1946 informality) (Directorio de Agua, 1946).

[23] For example, *"aguas de la comuna Chiche anejo"* whose water supply comes from the Chuspahuayco hill.

[24] The first flower companies in the study area were: Empagri (1987), Flores Antonia (1985), Florexport (1988), Inversiones Florícola (1987), Florequisa (1986), Guaisa (1987), Quitoflores (1987), Velvet flores (1988) (www.explofores.com)

There were different types of bargaining process among water users, mainly agro-business producers and public staff. These processes focused mainly on gaining access to water outside the pre-established water-turn, taking advantage of manual labour (water guards) to build reservoirs, housing infrastructure, etc. This caused conflicts at different levels: among water users, between water users and water guards, and between water guards and technical staff of INERHI. Frequently, some water guards played an important role (in practice) in finding solutions for the water users. Not only did the bargaining process cause conflicts, but also pressure was inflicted by companies and large holders, who demanded access the resource especially when they wished to access it during the dry season. It was usual for the companies to intimidate water users, ordering their workers to stay alongside canals until their reservoirs were full. In many situations, these tactics were "masked" by INERHI's staff. Here, "the law of the bravest" was the most important 'weapon' to get water. Hence, the actual water rights and distribution practices were determined by bargaining processes and pressure tactics. The materialization of formal rights was characterized occasionally by informal "agreements" and when none was in existence (water was taken by force), resulting in conflicts and social struggles on all accounts as the following case exemplifies.

> *"To register new water users, the zone manager required some "gifts"…If these water users were big farmers; there were "agreements" with him, which were made by water guards like me. Sometimes, I had to work on building of the irrigation manager' house instead of doing on my own duties as canalero…Sometimes, I felt bad….but he was my boss and I had to obey him… Once, I went to the irrigation manager's office and told him: "a farmer is stealing water from the intake number 35". The Irrigation Manager replied: "No…! I told him to open the gate! You will close it tomorrow!" "*(Ex-water guard during INERHI's management, 13/08/2011).

3.2.1 CORSINOR's era (1994-1999)

As I analyzed in chapter 2, in 1994, in order to re-allocate INEHI's responsibilities, the Sixto Duran presidency established the Executive Decree 2224 which created Regional Development Corporations. The administration, operation, and maintenance functions of the public irrigation systems were conferred upon these Corporations with CNRH's cooperation (see chapter 2). The Regional Corporation for the Northern Andes (Corporación Regional de la Sierra Norte; CORSINOR) was established to manage public irrigation systems located in the provinces of Carchi, Imbabura, Pichincha[25], Esmeraldas, Sucumbíos, and Napo. Although, the Regional Corporations operated until 2007, including CORSINOR, I will focus on its initial years of management before the official transfer process took place, i.e. from 1994 to 1999.

There was a CORSINOR´s branch office (known as Monteserín) in the study area, which managed the El Pisque irrigation system yet it did not provide solutions to the conflicts among water users. The CORSINOR's administration faced similar problems relating to the privileges of companies and big

[25] Three branch offices were located in Pichincha (Monteserín), Carchi (Bolívar), and Esmeraldas (Hendriks & Mejía, 2003b)

farmers to water rights as was the case during the INERHI's era. Many farmers concluded that administrative change from INERHI to CORSINOR resulted only in a "name change" only rather than having an effective influence to resolve problems at the field level.

Access to water rights and control rights did not change. The contract still was a key element for using part of the water flow as was the case under INERHI's era. Moreover, CORSINOR's staff continued to play an important role in determining rights to use the infrastructure and operate the system, although a decrease in the number of staff had an effect on O&M tasks[26]. At the same time, decision-making was still in the hands of CORSINOR's staff who made decisions about water distribution, irrigation schedules, flow rates, inclusion and/or exclusion of members, and the expansion of the hydraulic infrastructure, etc. Nevertheless, in maintenance tasks, water users began to make their own decisions, because the CORSINOR's budget was not adequate to deal with this aspect[27], causing the main canal to deteriorate, which lead to a deficiency in water supplies and disrupted the provision of water services for a period. Moreover, there was a lot of unauthorized use of water, it was stolen, canals were destroyed, and it was an inadequately distributed. All these problems resulted in more struggles and conflicts among water users than during INERHI's era, yet flower production was still booming and the number of water users increased to 5.441. These conflicts were characterized by privileges to companies and large farmers in allowing them to access water because some staff members of these institutions gave them permissions as is revealed in the following case:

> *"When there was a scarcity of water, it was very usual for all producers of flowers, even my boss, to call CORSINOR's Manager and say to him: try and solve this problem!… I obeyed my boss and accessed water from the canal illegally…Everything was done 'under the table' "* (ex-manager of a flower company, 05/10/2011).

Because of CORSINOR´s inadequate budget, it was necessary for the water users to cooperate and organized several "*mingas"* to re-establish water provision in the study area. CORSINOR's staff recognized the importance of the water users' intervention during its period of management: *"To maintain the irrigation system, we had neither staff nor resources. All activities were carried out with water users' assistance"* (CORSINOR, n.d.). Although they did some maintenance works, this did not mean that they had an opportunity to participate in the decision-making process beyond these tasks, thereby the public institution's staff still had control on decision-making around water management of the irrigation system.

This section reveals that the public irrigation management (INERHI's and CORSINOR's era) influenced on the loss of impetus of the farmer-managed systems existed in the study area, leading to the

[26] In order to operate the irrigation system, of the 15 *canaleros* (who worked in INERHI's era) only 8 remained during CORSINOR's age. Moreover, there was only one irrigation manager in the whole area instead of three per zone as in INERHI's era. Furthermore, there was not an economic capacity to hire the *cuadrillas* for maintenance activities.

[27] Regional Development Corporations established by the Executive Decree were given a lower investment budget than Corporations established by Law (except CREA). CORSINOR had an economic capacity of around 6 million dollars during the period 2000 to 2002 (Hendriks & Mejía, 2003b).

centralization of water control. This was characterized mainly for social relationships between companies/flower producers and officials of the public institutions, which was the main source to materialize the water rights. In the same line, the financial problems of the public institutions lead to several inconveniences linked to the infrastructure of the main canal as well as additional infrastructure to protect it. The consequences of the weakening of public management were reflected in two important incidents in the main canal during subsequent years, which resulted in decision by water users to request the State to hand over management of the irrigation system. The details of this decision and its main actors will be analysed in the following section.

3.3 Organising practices and water rights during the transfer process (1994-2001)

As I explained in chapter 2 the Irrigation Management Transfer policy took place in Ecuador during the period 1994 to 2001 with the technical assistance of international consultants and the Regional Development Corporations' cooperation. In this section, I will analyse how the IMT was implemented at the local level, by means of the El Pisque irrigation system. In order to do this, I will focus on the main actors and their organizing practices which led to the irrigation management transfer. Moreover, as a result, I further explain how water rights were transforming from the public institution to the water user association who decided how to manage the management of the irrigation system in such a way that they gained semi-autonomous.

3.3.1 Main actors involved during the transfer process

UEP-PAT´s staff

As I mentioned in chapter 2, UEP-PAT was a technical body to implement the transfer at the national level. Some of their members were involved in the transfer process of the El Pisque irrigation system. For that reason I will present some of them.

One of the main actors within UEP-PAT´s staff was Ramiro Moncayo. He was UEP-PAT´s Executive Director from 2000 to 2001 and was part of The World Bank credit framework. He approved the budget and hiring process of UEP-PAT´s staff, reviewing the external consultants' reports, and participated in extending the services of internal consultants (CDES & SIPAE, 2008).

Another important actor was Neptalí Bonifaz Andrade, Manager at the IDEA Foundation upon whom the design of the 'formal architecture' of the UEP-PAT project[28] was conferred. This foundation prepared an inventory of the irrigation projects at the national level as part of the UEP-PAT´s framework. By means of this inventory, a pre-selection process was made of the pilot projects which might possible by transferred. It included 10 operational irrigation projects, 10 under construction, and 9 undergoing study i.e. 29 were pre-selected at the national level (CEDE & SIPAE, 2008) (see chapter 2). Furthermore, IDEA Foundation not only linked to the irrigation sector but also to the

[28] Together with Morris Whitaker who was consultant at IDEA Foundation and who also became a consultant during the PAT project.

agrarian sector. Economic resources were allocated by international agencies (USAID) to IDEA in order to prepare a preliminary report on the agrarian conditions existing in Ecuador (prior to PAT, PSA, and PRAT) and establish the Law Project in Agrarian Development to finalize the failed agrarian reforms and promote capitalism in the country (CAIC, 2008). During the period of IDEA´s intervention in the agrarian sector, the Chamber of Agriculture was its main ally, which provided support for the protection of agricultural activity, private properties, and promoted investment in the sector. Neptalí Bonifaz acted as representative for the Chambers Agriculture during the irrigation transfer process. Additionally, he was a founding-partner of the Association of Flower Producers and/or Exporters in Ecuador (Asociación de Productores y/o Exportadores de Flores del Ecuador; EXPOFLORES) which was established in 1984. It included the main flower companies at the national level (www.explofores.com).

CORSINOR´s Manager

Another important actor was CORSINOR´s Manager who was responsible for irrigation management in the Pichincha – Napo area. He also worked as chief of the El Pisque district during INERHI´s era. Subsequently, he was in charge of one of the areas of the National Institution for Irrigation Water (*Instituto Nacional de Agua para Riego;* INAR). Currently, he is working for the Cayambe-Pedro Moncayo irrigation system. These roles have led to a closer relationship with the public irrigation institutions for more than 38 years, including INERHI's, CORSINOR's and INAR's management.

Because the transfer process implited that water users manage the irrigation system themselves and that CORSINOR's role was irrelevant, he tried to intervene during this process. He organized informal meetings with non-flower farmers to form an 'opposition' to the transfer (especially against to flower farmers activities). At the same time, as CORSINOR was responsible for planning the rehabilitation works in the infrastructure programme (see chapter 2), he attempted to delay these works. Because the transfer process meant that CORSINOR's staff would lose their positions, he tried to 'stop' them certain ways by means of these actions.

Flowers Companies

There was a specific engineer who administered a businessman's[29] agricultural properties (Baker family), especially for flower plantations. These were located in the Puembo parish (intake number 27). The businessman was a water user of the El Pisque irrigation system and he was represented by the engineer all the activities relating to the system. The engineer was elected the first president of the WUA. Currently, he is the legal representative of the flower company[30] located in the Cayambe canton (north of the study area).

Another important actor involved in flower companies was a young man who worked there since he was 22 years of age. He studied Chemical and Biological Sciences at high school and followed some

[29] This businessman is the Executive President of the PRONACA Company owned by the Baker Family. PRONACA is one of the 20 most important businesses in Ecuador, which held the seventh position until 2011 (EKOS, 2011)

[30] It is known as Flores de Napoles.

courses at university level. He was manager at Hilsea[31] Investment and was its representative water in the El Pisque irrigation system. This company was located at intake number 34. He became the first secretary and second president for the WUA (at the age of 26) during the period 2000 to 2002. Subsequently, he was the irrigation system' Manager in 2003. Furthermore, he was elected the second president of the Ecuadorian Association of Water Users Irrigation Boards (Asociación Ecuatoriana de Juntas de Usuarios de Riego; AEJUR). Because of some alleged corruption during his administration, the representatives of the system's General Board decided to remove him. However, up to this moment, these allegations have not been proved. He currently has a small flower business.

The last one was an economist who studied in The United States. He became involved with floriculture during the period 1984 to 2000 in the Checa parish. Moreover, he worked at the Ministry of Finance among 1980 to 1990. He was the Sub-secretary of the Public Credit Sector and Adviser to the Ministry of Finance from 1984 to 1990, respectively (Paddock, et al., 1984; N.D, 1990). He became President of the El Pisque irrigation system during the period 2005-2009. Although, it was his desire to continue in this function and he had the General Board´s backing to remain president for two more years, the presidency for two more years, the legal framework of the WUA did not consent to this (See Chapter 4).

This information demonstrated that the irrigation system' leaders were linked to the agribusiness sector. Their leadership position was retained in subsequent years to the transfer process which took place in 1999; let them to maintain, in a certain way, the companies/flower producers' interests.

Utah State University´s staff

As I explained in chapter 2, the El Pisque irrigation system was part of eight public irrigation systems in charge to the Utah State University (USU) in order to provide technical assistance (See chapter 2). The technical assistants who were both foreign and national assistants were located in accordance with every UEP-PAT´s programmes as it shows in the (Table 2). The foreign consultants were programme leaders whereas the national consultants had secondary and specific tasks. An additional program implemented by USU[32] was 'Basic Studies and Modernization' which focused on the census process and the registration of water users. In addition, Utah University had employed technical staff from Mexico who supported the water users during the training process (as part of the Organizational Strengthening Programme)[33]. Technical assistance was provided by USU from 1999 to 2001.

[31] One of the most important flower companies at the national level
[32] This programme was not implemented by DAI nor ARD-Lotti in their respective areas.
[33] Carlos Gonzales was a hydraulic assessor who was in charge the training process for water users

Table 2. Team of consultants from Utah State University within UEP-PAT's programmes for North and Central Andean Region

Programme	Foreign Assistant (Programme Manager)	National Assistant
Organizational Strengthening	Raymon Rifonberd	Jenny Valencia
Rehabilitation of infrastructure	Gary Merkley	Julio Bravo
Agricultural Development	Thomas Steeward	Juan León
Basic Studies and Modernization	Christopher Mir* and Greck Croft	Soledad Valdiviezo

*His advices were made from the Utah State

Resource: Field work, 2011

3.3.2 The transfer process at the local level

'La cintura' problem and the ancient acequias' role

In October 1998, there was a severe landslide because of a lack of maintenance by CORSINOR. As a result a section of the main canal was blocked by trees and stones, which formed an enormous obstruction of 3 meters high and 60 meters long. It was located in a place called "La Cintura" in the sector of the Guachalá river. 'La Cintura' was a small gully that water had to cross by means of an aerial structure from the open canal to a tunnel. This part was very susceptible to landslides and it occurred in October, which affected delivery of water for two weeks (see Figure 7).

At that time, CORSINOR did not have the economic resources to deal with the 'La Cintura' problem. In a meeting CORSINOR's Manager proposed possible repairs to this section of the main canal, who required 70 million sucres. At the meeting, flower producers, companies, livestock producers as well as small and medium farmers were presented. This resulted in two alternatives being proposed: a) farmers who had the financial means should contribute in this fashion and on the whole companies, big farmers, and flower farmers were located here; and b) farmers who could provide manual labour to clean up the area next to the 'la Cintura' sector should do so, and the small and medium farmers were located here.

This amount of money was collected and handed to the CORSINOR's Manager. In the 'La Cintura' sector, CORSINOR installed a tube that channelled water from an open canal to a tunnel which resolved the problem quickly. However, the complementary works (building an embankment, cleaning of materials, etc) and the tube dimensions were not calculated accurately and in less than 15 days after the repairs, the farmers had yet another problem on their hands. By the end of October, the main canal was 'destroyed' in the 'La Cintura' area. This event was worse than on the first occasion because the section of the main canal which had been destroyed approximately 100 meters long (almost the double that on the first time), leading to an increase in cost for this repairs. As a result, there was a water shortage for six weeks, i.e. during November and December which faced a low raining period in 1998.

At the time of the 'La Cintura' problem, the ancient *acequias* (ancient irrigation system) regained their importance as was the case several years earlier. On the one hand, flower companies invested in increasing flower production which had continued to grow in the study area. Flower production demanded huge amounts of water for the fertigation process. Although, these companies had big reservoirs, they were not adequate during 'La Cintura' problem, therefore, they attempted to find alternative means to 'save' their productions and huge investments. For that reason, they took advantage of the ancient *acequias'* water (as a unique water resource) and they formed commissions for holding discussions with Water Board' representatives of the *acequias* in order to access water. For example in the secondary intake No. 32, there were water-turns (once per week) as one farmer mentioned:

> *"I remember, (referring to La Cintura problem) it was in 1998. We did not have water for one and a half monthd, and everybody helped in my sector. In the intake 32, junta modular 12, the aguas del pueblo (referring to acequias) helped us. We organized ourselves to access water by means of water-turns (once per week). This helped us to prevent the plants from dying. Water in the reservoirs let to irrigate only for 15 or 20 days, therefore I decreased the irrigation frequency. It was hard, very hard!"* (Ex-administrator of a flower company, 15/09/2011).

Thereby a new unexpected alliance was formed between companies/flower producers and Water Board of the *acequias* in order to gain benefits each other. The Water Board' leaders accepted to share water because they saw an opportunity to make maintenance works in these old canals during the 'La Cintura´ problem. The flower companies ordered their workers to clean the old canals and collaborated with the leaders´ requirements. This alliance was temporal because after the resolving the problem, companies/flower producers continued accessed water from the El Pisque canal. On the other hand, water users who were members of the ancient WUAs continued using water from these canals, however, the irrigation frequency started to reduce because they had to share water with flower companies leading to several conflicts. Finally, although there were problems relating to the production and the quality of crops due to the lack of water, the *acequias* played an important role during the 'La Cintura' problem, avoiding huge losses for producers.

Figure 7. The 'La Cintura' sector

'Constructing' the transfer process

The CORSINOR´s ineffectiveness to fix *´La Cintura´* problem produced distrust by water users toward the public staff to deal with the second incident. Therefore, flower farmers and flower companies' representatives decided to organize a meeting among water users to resolve the problem. The flower producers contracted two civil engineers for technical analysis. Due to the fact, that the section of the main canal was destroyed, they suggested to replace the tube (installed by CORSINOR) with two strong tubes with better physical characteristics and dimensions than the tube installed by CORSINOR to resist climate conditions in the following years. Nevertheless, these tubes were only used by the oil companies. As the economist (mentioned above) was working on a project with the Ecuadorian Steel Industry (Siderúrgica Ecuatoriana; SIDEG S.A)[34], took contact with it to know about the tubes costs. SIDEG S.A established that the tubes costs, including importation, were around 100.000 USD. In 8 days, farmers collected around 80.000 USD and contracted to SIDEG for resolving the 'La Cintura' problem, thereby the access to water was possible one and half months after the second event. They had a debt of 20.000 USD.

As the flower farmers/companies invested more economic resources than small and medium farmers, they attempted to find 'help' from the State and get economic recognition for the investment that they made. At that time, Ecuador was in an economic and political crisis[35], which influenced in the financing system that among many things, it was reflected in the incapacity to provide credits for the production and commercial sector. In these circumstances, flower producers went to the Ministry of Agriculture and Livestock. They talked to Salomon Larrea (Agriculture Minister in the Jamil Mahuad's Presidency), who mentioned that the State did not have the budget to help them. During the search period, they contacted Neptalí Bonifaz (IDEA´s Manager) who was organizing the irrigation transfer at the national level. Bonifaz communicated with Ramiro Moncayo (UEP-PAT´s Director) and organized a meeting between flower producers and Moncayo. The flower producers who talked directly with Moncayo were the economist, Hilsea's representative, and Baker Family´s representative. During the meeting, they expressed the 'La Cintura' problem, the CORSINOR´s ineffectiveness, and required economic resources. However, Moncayo mentioned that it is was impossible to provide them economic resources, but he proposed the inclusion of the El Pisque irrigation system in the UEP-PAT´s programmes. A condition to be part of the transfer process was that they had to show a certain level of organization. At the end of this meeting, they accepted (verbally) to have an organization in the irrigation system to be considered within the irrigation transfer process.

This information demonstrates that in a certain moment some 'forces' converged in order to achieve the transfer process. On the one hand the local actors who represent the private interests exerted pressure on the State to be part of the process. On the other hand, IDEA's Manager who also

[34] This factory is specialized in the construction of heavy engineer projects such as bridges, structures, silos, etc.

[35] During 1997 and 1998, climate conditions ('El Niño' phenomena) affected the national production especially in the Coastal region, leading to alter the economic cycle and complicated the economic stability. In line with economic crisis, there was instability in the political matter (removing of a president (Abdalá Bucaram), named of an interim president (Fabián Alarcón) and election of a new president finally (Jamil Mahuad) in August 1998). These problems were reflected on deficit of the fiscal and commercial balance, increasing of inflation, restriction of productive and commercial credits, etc. (Banco Central del Ecuador, 1999)

represent the private sector and UEP-PAT's Director who promote the transfer process. In a certain point, their interests and 'forces' are ' tied' in order to operate and provoke the transfer process of the El Pisque irrigation system.

Here, it is important to analyze three elements: a) ¿Why did flower producers decide to organize themselves?; b) ¿Why they accepted Moncayo's proposal?; and c) ¿Why UEP-PAT´s representative proposed this alternative to the flower farmers?

At that time the flower production had been growing. The study area alone represented 17% (469 ha) of the total area in Ecuador and the exportation grew (approx. 180.000 million dollars) as well at the national level in 1998. The favourable market trends promoted a quick expansion of flowers and huge investments were made in the study area by flower companies[36]. During the *'La Cintura'* problem, flower farmers had a high risk to lose their investments taking into account that October and November are the main months in which they are preparing the flower exportation for two important dates: Christmas and Valentine´s day. Therefore, Padro (2005) mentions *"the demanding of cut flowers is during all year, however, February and December are months where it reaches the maximum peak sales in Europe and The United States"* (Padro, 2005). Furthermore, the logistic facilities (communication through faxes, e-mails, phones, etc.,) led the flower producers to contact with the staff to find alternatives during the problem and their economic power led to collect 80% of the total cost established by SIDEG in 8 days after the second incident. Hence, the needed water and their influences on the risk to lose their huge investments pushed to take a quick solution. Another factor that determined a quick solution was that there were a few flower farmers/companies with high economic power, facilitating not only the logistic process but also making it possible to contacts to find alternatives during the reparation of the '*La Cintura'* sector. Due to these circumstances in the first instance, they worked as 'team of flower producers' without taking into account small farmers as it showed in following interviews:

> ***Interviewer****: Why did flower farmers organize themselves without taking into account small farmers?*
> ***Hilsea's representative:*** *Because, it was easier to organize to farmers who had investment in flowers and economic resources than to ask 1 USD one by one (referring small farmers). Moreover, we had communication facilities (telephone, faxes, e-mail) to find a solution*
> *(Hilsea's representative, 08/08/2011).*
>
> ***Interviewer:*** *Why you decided to organize by yourself?*
> ***Hilsea´s General Manager****: If we did not make it, we had to close our plantations! ¿Can you image what 80.000 USD was? If we related with million dollar investments that flower companies had? Are we going to have hopeful in CORSINOR? For what? Maybe, it will tender, make a proposal, or receive bribes? We did not have time for that!*
> *(Hilsea's Ex-General Manager 20/09/2011).*

[36] The investment for one semi-technical flowers hectare is around 350.000 USD, it will reach 700.000 to 900.000 USD in a high-technical flower hectare (Viteri, 2007).

Although the inclusion of the El Pisque irrigation system in the transfer process did not contribute to recuperate the flower companies´ investments, it was an alternative to make complementary works in the 'La Cintura' sector (such as cleaning, installing of culverts, and construction of side walls) by means of the Rehabilitation of Infrastructure Programme (as part of the UEP-PAT´s programmes) (see chapter 2), avoiding a second investment by flower producers. From the Rehabilitation of Infrastructure Programmes' economic resources, water users took a part to pay the debt caused by SIDEG's services which was 20.000 USD. Moreover, as CORSINOR revealed to be an ineffective public institution to resolve emergency problems and they did not want to take the risk to lose their huge investment in the flower production for the future years.

It is important to mention that in accordance with CNRH's information available until August 1998, the El Pisque irrigation system was not considered as a liable irrigation system to be transferred. Moreover, this was verified in some interviews with the Utah University´s ex-staff and water users who participated in the transfer process. As it was mentioned below, the first step was taken by farmers –flower farmers- who tried the certain way to recuperate some money that they invested. Hence, this system was the latest transferred system by the Utah State University

> *"This system was not considered within the Utah University's plans since it started. It was the last to be incorporated because they organized quickly …During this few time, I was in charge to update of water users' census because it was the latest; we did not have maps on this in comparison with the Montufar, San Vicente de Pusir, Ambato Huachi Pelileo, Pachanlica, and Cebadas irrigation systems. As it was the last one we only had the general planning …"* (Utah University´s ex-staff, 19/19/2011)

On the other hand, as I analyzed in chapter 2, UEP-PAT 'success' was measured by the number and surface of the transferred irrigation systems (see Chapter 2); the inclusion of an irrigation system (as El Pisque) meant a strategic factor to increase this 'success'. Moreover, it is necessary taking into account that the El Pisque is recognized to be the biggest irrigation system in the Andean region in terms of irrigated land. Hence, I argue that UEP-PAT (through Ramiro Moncayo) was more interested in its own political ego than to develop skills for water users.

Once, that there was this meeting between flower producers and Moncayo, it was necessary to take contact with the Utah State University (USU) which was in charge to make the transfer process in the Northern-Center Andina Region. They took contact with Humberto Yap who was the USU'Manager in this region and emphasized the organizational level from water users.

Before beginning with the irrigation transfer by UEP-PAT's staff, farmers had to prove an organization level within the El Pisque irrigation system. Therefore, an organization led by flower producers in the Checa parish called 'Water Users Directory of the Checa' (it refers to the secondary intakes No. 34-35) was formed. Later, this organization became the Provisional Water User Association of the El Pisque irrigation system. First they hired an office for managing the logistic activities to collect the amount of money and to pay SIDEG's services. Afterwards, taking advantages of this informal organization, it served to realize meetings among water users and prepare them for the transfer process as well. Flower farmers/companies organized meetings with water users to show the organization level and to be considered into the UEP-PAT programmes. It is important to mention that although, there was not a formal water user organizations grouped within El Pisque irrigation

system, there were a few small group of famers, who helped in some activities such as cleaning of tertiary canals, obtaining of the water contract, etc. They had a leader called *"cabecilla".* During 'La Cintura' problem, they began a real organization of these groups; however they did not have the facilities that flower companies had in order to begin a big organization in the whole area.

Water users did not reject the flower companies/farmers' initiative for two main reasons. On the one hand, they knew how the CORSINOR's management was (characterized by corruption situations, privileges during water distribution, lack of accountability, lack of O&M works in the irrigation infrastructure, impossibility to take part in decision making concerned with irrigation management, but especially the incapacity to resolve emergency problems (such as 'la cintura')). These institutional disadvantages led to water users to become involved with the flower companies' proposal. On the other hand, they felt 'fear' that the irrigation services could be transferred to the private sector as the Modernization Law of State, Privatizations and Provision of Public Services established in its Art. 41[37], 42[38], and 43[39] (Ley de Modernización del Estado, 1993). Therefore, water users to avoid any possibility that the irrigation system would be 'sold', they accepted to organize and work together on the flower producers' initiative.

Official contract

In the first months of 1999, water users were supported by USU, which realized a statutes project which was discussed in two General Assemblies in April and May, respectively. In line with that, on May 6th, 1999 in the General Assembly[40] was named the Water User Directory of the Checa as the 'Provisional Water User Association of the El Pisque irrigation system' until December 31st that was the official approval year of the legal statutes of this organization (JGUSRP, 1999). In August, 1999 the statutes and legal membership of the Water User Association of the El Pisque irrigation system was approved (CNRH, 2001). However, on the legal document did not figure the names of flower producers/companies neither as 'founding partners' of the water user organization. In October, 1999 the ***contract of transfer process*** was signed by Joel Haro (CORSINOR's Executive Director), Baker Family's Representative (WUA's President), and Salomón Larrea (Minister of Agriculture). Within this contract the following aspects are highlighted (CORSINOR, 1999): a) the WUA has right to use the water flow of the total irrigation infrastructure, including the total administration, operation, maintenance, and conservation of this infrastructure; b) the State (via CORSINOR) keeps the irrigation infrastructure property; c) the WUA accepts to pay the basic and concession fee, and d) the WUA has the right to adjust the volume fee which will cover the O&M costs.

In the following figure the transfer process is visualized. While at the national level the transfer process was in the last phases, this process began in the El Pisque irrigation system. As I mentioned above the incapacity of the CORSINOR to resolve 'La Cintura' problem at the end of 1998, was the main motive to push the economic groups (such as flower producers/companies) to organize

[37] *"The State will delegate to joint or private companies the public service provision of drinking water,* ***irrigation,*** *sanitation, electricity…" "Joint or private companies´ participation will be by means of entitlement, association, transfer of share ownership or any contractual pattern"* (Ley de Modernización del Estado, 1993).

[38] One of the privatization procedures was the partial or total delegation, even definitive transfer of the service provision from State to private sector

[39] In order to achieve the procedure of the Art. 42, the figure 'sale' was established in the Art. 43.

[40] There were around 600 water users

themselves and acquired the transfer. The official transfer contract was signed at the end of 1999. Finalizing the process, the WUA is charged for managing of the irrigation system.

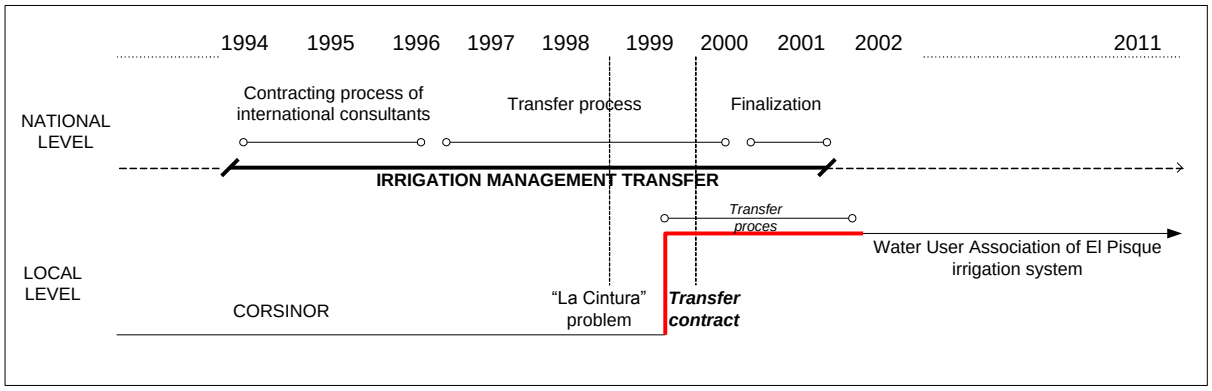


Figure 8. The transfer process at the local level

This section the transfer process and its main actors were present. At different points during the previous and transfer process, some 'alliances' were taking place. During the previous process the transfer, an alliance among flower producers and companies were formed in order to deal with the *'la cintura'* problem. They worked together in order to rehabilitate the destroyed section of the main canal. Their interests were focused on the protection of their production and huge investments.

During the rehabilitation another short alliance took place between flower producers and representatives of the ancient *acequias.* The representatives' interests were focused on the recuperation of some of old canals which were abandoned since the El Pisque canal began to provide water. The representatives seen an opportunity to make maintenance works by means of the manual labour contribution from the flower companies´ workers. However, this relationship had a short-lived because the *'la cintura'* was resolved and water service was provided quickly.

In some points of the cycle of the policy also present alliances. One of them was between flower producers, and UEP-PAT's Director and IDEA's Manager at the negotiation stage. This was a crucial moment where decision-making was made an informal way. This determined that flower producers decided to demonstrate an organizational level in the El Pisque irrigation system in order to achieve the transfer. This was accomplished with the small and medium farmers' support. Thereby, a relationship between flower producers and small and medium farmers were formed. Hence, some alliances between individuals and interests of them can result in several formal and informal agreements to 'built' the transfer process in the El Pisque irrigation system.

3.3.3 Water rights

In this section, I will explain the initial signs of the management carried out by the El Pisque's water users during the period the transfer process (1999 – 2001). Here, I will highlight the social construction of water rights by local actors.

Right to infrastructure and re-covering the right to use part of water flow

The WUA acquired a concession right from Guachalá and Granobles rivers to a maximum water flow of 5.200 l/s, a medium of 4.000 l/s, and a minimum of 2.800 l/s. This concession did not have a definite time and it figured as *"The concession for irrigation is made for an economically useful time of the El Pisque irrigation system in charge of the WUA"* (CNRH, 2001). This right referred exclusively to the use of water based on this concession but not a complete control of the irrigation infrastructure which was built and retained by the State.

In the contract of the transfer process was not clearly established what kind of rights water users had over infrastructure, especially what will happen in emergency situations as happened at 'La Cintura' sector. In line with that, the main infrastructure is property of the State and it has rights over that; whereas water users have rights on secondary and tertiary canals, i.e. the right-holders vary at different points of the irrigation system (Meinzen-Dick, 2000). Hence, the State holds these rights (control rights) and water-users hold use -rights; therefore it does not mean a complete ownership of the system.

Accepting the transfer process from the public institution to water users meant that water users had to deal with some of the problems related to the management of the irrigation system, such as infrastructure. Many farmers remembered how the physical conditions of the main canal were when they received the O&M responsibility. Although, a water user had the formal right to access 0.8 litres/second/ha, he/she did not receive this amount of water, i.e. his/her water rights were not materialized. A clear example took place in the zone 3 (Puembo-Pifo) where some water-users did not have water for several years. The following statement exemplifies this:

> *"When we received the canal, it seemed as a 'green spot' because there was a lot of vegetation around the canal…In the zone 3, they had no access to water for some years, therefore it was impossible to collect the water fee"* (WUA´s ex-member Board, 08/08/2011)

The lack of water in the zones (such as the zone 3) resulted from the lack of O&M works by the public institution which influenced the deterioration of the infrastructure and accumulation of vegetation in the main canal leading to a decrease of the amount of water to be delivered (specially) to farmers located in the downstream. Another factor was related to water-thefts. Many 'illegal ' concessions were presented which impeded the materialization of water rights to tail-farmers. Therefore, both physical conditions and informal processes influenced the right to use part of the water flow for water users who must deal with these problems by themselves. One of the alternatives to re-cover this right was by means of the collective work (*"mingas"*).

Photo 1. Cleaning works in the main canal.

Source: Junta General del Sistema de Riego "El Pisque", 2011

The "*mingas*" was an activity led by a group of water users (member of the Provisional WUA) called 'Committee for cleaning of the main canal'. This Committee (jointly with others) was organized some collective works for cleaning the main canal. In these works both water users and flower companies' workers were involved (Photo 1). The performance of all these activities was controlled by the Committee. These works led to re-cover right to use part of water flow although it still was not representing the amount of water established in the concession (5.200 litres/second) of the WUA.
Furthermore, although water users worked in the "*mingas*", it did not mean an increase of their right to access more water flow that everyone had during the public institution management, i.e. it recovered the water right without any change in the technical criteria for accessing water (referring to 0.8 litres/second/ha). Hence, the collective works not only served to recover in a certain way the water flow of the irrigation system but also the right to use the infrastructure, leading to farmers to be 'main protagonists' in this stage. The possibility to work in the '*mingas*' was an opportunity to recuperate the water rights which were denied for several years by public institutions, such as it occurred in the zone 3. Conversely, for farmers who did not have water rights (who was not registered during the public institution management) the collective works were an alternative to be a water user and to have the right to access water, i.e. that these farmers (via their participation) established their claim on water and the infrastructure. Moreover, in comparison to the public institutions' era, the collective works made by water users led to keep 'a relationship' with the water and the infrastructure. Although water users do not have a 'real' ownership, they are pushed to make maintenance works on the infrastructure (both primary, secondary, and tertiary) by the

necessity of water. Thereby, the lack the right to the infrastructure's ownership had a less 'weight' in the moment that those water users really needed water.

User registry: as a strategy to know who are right-holders

Although, one of the conditions in the transfer contract was that CORSINOR provided an updated water-user register to the WUA, it was never met. The information retained in the CORSINOR regarded to a water-users registry "updated" until 1973 (Utah University's Ex-staff, 19/10/2011). Therefore, water users organized a committee called ' Committee for the water users' census ' led by a livestock producer.

Subsequently, it was moderately supported by the Utah University's staff who did not finish with the update of the water users' census. The lack of time for finishing the census process by the Utah State University's staff forced to water users to hire a professional in 2004. Coincidentally, the same professional who was in charge to update the water users census during the period of the Utah State University's intervention, she was hired in this year by the WUA.

The census process to water users led them to organize both for the collective works and as well as the organization of *juntas modulares*. Furthermore, it was a mechanism to have an initial information on who the rights-holders to access water were, the number of the rights-holders and their location, verify the water users' participation during the '*mingas*', and overall the collecting of the irrigation fees from water users (in November, 2000, the WUA began to collect the irrigation fees) (Cárdenas, 2004). As a condition of the transfer contract, the WUA assumed a basic fee i.e. that it had to pay a cost per year to the State. This fee referred to recover the 75% of public investment in 50 years (Hendriks & Mejía, 2003a). Although, the WUA received the irrigation system with many problems relating to infrastructure (deteriorate of canals, sedimentation process, etc) and its first years of creation were focused to fix the physical structures, the WUA paid to the State in the subsequent years.

Right to be eligible and to occupy positions in the WUA

By means of the technical assistance of the Utah University's staff the *Junta Modulares* were born. The recommendations given by this staff to water users were based on the foreign experience about the transferred irrigation systems in Mexico, The United States, and the Dominican Republic. During the approval of the legal statutes of the WUA, the Utah University's staff began the organization of the *Juntas Modulares* at the field level.

As was mentioned above, the Provisional Water User Association worked until December 31st, 1999. Therefore, in the first months of 2000, the official Water User Association was established. By means of the *Juntas Modulares*, water users took part in the WUA. This, in a certain way , decentralized the power gained by flower producers from the *'La Cintura'* problem, although it was a 'hard' process.

The claim for getting the rights to take decisions about the irrigation system by water-users was reflected during the election of the official Water User Association in 2000. This election was called by the Provisional Water User Association's members and took place in a General Assembly. In order to select the irrigation system's representatives, the flower producers wanted to establish the

'straight-party vote'[41] as a strategy to retain the control rights of the irrigation system. Nevertheless, water users proposed a selection process based on the organization of the *juntas modulares* which were established in accordance with the main intakes (from 1 to 59) and number of water users. Thereby, for example, the irrigated area by the main intakes from 1 to 12 was entitled 'Junta Modular No. 1'. Here, there were less than 10 families; therefore their representative in the WUA was only one person. Whereas, that the irrigated area by the main intake No. 20 was entitled ' Junta Modular No. 5', which had more than 300 water users. For this reason, it formed a directory (a president, a vice-president, and a secretary-treasurer). The claim from water users during the General Assembly led to the incorporation of representatives from the *Juntas Modulares* within the official Water User Association. The following case exemplifies the selection process:

> *"As was a custom in Ecuador, everything is related to the political aspect. They (referring to flower companies) had prepared the "straight-party vote", so, they named as the President to a flower producer (A); as the Vice-president, another flower producer (B), and so on…I did a claim: What are we (referring to small-medium farmers) doing here? Here, it should be a representation of all water users! To make this (i.e.the election process), we should consider all juntas modulares…"* (WUA's Ex-member Board, 16/08/2011)

Due to this process the small and medium farmers claimed their right to be eligible and to occupy positions within of the WUA. It meant that they wanted to have the right to participate in decision-making related to the management of the irrigation system.

The inclusion of some small and medium farmers as WUA´s representatives led to be part of the decision-making process of the several aspects such as the volumetric fee which was modified for getting economic resources to cover the management's expenditure, including manual labour, materials for maintenance of the infrastructure, and administration tasks. For example, within the volumetric fee, they established that criteria used to adjust this fee were the size of land, type of crops, and type of use (agriculture, agro-business, and drinking water). This means that they incorporated their 'justice' criteria in order to collect the fee (see Chapter 4). Additionally, they had the right to access information related to the management of the system and they debated on the punishment aspect, and the water service. All these aspects were established in the regulatory framework. The inclusion of the *Juntas Modulares'* representatives within the WUA, led to take a part in some decisions concerned with the management of the irrigation system, however, the presidency of the WUA was retained by representatives of the companies/flower producers who in a certain way had more power than *Juntas Modulares'* representatives at the decision-making process (see chapter 4).

Right to take part in the decision making about management and system operation

Two months after signing of the transfer contract, the president of the Provisional WUA (the Baker Family´s representative) renounced and the Hilsea's representative was named as the new president of the irrigation system in a General Assembly in 2000 (as I mentioned above). The presidency was from 2000 to 2002.

[41] A straight-party vote chooses all the candidates of a party with one selection (as opposed to individual candidates)

As I analysed in chapter 2, within UEP-PAT's programmes, the Rehabilitation of infrastructure programme was the most important in the El Pisque irrigation system. UEP-PAT's staff considered CORSINOR as the technical agency, therefore, it managed all physical works relating to the irrigation infrastructure and the hiring process for the rehabilitation works. UEP-PAT provided the economic resources to CORSINOR for these works and the WUA provided the local manual labour for these activities. Thereby, the implementation of the rehabilitation works and the hiring of manual labour for these works were in the hands of CORSINOR and the WUA did not take part in the decisions concerned with the financial budget of the infrastructure´s works. Despite of that, the WUA´s president demanded the accountability process to CORSINOR, because, the knowledge about the budget led to demand more infrastructures' works by the WUA, during the implementation of this programme. The next case exemplified the claim about the accountability process:

> *"We knew that CORSINOR hired external people for the infrastructure rehabilitation works. We only demand that in every hiring process, you (i.e. CORSINOR´s Manager) call a meeting with the Directory's members in the WUA's office…This will guarantee transparency during the process"* (JGSRP files, 2000).

However, this process was not complied by CORSINOR. This indicates that CORSINOR and UEP-PAT's staff managed the financial resources with a total freedom without water users' interventions.

On the other hand, the WUA's representatives had the rights to make decision about the hiring process of an Administrator who could be charged with technical aspects such as water distribution, irrigation schedule, and flow rates, etc. By means of this professional, they had the right in decision-making about the system operation. Moreover, the WUA´s representatives began to determine the criteria for the hiring of operational staff (such as water guards), i.e. that they had the right to claim the accountability process from their own technical and operational staff. Whereas that in the public institutions' management, the right to select and demand results from technical and operational staff had the State, influencing the lack of control on activities realized by their staff.

Right to take part in decision-making about inclusion (or not) of members

As I mentioned above, the WUA's representatives began to take decisions on the management of the irrigation system during the transfer process, such as decisions about inclusion and exclusion of their members. The first official WUA's representatives were appointed by means of election from the *Juntas Modulares's* representatives in 2000 and they elected the WUA' Directory. During the transfer process the Directory was assuming control rights about inclusion and exclusion of their members.

This section reveals that some struggles emerged during the initial years of management of the systems. On the one hand, companies/flower producers attempted to control all activities concerned to manage of the systems by means of 'straight-party vote' during the election process. However, some reactions from small and medium farmers pushed to be part of the decision-making process.

3.4 Conclusions

The water rights in the El Pisque irrigation system during the management of the public institution (1960-1999) were concentrated by the State which defined both the access and operation rights and the control rights. Due to the fact that the introduction of non-traditional crops in the mid of the

eighties, the water rights were adjusted, leading to negotiation processes between the public staff and farmers. Although, the formal water rights were established under technical criteria, these were unseen in practice because the social and power relationships as the informal rights were more important. The configuration of water rights led to several conflicts and contested processes among water users. In the same line, the public management' control of water influenced on the loss of impetus of the farmer-managed systems existing in the area, by means of a reduction of manual labour, the main source for the maintenance activities of the ancient irrigation systems. Additionally, the historical context of the El Pisque irrigation system demonstrated the incapacity from the public institution to provide water supply during a crisis, which was the main influential factor for beginning the transfer process.

During the previous process of the transfer process, some 'alliances' emerged. An alliance among economic groups was formed (Flower producers and companies) which operated together in order to protect their huge investments by means of their economic support during the 'La Cintura' problem. A second alliance took place between these economic groups and representatives of the ancient *acequias* who took advantage of the manual labour provided by flower companies' workers in order to make maintenance works on some of old canals. This relationship was characterized by a short-live because the *'La Cintura'* was resolved quickly.

The transfer process was a result of some 'forces' which converged on a point of the policy cycle. On the one hand, the local actors who were motivated by particularities circumstances, to seek the recuperation of their economic investment made in the El Pisque irrigation system. On the other hand, policy implementors who were 'thirsty' to promote the transfer process. Both actors represent the private interests, which were reflected during the negotiation process made an informal way. As a result, the transfer process took place.

During the transfer process some contested situations for claiming of water rights took place. A first level of claiming occurred between WUA's representatives and public officials in order to demand accountability process. A second level refers between the WUA's leaders and water users, who exerted pressure to be considered part of the decision-making process in order to establish the 'rules' of the irrigation management. Thereby, claiming of water rights was revealed in a double-way.

Chapter 4. The current management of the El Pisque irrigation system

4.1 Introduction

The current organization structure of the El Pisque irrigation system has been the outcome of a process of political struggles, collective action, economic dependency, and development of capabilities among water users. After the introduction, I show an overview of the current structure of the irrigation system. In order to understand the current management of the irrigation system, I explain in the third section the diverse political struggles that have emerged during the WUA´s administrations as well as in the Juntas Modulares. As a result of that, the irrigation system has been involved in political activities where the close relationship between the WUA's leaders and bureaucrats has been established. In the fourth section, I reveal how the participation of the WUA in a politic activity such as the abolishment of the basic irrigation fee occurred.

In the fifth section, I explain the different changes in the regulatory framework and how influenced in the irrigation management. In the sixth section, I explore the actions taken to deal with the O&M of the irrigation infrastructure between the WUA and the Juntas Modulares. The seventh section regards to the development of the financial capacity of the WUA and Juntas Modulares to cover the O&M tasks. The eighth section explains how the co-property and its fulfilment influence on the WUA's effectiveness to deal with abuse situations. Finally, the conclusions are provided.

4.2 Organizational Structure of the El Pisque irrigation system

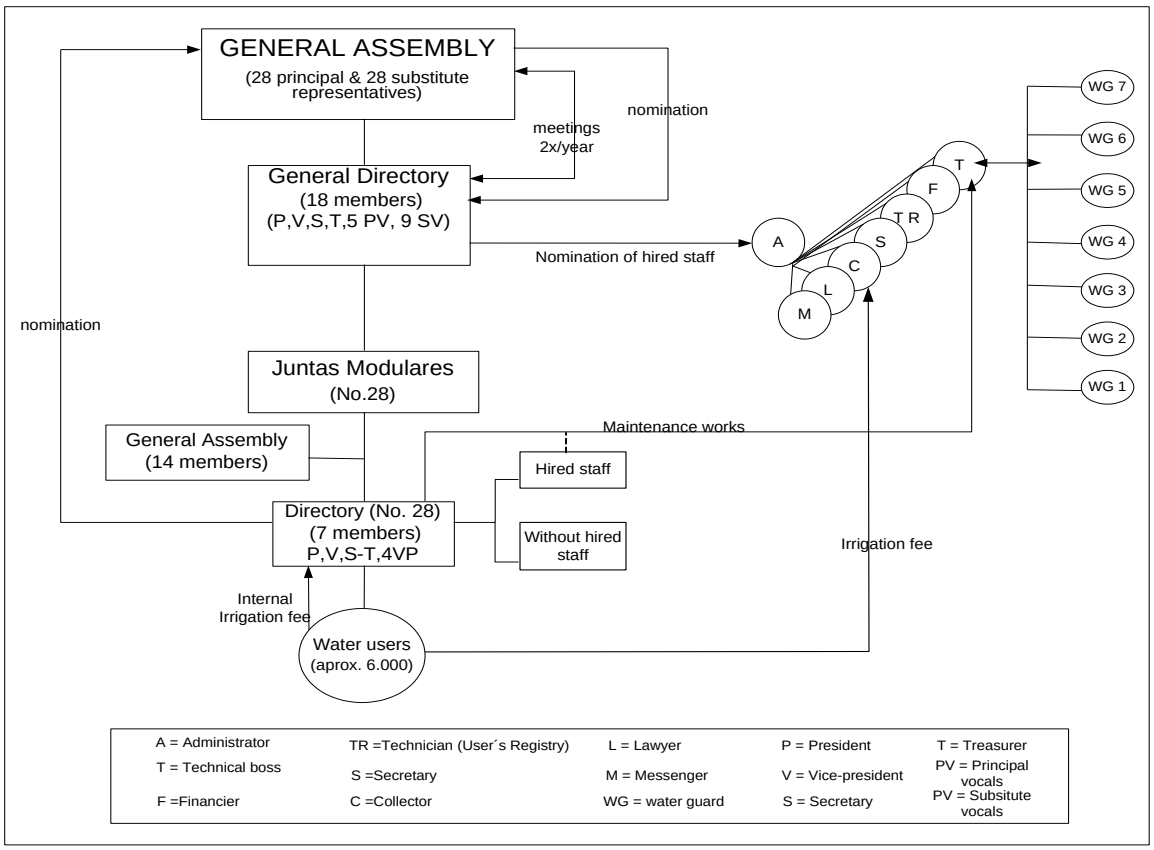


Figure 9. Organizational structure of the El Pisque irrigation system

The maximum authority of the WUA is the General Assembly which is composed of 28 principal representatives and 28 substitute representatives of the Juntas Modulares. The first group has the right to take decisions and vote in the election process ('voice' and 'vote'). Whereas the second group only has the right of 'voice' (see figure 9). The most important responsibilities of the General Assembly are: a) to approve the administrative, financial and technical report of the WUA's Directory, and approve the annual plan of the WUA; b) to apply sanctions to the water users and the WUA's staff; c) to approve reforms of the regulatory framework; d) to exert control on the WUA´s Directory; e) to organize two meetings (June and November) to verify budgets and reports from the WUA's staff; and f) to overlook the adequate water distribution and conditions of the infrastructure.

The General Assembly elects the WUA´s Directory, which represents the administrative body of the irrigation system. The Directory must exert its responsibilities for a period of two years. The Directory's members can be re-elected for one period. After two periods, the candidates have to wait one term before becoming eligible again. This body is composed of a President, a Vice-president, a Secretary, a Treasurer, 5 principal vocals and 9 substitute vocals, i.e. 18 members. All the WUA's members must be elected by secret vote. The main responsibilities of this group are linked to the adequate administration of the irrigation system, definition of the annual budget and realization of the operational plan to manage the system, resolution of conflicts among water users, appoint the Administrator, present reports to the General Assembly, and organize commissions among the Directory's members.

The Directory has the right to designate the Administrator who has the responsibility to administrate all the areas (technical, financial, the user's registry, secretary, collection, legal, and messenger areas) of the irrigation system. Within the technical area there is an irrigation technical boss who has the responsibility to manage the O&M tasks by means of seven permanent water guards. The operative and administrative staff and their main responsibilities are detailed in the following table.

Table 3. Responsibilities of the Operative and Administrative staff of the WUA.

Operative & Administrative Staff	**Responsibilities**
Administrator	Administrative management of the El Pisque irrigation system
	Preparation of the annual operating plan and its budget
	Elaboration of the economic reports to be presented to the Directory
	Authorization of the WUA's expenditure (jointly to the President)
	Evaluation of the irrigation infrastructure conditions
	Proposal of projects for improving the infrastructure conditions
	Safeguarding the WUA´s assets
	Organization and supervision of the water scheduling
Technical Boss	Permanent technical assistance for O&M tasks
	Attend to water conflicts
	Inspections at the field level both main canal and secondary canals
	Organization of maintenance tasks

	Technical assistance to water users
	Elaboration of the technical reports
Bocatomero'	Control and revision of the principal intake in the Guachalá River
Water guard	Control and revision of main intakes: 1-8
Water guard	Control and revision of main intakes: 9-17
Water guard	Control and revision of main intakes: 18-29
Supervisor and water guard	Supervision the activities made for water guards
	Control and revision of main intakes: 30-35
Water guard	Control and revision of main intakes: 36-48
Water guard	Control and revision of main intakes: 49-59
Water guard and driver	Driver of the truck for transporting materials
	Support to the rest water guards in the whole sectors
Lawyer	Support concerned on legal matters
Financier	Financial matters and coordination with the Treasurer of the WUA's Directory
Technician	Update of the Water Users's Registry and manage of the database
Secretary	Organization the meetings of the WUA and General Assembly; store information
Collector	Collection of water fee, fines, etc.
Messenger	Messenger matters

The second organizational level of WUA is the *Juntas Modulares*, which have its own organization represented by their Directory. In order to establish the Directory, there is the conformation of the General Assembly, which is composed by 7 main 'vocals' and 7 substitute 'vocals'. The main vocals select the Directory´s members who must be a President, a Vice-president, a Secretary-treasurer, 4 principal vocals (the rest of the main vocals unselected). Within the *Juntas Modulares*, there are six of them, which have a good organizational level in the sense of managing the operations and maintenance tasks in the secondary and tertiary canals by means of the contracted staff. The majority of JM's does not have the economic resources to contract these staffs to manage its irrigation infrastructure at the second and third levels. The maintenance works are made in coordination between the Directory and/or hired staff and the Technical irrigation boss. These works concerns the main canal and the secondary canals.

Every *Junta Modular* has different numbers of water users who represent approximately 6000 users in the whole irrigation system. Water users have the duty to pay the irrigation fee to the WUA and an internal irrigation fee to *Juntas Modulares* for the O&M tasks both of the main canal and the secondary canals, respectively. The irrigation fees are diverse in both cases and adjusted to the WUA´s and JM´s criteria.

However, the current management of the El Pisque irrigation system has not been an isolated event. This was the result of a dynamic process, where the intervention of every president has played an

important role in irrigation management. Thus, in the next section, I will present an overview of the diverse presidents' administrations and some political struggles among them.

4.3 The political struggles in the WUA and JM´s

4.3.1 The presidencies of the WUA

As I mentioned in chapter 3, the first leaders of the WUA were people linked to the flower companies who promoted the transfer process from the State to water users. The first leader of the WUA was a representative of the Baker family who is linked to the most important agribusiness in Ecuador. His main role was to support the formation of the WUA and to be a 'legal representative' during the transfer agreement between the WUA and the State. Two months after the transfer agreement, he renounced to the presidency of the WUA due to personal problems.

Subsequently, another representative of the flower companies took the presidency; he was the Hilsea's representative. His management was during the period 2000 to 2002. His role was linked to managing the UEP-PAT´s programmes with the coordination of CORSINOR; the organization of collective works for rehabilitation of the main canal, the organization of the *Juntas Modulares*, and the initial process of the user registry, among others. His directory supported all these activities (see chapter 3). In 2003, he was named as the WUA´s administrator and the presidency was in the hands of a medium livestock farmer. The president delegated to him as 'the legal representative' of the El Pisque irrigation system for the meetings of the Ecuadorian Association of the General Boards of Farmers-Irrigators (Asociación Ecuatoriana de Juntas General de Agricultores Usuarios de Riego; AEJUR). As the Hilsea's representative acquired a lot of experience about organizational aspects in the El Pisque irrigation, this helped him to gain a 'political position' in AEJUR. Therefore, he became the second president of AEJUR. One of the crucial aspects that he achieved during his management in AEJUR was the abolishment of the basic irrigation fee. This let him to widen his political positioning forward keeping a close relationship with bureaucrats at the national level (see next section). Taking advance of this, he formulated a development project, which included the construction of a dam in the influenced area of the El Pisque irrigation system to the Pichincha Prefect who offered to help him. At that time, he was the administrator of the WUA and the president of AEJUR.

Due to the fact that some of the first leaders of the WUA were linked to the flower companies, there was a lack of control of the abuse situations that existed in the irrigation system especially practised by the flower farmer/companies. Thereby, many conflicts were present such as water thefts, double-concessions of water, block of the water flow, etc. Therefore, water users claimed their water rights. This was reflected during the election of the new directory for the period 2004 – 2005. Thereby, the General Assembly delegated the management of the irrigation system to a new directory and the presidency and vice-presidency responsibilities were in the hands of two ex-Militaries who were medium farmers belonging to the JM No. 28 and JM No. 5, respectively. The directory, lead by its representatives began an audit proceeding to the previous representatives, which revealed some corruption situations in accordance with the president. He mentioned:

> *"We found some loans… but we did not know who the beneficiaries were and why did they (i.e. the previous leaders) do it; we had to pay around 100.000 USD because the WUA had*

debts (e.g. the social insurance to the WUA's staff); and we denounced 11 illegal vocals of the previous directory because they were not water users[42]..." (The WUA´s ex-president during the period 2004-2005; 30/09/2011).

Among the directory's members were two ex-militaries and four engineers (hydraulic, civil, electrician, agronomist). Thereby, the directory took legal action against of three of the previous representatives (including the Hilsea's representative)[43]. In accordance with the vice-president the arguments to denounce to the Hilsea's representative were that he wanted to earn a percentage of the development project and that he was not as a real water user. For that reason, they began a trial against him. This impeded his participation in the WUA´s and JM´s directory until the trial demonstrates his guilt or innocence, which has not been known until now. Because he was 'expelled' of the directory, the dam project pre-established with the Provincial Prefect was not continued. This indicates the close relationship between bureaucrats and WUA's leaders more that the support for the irrigation system itself.

At the end of 2004, the Directory hired an administrator and a lawyer. The new administrator was a civil engineer who worked until 2010. Whereas the lawyer is part of the WUA´s staff.

The administrator mentioned: *"When I began to work everything was based on abuses and intimidation. There were 80% of abuses claim mainly against of the flower companies. There was a high percentage of duplicated information (i.e. a same company has different names). The principal activities in the ex-Military´s management were to maintain the main canal, and to establish the bank accounts, and to 'put the things in order'. However, the investment in the administrative activities was not sufficient"* (The WUA´s ex-administrator, 15/08/2011).

Because several abuse situations were present, occasionally, the directory used the 'force' in order to control the abuse situations and required 'police action'. Thereby, they proposed to reform the regulatory framework which included fines, punishment, suspension of water service (by means of legal documentation), specification of a definition of "water-users", incentives and penalties in the collection of irrigation fees, inclusion of the 'treasurer' figure, specific functions of the administrator etc. The National Council for Water Resouces (Consejo Nacional de Recursos Hídricos; CNRH) approved the official reforms in 2006. At the end of the directory, the general economic balance was around 76.000 USD.

For the period 2006-2007, the General Assembly delegated the management of the irrigation system to an economist. As I mentioned in chapter 3, he was one of the 'precursors' of the transfer process. Some of the new directory's members were part of the first directory of the WUA. Within this directory were small farmers and medium farmers. By means of economic surplus of the previous Directory and the collection of the irrigation fee, the new Directory invested in some activities related to improving the infrastructure of the main canal and secondary canals and the technical

[42] Water user is a person who is owner of a property or who has a 'legal representation' of the company, cooperative, etc.

[43] Currently, these judgments are not proved.

administration. Thereby, the WUA invested in the acquisition of two sophisticated programmes[44] for the update of the users´ registry and the financial management, which costs around 60.000 USD. The improving of the administrative aspects by means of these programmes allowed updating the database, which helped to identify the irrigated area, localization of plots, irrigation techniques, etc. This was seen as a positive aspect by the General Assembly for the development of the WUA. Thereby, that it re-elected both the directory and the president for the period 2008 – 2009. Moreover, some of the operational staff was provided tools and motorbikes for their activities as the ex-administrator mentioned: *"This directory provided tools and motorbikes to the water guards; created 60 occasional jobs, and 15 permanent jobs..."* (the WUA ex-administrator, 15/08/2011).

The conflicts still were present during these periods as the administrator mentioned: *"I remembered that we (i.e. he, a water guard, several water users, and policemen) had to go for verifying the water conduction of a secondary canal which crossed for a part of the flower company's plot. After two years of these problems, we achieved the 'cambio de servidumbre'[45]"* (the WUA´s ex-administrator, 15/08/2011) (see the detailed of this case in the section titled: duty and authority).

At the end of 2009, the economist proposed to the General Assembly that the directory´s management should maintain for four years instead of two years (as the regulatory framework establishes). This proposal was approved and it was necessary to reform the regulatory framework. As the WUA needed the authorization from the Water National Secretary (Secretaría Nacional del Agua, SENAGUA)(See chapter 1) for reforming its statutes, the directory sent the 'new statutes'. However, SENAGUA kept as "silence procedure", the Directory took this action as a 'positive response' i.e. as if the new statutes were approved. Therefore, the Directory continued working until April 2010. However, by means of the SENAGUA's staff, the Directory knew that its 'new statutes' were not approved because they did not follow the legal proceeding correctly. As a result, the directory´s activities made until April were cancelled. Hence, the General Assembly organized again to elect the new Directory in May. At this meeting an agronomist (he was the main vocals in the economist's management) was elected as new president, as vi-president to an engineer (Ex-Minister of Public Works), and as treasurer to a lady belong to JM No. 12. This was the first time that the WUA had a treasurer in its directory who had the legal authority to sign any pay out of money jointly with the president.

Before inclusion of the treasurer, the payment out of money was controlled by the president and the administrator who signed the checks. The incorporation of a new figure as the treasurer lead to loss autonomy (in terms of management of economic resources) for the administrator and in August, 2010 he decided to renounce. The irrigation boss, a civil engineer (who has been working in the WUA since 2007) received the administration temporally. The agronomist renounced the presidency because of personal problems and the vice-president replaced him. A business administrator fulfilled the vice-presidency. After a few months, the president renounced and the business administrator took the presidency in February, 2011. The reasons of the instability of the presidents were concerned with the delay of the legal membership of the directory by SENAGUA, which influenced

[44] By means of the Military Geographic Institute (Instituto Geográfica Militar;IGM) was updated the User´s Registry by means of aerial photos.

[45] It means to right to use conduction and distribution infrastructure to get the water to a certain plot.

the lack of an 'official representative' of the WUA, as well as the retention of some of the WUA´s economic resources in its bank accounts.

The business administrator is the president of the WUA and the president of the JM No. 14 as well. He worked for ten years on the Checa Parochial Board, leading to have a lot of political experience. This was an important factor to be considered as the JM´s president and subsequently as the WUA's president. Some changes were implemented since his presidency such as the elimination of the 'administrator' figure because he considered that an administrator overlaps that the president's responsibility; demand to the plans from the *juntas modulares*; intention to group both the irrigation fee collected by the WUA and the internal irrigation fee collected by the *Juntas Modulares*; etc. Moreover, the political experience gained in the Checa Parochial Board made it easy to manage organizational aspects. For example, he organized several workshops in the majority of *Juntas Modulares* locations in order to disseminate the legal and organizational aspects of the WUA, highlighting the rights and duties of water users. This was considered a positive aspect for water users who mentioned that they never received a workshop during the management of the previous leaders; some of them did not even know the presidents. On the other hand, some of the JM´s representatives considered as a political mode to gain votes from water users. I attended three workshops where there were around 120 people in total and water users had the opportunity to raise questions, claim, and observation about the president's presentation. The water users´s claim for getting information about the organizational and legal aspects were reflected in these meetings. The direct contact with water users during the workshops was a positive factor for the business administrator who gained the presidency for the period 2012 to 2013.

This information reveals some political struggles during the initial years of the system management. Firstly, it reveals some intentions of the presidents, who were mainly water users linked to agribusiness (companies/flower producers) to keep the control of the decision-making process within the WUA and benefit their interests. As a result many conflicts were present among water users in order to access water. Secondly, the fact that the financial resources were in hands exclusively to the presidents and administrator, without social control lead to some corruptions situations. Thirdly, some reactions emerge from water users in order to 'claim' the right to be informed about the management of the irrigation system when they had an opportunity to do it. It was demonstrated in the workshops carried out by the current president. But not only were there several struggles on the managerial level but also in the development of the JM´s which is explained in the next sub-section.

4.3.2 The political struggles in the JM's

The political struggles did not only occur in the managerial level but also in the *Juntas Modulares*. Subsequent the transfer process, the *Juntas Modulares* were consolidated. The basic criterion used for the conformation of these organizations was the number of users and the location of the main intakes (1 to 59). The WUA´ Directory was in charge to manage the main canal and the JM´s were responsible for managing the secondary canals.

The struggles and conflicts among water users were present especially in the *Juntas Modulares*, which had more number of water users in its influential area and located in the tail-end of the

system. For example, the *Juntas Modulares* which took water from intakes of the main canal No. 32; 34-35; 20. These *Juntas Modulares* were managed initially by flower producers who allowed several abuse situations in order to access water. The close relationship between water users (who were workers or relatives for him/her) and flower companies, in the certain way limited the possibility to take action to 'stop' these situations, because water-users worked in the flower companies. This relationship limited the right to claim by water-users. However, when the informal way to access water was 'so obvious', the panorama changed. To illustrate this, I will take as an example the *Junta Modular* No. 12, which receives water from the intake No. 32. This *Junta Modular* is located in the El Quiche parish and has been managed by flower producers in the initial years after the transfer process. Many conflicts and abuse situations were present. The non-flower farmers decided to organize themselves and proposed as president to a small farmer instead flower producer as it detailed below:

> *During the initial years of the management of the JM, its leaders were linked to the flower production. The leaders' management was characterized by abuse situations and water thefts, especially in the summer season. Some years water users allowed these kinds of abuses because there was a close relationship among local manual labour and flower companies. The 'office' of the JM was located in the 'Hacienda El Pino' and the internal irrigation fee was collected by the president directly who was a flower producer. The JM's president had the water right of 65 litres/second. In mid of 2005, he required another water right of 50 litres/second. The 'normal' proceeding for this requirement is that the WUA's technical staff makes an inspection in the plot and realizes an assessment in the modular area to analyse the capacity of the discharge of the main canal and secondary canals. In accordance with this procedure, the WUA's staff informs to the JM´s directory in order to get its authorization (or not). However, in this case, there was neither an inspection nor the assessment. The WUA's president and administrator approved directly this requirement without notification to the JM. At that time, one of the vocals, knew about this situation and required an explication to the JM's president; however, she did not receive any kind of explanation. For this reason, she required a clarification to the WUA's administrator who disputed the authorization to get water for the JM's president. The JM's president renounced immediately and the JM's directory (without a president) announced a meeting among water users belong to the modular area (i.e a General Assembly) to elect the new president. Thereby the vice-president was elected as the president (fruit farmer), as vice-president to a water user who was part of a boarding house, and the secretary-treasurer was the women water user who required the clarification of the WUA's administrator. At the beginning of 2006, the new directory required the cancellation of the authorization made by the administrator and the WUA´s president to the flower producer (the ex-president of the JM). However, the WUA's president did not do. For that reason, they lose the trust on the WUA´s representatives* (The JM's secretary-treasurer, 30/08/2011*).*

By means of this action, the JM's management has a crucial change since 2006. The internal changes about the irrigation fee, punishment, and O&M works were established. The close relationship among the flower producer (ex-president of the JM) and the president and administrative staff of the WUA were important to allow the resource, which produced conflicts and reactions among water

users. The 'visibility' of this closer relationship reflected in the allocation of more resource to the flower producer (ex-president of the JM), which provoked the quick reaction of water users who demanded the clarification of this event. However, they did not receive a clear response. For that reason, the credibility of the WUA's representatives has been weakened within the JM's water users. This reveals that, the management of the irrigation system was characterized by struggles and negotiation processes during the allocation of water rights at the *Modular* level.

4.4 The WUA´s participation during the abolishment of the water basic fee

In this section, I will provide an analysis of the WUA's development during the subsequent years to the transfer process until the current management of the irrigation system during the period 2001-2011 in terms of the political and organizational activities. I argue that, the WUA's and water users' participation in the abolition of the water basic fee served as a platform to gain some 'political terrain' in others irrigation management areas by means of the creation of the Ecuadorian Association of General Boards of Farmers-Irrigators (Asociación Ecuatoriana de Juntas Generales de Agricultores Usuarios de Riego; AEJUR). As a result, the WUA' leaders retained a close relationship with bureaucrats during the subsequent years.

As I mentioned in chapter 3 and in the first section of this chapter, the basic water fee was a condition established within the contractual agreement between the State and the Water Users Associations (newly formed). By 2000, the basic water fee represented approximately 45% of the total water fee in the whole categorization of water users (see Table below) revealing an important cost by the WUA (The WUA's files, 2004). The WUA felt that the water fee payment was not 'fair' because the public management already collected this fee during its management. Hence, the elimination of the basic water fee represented one of the main challenges established for the transferred irrigation systems such as the El Pisque.

Table 4. Water fee in the El Pisque irrigation system in 2000

	Basic		Volumetric		Total	
Categorization	USD/year	%	USD/year	%	USD/year	%
< 1 ha	1.11	45.7	1.32	54.3	2.43	100
1.01 - 5.0	1.20	45.3	1.45	54.7	2.65	100
5.01 - 10	1.39	45.6	1.66	54.4	3.05	100
10.01 - 20	1.56	45.7	1.85	54.3	3.41	100
> 20	1.78	45.9	2.1	54.1	3.88	100

Source: (The WUA's files, 2004)

During the management of the Hilsea's representative, the abolition of the basic water fee took place. Before Utah State University (foreign assistance)[46] closed its programme, the WUA took an initiative to organize a forum and decided to invite some WUAs at the national level. The national meeting took place in the Guayllabamba parish (an irrigated area of the El Pisque irrigation system).

[46] After the retirement of the foreign consultants, the national consultants still worked mainly on the water users' census for almost 1 year (mid of 2001). However, this was not finalized.

The main objective of the national meeting was to exchange the WUAs' experiences about management of their irrigation systems[47] and to realize a farewell for the international consultants (Utah State University and ARD-Lotti). Finishing this forum, all WUAs decided to organize an association at the national level entitled the 'Ecuadorian Association of General Boards of Farmers-Irrigators' (Asociación Ecuatoriana de Juntas Generales de Agricultores Usuarios de Riego; AEJUR) which had as the main objective to negotiate with the State the abolition of the water basic fee. From 2001 to 2004, all WUAs worked together in order to achieve this objective. By 2001, the first leaders of this organization were representatives of the Milagros and Manuel J. Calle irrigation systems.

As I mentioned in chapter 3, the Hilsea's representative was one of the 'precursors' to take the O&M responsibilities of the El Pisque irrigation system during the *'La cintura'* problem and the transfer process from 1999 to 2001. During this period, he gained a lot of experience about the organizational aspects in the El Pisque irrigation system. This experience allowed him to be the AEJUR's president during the period 2002 to 2004. Moreover, he became the administrator in the El Pisque as well i.e. two responsibilities at the same time. During his management as the AEJUR's president, the abolition of the water fee was established in the Official Registry No. 271 of the Water Law on February,11th, 2004.

The abolition of the water basic fee meant the modification of Art. 17 and 53 into the Water Law (1972) during the Gutierrez presidency (2003-2005). However, the abolition process involved some representatives of WUAs at the national level but especially the El Pisque´s representatives. Because the AEJUR's president was part of the El Pisque, the El Pisque's Directory supported all activities of the Hilsea´s representative during his time in AEJUR.

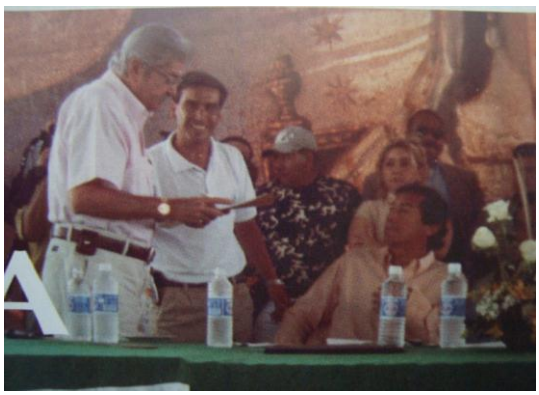
During the abolition process AEJUR´s leaders retained contacts with important bureaucrats. They organized meetings with Alvaro Perez (who was an official of the Quito Municipality, ex-Major of the Quito city, ex-President of the Association of Municipalities of the Provincial Councils); León Febres Cordero (who was the National Deputy during the periods 1970-1984; 2002-2004; ex-president of the Ecuadorian Republic during the period 1984-1988; ex-Major of the Guayaquil city during two periods (1992-1996, 1996-2000); and the Social-Cristiano´s leader)[48]; Lucio Gutierrez (who was the ex-president of the Ecuadorian Republic during the period 2003-2005); and Mr. Araujo (who was an assessor during the Gutierrez´presidency).

Three events were 'keys' during the abolition process within the AEJUR context. On the one hand, an important event took place when the AEJUR´s president delivered the 'Project about the abolition of the water fee' to the Febres Cordero (National Deputy at that moment). This project was elaborated by AEJUR with the cooperation of WUAs at the national level such as Daule-Peripa, Ambato Huachi Pelileo, América Lomas, and Higueron. An interesting point worth mentioning here is that the *Daule Peripa WUA* supported the *Social-Cristiano* Political Party which was led by Febres Cordero (an ex-member of the El Pisque´Directory, 08/08/2011). For that reason, Febres Cordero assumed the compromise to support the abolition of the water fee. This support was reflected during the

[47] Among irrigation systems that participated were: Milagro, Daule-Peripa, América Lomas, and Higuerón
[48] http://www.biografiasyvidas.com/biografia/f/febres_leon.htm

acceptation of the project in the National Congress submitted by the AEJUR´s president. During the abolition process of the basic water fee the Social-Cristiano-Political Party played an important role in the National Congress.

On the other hand, the abolition of the water fee not only depended on the National Congress´s decision but also on the president´s decision i.e. the Lucio Gutierrez's decision. Therefore, the AEJUR´s representatives took contacted with the Lucio Gutierrez´s assessor (Mr. Araujo). By means of him, AEJUR's president had a meeting with Lucio Gutierrez who required a multitudinous congregation of WUAs if they wanted to get the abolition of water fee. Hence, AEJUR organized a manifestation in Quito to demonstrate its organizational level. It represented the second important event to consolidate the abolition of basic water fee. Subsequently, on January 10th, 2004, AEJUR achieved a 'formal' agreement between Gutierrez and water users (represented by the AEJUR's president) on the abolishment of basic water fee. This meeting took place in the El Quinche (an irrigated area of the El Pisque irrigation system). This third event was the finalization of the abolishment process which began in 2001. All these events influenced to get the abolishment of the basic water fee on February, 2004 (See photo 2).



Delivery process of the project for the water basic fee exemption from the AEJUR's representative to León Febres Cordero

Signature of commitment to support the exemption of the basic water fee by Lucio Gutierrez

Photo 2. The abolishment process during the period 2002-2004

Source: El Pisque's journal, 2004

The participation the El Pisque´s water users during the abolishment process

During the abolition process the El Pisque´s water users supported to their leaders because it meant an opportunity to quit paying the basic fee to the State. Their cooperation was reflected during the third event (mentioned above). Because Gutierrez required a multitudinous congregation of water users (at least 10.000 people) in the Quinche parish, as condition to sign the agreement, the JM's representatives played an important role in organizing to the people. Every JM had to congregate to many water users located in its modules. In order to guarantee the people's attendance at this event, the General Assembly established a fine. It was around 10.00 USD.

Since February 2004, water users did not pay basic water fee. However, a prior to this date the payment of the basic water fee was compulsory. Thereby, the WUA paid the basic water fee from 2000-2004. For example, by 2003 the WUA paid approximately 16.183 USD to the State (The WUA's files, 2004).

The relationship between the WUA´s leaders and the State after the abolition of the basic water fee

The political positioning that AEJUR's leaders achieved after the abolition of the basic water fee created a strong relationship with of the Ministry of Agriculture and Livestock (Ministerio de Agricultura y Ganadería; MAG). As a result AEJUR established its own office in this Ministry. This area made it possible to create a 'communication via' between WUA´s at the national level and the State. In this office, by means of a secretary, information on projects and programmes related to agriculture and livestock matters managed by the MAG were known. Moreover, if a WUA wanted to get an appointment with the Minister for the approval of its legal membership (e.g.), the secretary arranged everything concerned with the realization of that.

In accordance with the ex-members of the El Pisque' Directory, the WUA had a strong relationship with the State at the beginning of 2003 *"We kept conversations Luis Macas Minister of Agriculture and Livestock during the Gutierrez Presidency (he was the Minister from January to august 2003)*[49]*..."* (The WUA's ex-member of the El Pisque irrigation system, 08/08/2011). An another ex-member mentioned: *"We had conversations with four Ministers: Luis Macas, Rodrigo Lasso, Luis Pachala Poma (Vice-minister).. we also made political activities but it was not 'politicking' "* (The WUA´s ex-member of the El Pisque, 05/10/2011). A recent example was related to the National Institution of Irrigation´s Director nomination (Instituto Nacional de Riego, INAR) *"We (i.e. the El Pisque' WUA) supported the nomination of the INAR's*[50] *Director in the Northern-region…by means of him, we made the improving of a main canal section…"* (The WUA' ex-member 08/08/2011). These examples reveal that AEJUR was a political platform for the WUA´s leaders to retain a close relationship with bureaucrats. In line with this, AEJUR has been considered as an organization very important to have influence in terms of political power (Hendriks & Mejía, 2003c).

The current situation

As I mentioned the close relationship between WUA's leaders and bureaucrats after the abolishment process was retained during the subsequent years. This can be explained by the interests for both sides. On one hand, the WUA´s leaders saw this as an opportunity to get support to improve the physical conditions of the infrastructure. On the other hand, bureaucrats looked for political support by means of votes from water users.

The abolition of the basic water fee was the most important event, which the WUA's leaders and water users were involved in the organizational and political activities related to water management outside its own organization. Currently, it seems that the relationship between the WUA and the

[49] http://www.ecuarunari.org/conaie/macas.html

[50] National Institute for Irrigation Water (Instituto Nacional de Agua para Riego, INAR). This institution replaced to the Regional Development Corporations. It was established from 2007 to 2010 by the Executive Decree No. 695

State has been weakened in the last years as an ex-member mentioned: *"Now, nobody is 'elected' by Water Users Organizations in the Sub-secretary for Irrigation and Drainage*[51]*. Neither by the Coastal WUAs nor the Andean WUAs"*. However, he also mentioned that still there is a close relationship with the Director of the National Development Bank: *"We had supported the election of the National Development Bank' Director (Banco Nacional de Fomento). Until now we have a close relationship with the Director who help us to buy 'urea' from the State"* (ex-member of the WUA's Directory, 08/08/2011)[52]. On the other hand the relationship between AEJUR and the WUA has been retained. Nowadays, the current WUA's president is the principal vocal in the AEJUR. Among the activities, that AEJUR has proposed is the participation of the water users in International Events related to agriculture production. For example, in June they are participating in the 'Rice Convention' in Miami in order to get contacts related to the international market (The WUA´s president, 14/05/2012).

4.5 Changes in the regulatory framework

An important change in the irrigation system was to reform the regulatory framework during the ex-militaries management. As a result, some modifications in the management of the WUA and the JM's were present; for that reason, I will explain the main reforms and some of their consequences.

As I mentioned in chapter 3, WUA established its own general regulatory framework in 1999 as a condition to assume the O&M tasks during the transfer process. By 2001 the General Assembly proposed some reforms of this general legal statutes and the establishment of internal rules. The intention of the establishment of the internal rules was to control water distribution and water use between the WUA and water users. The approval process of that had several impediments by the Regional Corporation for the Northern Andes (Corporación Regional para la Sierra Norte; CORSINOR). Due to the fact that CORSINOR's officials were an opponent during the transfer process, they began to establish many obstacles which stopped the WUA´s development.

By 2005, the General Assembly in three different meetings decided to reform the legal statute presented during the ex-Militaries' management which was approved by the National Council for Water Resources (Consejo Nacional de Recursos Naturales; CNRH) in March 2006. The last reform established that if the legal statutes changed the internal rules must be changed as well. However, the internal rules were not changed (these are in force until now). Therefore, the internal rules refer to 2001 and the legal statutes to 2006. The regulatory framework (2006) of the WUA was a result of the water users claim to stop many water thefts and direct unauthorized intakes from the main canal. This regulatory framework is force until now. The main aspects related to the changes in the regulation of the WUA from 1999 to 2006 are explained the following.

a) Change of the WUA´s office location

During the initial years of the WUA, its office was located in the Checa parish i.e. the leaders´ place of the WUA. If a water user wanted to pay the water fee, he/she had to come to the Checa's office for getting the 'payment order'. Subsequently, he/she had to pay in the Bank located in the El Quinche

[51] The Sub-secretary of Irrigation and Drainage assumed the INAR's responsibilities from November 2010 by the Executive Decree No. 564 (Ministerio de Agricultura, Ganadería, Acuacultura y Pesca, 2011)
[52] The WUA has been buying approximately 23.000 kg of 'urea' from the State

parish and to deliver the 'payment slip' in the Checa´s office. The claim from water users to re-located the office for the improving the payment process was achieved. The re-allocation of the office took place in 2004 and its official establishment on the 'paper' was in 2006. The WUA's office was located in the El Quiche which was considered a neutral location by water users. This is located next to the Credit and Saving Cooperative where a water user can deposit money of the water fee directly to this Cooperative instead of paying in the collection area of the WUA. Only the 'payment slip' is delivered to the WUA´s office.

b) Specification about the definition of a water user

As I mentioned in the first section, the Hilsea's representative was considered as a non-water user during the ex-militaries´ management, because he did not have a property and only he was a representative of a flower company. This motivated to the ex-militaries to propose reforms in the regulatory framework about the specification of a water user.

In the regulatory frameworks (1999 & 2006) a water user is defined as "*a natural or legal person who has reliable land to be irrigated by means of the El Pisque irrigation system under the condition that he/she must be registered in the user's registry before to meet the legal requirements that support his/her membership*" (Regulatory framework of the El Pisque, 1999, 2006). Although in both cases the definition of water user is the same, the regulatory framework of 1999 did not clarify who really right-holder is and which these legal requirements are. The regulation of 2006 gives some of details about who right-holder is and the legal requirements necessary to be considered a 'natural person' or 'legal person'.

On the one hand, the last regulation re-defines the 'water user' term. It not only takes into account the right-holder as a water user, but also his/her spouse. This very important because it gives him/her the possibility to participate in the activities concerned with the irrigation matters within the *Juntas Modulares* and/or the General Assembly.

On the other hand, this last regulation detailed the legal requirements if someone wants to transfer his/her plot (sell, inheritance). These requirements related to the 'statutes' of the person (natural or legal person). For example, when someone is considered as a legal person, the requirements are categorized based on companies, agriculture cooperatives, and housing development. Among the main specific requirements are: title of land; map of property; personal documents, number of partners (in the cooperative case), or legal membership (in the cooperative and companies cases). Moreover, the categorization of water users is an important factor for the WUA because it is closely linked to the establishment of the water fee (see the section ' financial resources of WUA'). All this information has been collected and stored in the database of the WUA, which helps to collect the water fee and cover expenditure related to the O&M works.

c) Elimination of additional water fee for the agriculture companies

The regulatory framework of 1999 established that the agricultural companies had to pay an additional cost of the water fee to cover the administrative activities, which refer to until 25% of the annual volumetric fee to cover the O&M tasks. From the initial years of the WUA's formation, a clear differentiation among water users in terms of the water fee was established. Although the regulatory

framework of 2006 does not specify the water fee for agricultural companies (e.g) it is well known that the WUA established a categorization (flower companies, agriculture cooperatives, farmers of short-cycle crops, etc.) of water users for payment of the water fee, months after to the regulation of 1999.

d) Establishment of time and incentives to pay water fee

Before to 2006, water users had the chance to pay the water fee at any day of a year without any kind of penalties if someone was delayed. However, from 2006 onwards, the regulation establishes that water users must pay the water fee before June, 30th of every year. In order to encourage this payment, the WUA establishes that if a water user paid before this date, he/she received a discount among 1% to 6% depending on the month that he/she paid (from 6% in January to 1% in June). In that sense, whose who does not pay before this date, had to pay fines between 1 to 6% (beginning from July 1% and December 6%). For example, by means of this incentive, more than 50% of the water users received until 6% of discount on the water fee independently of the type of crop in 2009 (Revista de la Junta General de Usuarios del Sistema de Riego "El Pisque", 2009).

e) The inclusion of a 'treasurer' in the WUA's directory

Another important element included in the new regulation (2006) was the figure of a treasurer. Due to the fact that after the transfer process, corruption situations were present (but it was not proved), the WUA´s representatives established this new figure. The main tasks of the treasurer were the administration and control of economic resources, shared signing by the WUA´s president for economic outlay, and collection of the volumetric fee. All these activities realized by the treasurer can be supported by a hired professional and his/her main objective was to exert any control on economic resource decisions. However, the incorporation of a treasurer within the WUA, was only possible in 2010.

Before to 2010, the administrator and the president signed checks in order to make any expenditure. An influential factor on the administrator' renounce was his loss of autonomy in economic decisions since the incorporation of a treasurer. His renounce was in August, 2010. The responsibilities of the administration were assumed by the current president who has a degree of business administrator.

f) Responsibilities of the WUA's administrator

The specific responsibilities of the administrator established in the regulation of 1999 are not set up in the regulatory framework of 2006. Although, the figure of 'administrator' is incorporated in this regulation, his responsibilities are not detailed. This caused some struggle moments among the directory's members of the WUA in 2010. Due to the fact that there were some administrative changes in 2010, the president executed the administrative tasks at the same time. Initially, the directory approved that he took this responsibility until they found a new administrator (it established only for 3 months while they would find a new administrator), however, this additional function was retained by the president. It was one of the causes that influenced on the internal conflicts among the directory's members especially between the treasurer and the president. Although, the current regulation does not specify if a president can be the administrator at the same time, the directory approved it. Therefore, the business administrator (current president) was the president and administrator of the WUA since 2011.

g) Rights and duties of water users

The regulatory framework of 1999 did not establish how water users can report water thefts and/or abuse situations. Since 2006, the opportunity to report this kind of situations has been a water users´ right. The reporting must be supported by evidences (documents, photos, etc.). WUA and JM have a format which provides the main elements concerned in the report.

Furthermore, water users have the duty to pay fines to both the WUA and JM. Prior to 2006, *Juntas Modulares* did not have the opportunity to collect fines from water users, i.e. that JM´s have the right to collect extra-revenues from water users' fines. Although, the internal rules of the WUA established that every JM present an annual 'action plan', the majority of them did not present it. Therefore, JM's had autonomy to manage their revenue and expenditure as well as their internal management, without control by the WUA.

h) Establishment of the emergency funds

In the regulatory framework (2006), the WUA's directory established officially a rule to attend emergency situations. This determined that from the total revenue collected from the water fee in one year, 10% must be invested in emergency situations. This rule lets to solve some of the problems related to the irrigation infrastructure during the subsequent years (see the next section).

i) Additional requirements to be designed as a member in the WUA's directory

Both the regulatory frameworks of 1999 and 2006, established that requirements to be considered as a member in the WUA's directory are as follows: to be considered a water user of the El Pisque irrigation system; he/she must to comply all duties related to the WUA and JM; and she/he must not be staff related to Public Institutions of Water Resources. Additionally, the regulatory framework of 2006 establishes that if someone wants to consider being a member within the WUA's directory; it is necessary to have the authorization of a Junta Modular. In the same line, he/she must not have civil proceeding related to administrative activities of the WUA's directory or the JM's directory.

This section demonstrated that there were some attempts to re-formulate the irrigation management of the irrigation system at least on the 'paper'. The main changes established in the regulatory framework (2006) were related to economic resources (fees, punishment, water fee, incentives, collecting fines by Juntas Modulares, emergency situations). This was an influential factor to determine that the main source for managing the irrigation system was seen from 'commodity' point of view (see section entitled 'financial resources of WUA').

4.6 The infrastructure issues

In this section, I will explain which the main issues related to irrigation infrastructure were and how the WUA dealt with that. Additionally, I will provide some elements of the relationship between the WUA and JM to resolve these issues.

4.6.1 Dealing with the infrastructure

Because the State retained the property rights over the infrastructure after the transfer process, it implied that one of its duties is to do all maintenance and investment in the main canal. However, in

practice the WUA also assumed all these activities. The WUA is responsible for the O&M works of the main canal and *Juntas Modulares (JM)* on the secondary canals within its modular area.

It is understandable that although JM had duties over secondary canals, it was not sufficient to get the water flow from the main canal. For that reason, during the initial years JM helped to clean and maintain the main canal as well. Thereby, water users used to keep the O&M works in the main canal for getting water flow in its secondary and tertiary canals, i.e. that there is a close relationship between the O&M works made in the main canal for getting water to the secondary and tertiary canals. However, in the last years the realization of the collective works ("mingas") has been less frequents, because the WUA's leaders preferred to contract "cudrillas" (group of hired workers) to clean the main canal.

In the initial years if the WUA would supply water to water users, this would mean that they would get revenues to cover expenditures and gain confidence from water users in the management of the irrigation system. Therefore, the necessity to demonstrate that the WUA could supply water pushed to increase the rehabilitation works in the infrastructure and required from water users the payment of the water service.

The WUA had to confront many problems related to the infrastructure after the transfer process. For example at the end of 2003, the climate conditions caused the destruction of some structures in the Guachalá sector (damages on the main intake and sand trap). By means of close relationship with an ex-Prefect of the province of Pichincha (who was also a water user of the irrigation system), it was resolved. An ex-member of the WUA' Directory mentioned: *"We went to talk with the Prefect in his house. At the end of the week, the Prefect and the Agriculture Minister helped us; they sent machinery and operational staff. For this 'big' favour, he was elected as Prefect. Everybody voted for him"* (ex-member of the WUA' Directory, 08/08/2011). I as mentioned in the previous section, a close relationship between the WUA and politicians was formed during the abolishment process, which were reflected when the WUA had problems.

By 2007, some sections of the main canal collapsed which caused the lack of water supply for three consecutive days. By means of 'emergency resources', the WUA managed to buy materials and to hire extra-operative staff, leading to the re-construction of the affected sections and additional works in the sector (retaining walls and lining of some sections of the main canal). In 2008, there was an impoundment next to a flyover of the main canal. The WUA self-managed to resolve this problem. It cost around 12.000 USD. Although, the "mingas" for maintenance works had been reduced in the last years, it still is made when there is a serious problem, which is complemented by the hiring of external workers. For example, in 2009, there was a blockage in a tunnel in the southern area of the main canal, by means of *"mingas*" and hired staff, the WUA overcame this issue. All these actions were undertaken mainly by the WUA which revealed its capacity to deal with several problems related to irrigation infrastructure. Although, the property of the infrastructure is retained by the State, it did not take direct actions when the infrastructure problems took place. Therefore, the WUA was gaining experience about how to manage their problems mainly by themselves. Because the irrigation infrastructure has been working more than 50 years, the problems related to the infrastructure continued to occur during the subsequent years.

But not only WUA had problems with the irrigation infrastructure also the JM had to confront problems in its secondary canals. By 2004, Cárdenas mentioned: *"there were some destructed sections of secondary canals especially in the Juntas Modulares which had the right to take water flow over 500 litres/second from main canal"* (Cárdenas, 2004). The initial years of the JM's were supported by the WUA to rehabilitate the secondary canals. These rehabilitation works were made by means of directly supported by WUA and/or the *"mingas"* among water users. When the JMs are formed mainly by small and medium farmers they used to make "mingas" for rehabilitate their secondary canals for example Junta Modular which receives water from intake No. 46. When the JM is formed by companies and flower producers and small/medium farmers, there is a 'mix' of manual labour of the companies' workers and water users. For example, in the Junta Modular which receives water from intake No. 32

4.6.2 The relationship between WUA and JM

Once that WUA rehabilitated the main canal in 2003, JM's directory required a report about the main problems concerned with the irrigation infrastructure in the secondary canals in order to rehabilitate them. By means of the inspections from the WUA's technical boss, it was possible to elaborate a budget and technical studies for the rehabilitation of the secondary canals. Both the studies and budget were present to the General Assembly for getting its approval. In accordance with this approval, the *Juntas Modulares* received the infrastructure works in the deteriorated main sections in its secondary canals.

The General Assembly in 2006, establishes that 20% of the irrigation fee of every *Junta Modular* would be invested in its area for the implementation of the infrastructure works (rehabilitation, lining, etc.,) by means of the WUA's technical supervision (Regulatory framework, 2006). Since 2006, JM had had the right to claim for rehabilitation works to the WUA. The WUA's technical staffs provide the WUA some services such as inspection, technical design, material support, and supervision of the infrastructure works. Whereas *Juntas Modulares* provide manual labour in this kind of works. However, this means that depending on the economic capacity of every *Junta Modular,* this would receive the infrastructure works, i.e. those cannot collect huge amount of money would receive fewer infrastructure works. In other words, it reveals that there is a criterion of 'exclusion' because who have less economic resources would receive less support by the WUA. Checking the database of the WUA, I found that the main *Juntas Modulares* which would receive more infrastructure works are those where there a major presence of companies/flower producers. Thereby, I will mention that the 'benefit' established by the General Assembly by means of 20% of the irrigation fee of every Junta Modular is being also advantaged by companies/flower producers, which are located in the Juntas Modulares that collected more money from the water fee.

By 2010 the main infrastructure works were related to the concreting of the canal in some secondary canals (e.g. Secondary canals from the main intakes No. 19, 31, 34, 46, 58, 59). An interesting point to mention here is that the WUA's water guards and external workers (hired by the WUA) made some of the concreting works in these canals. These works caused some reactions from the water guards who claimed that their roles in only to distribute water from the main canal to secondary canal

instead to make concreting works. These works were seen as 'positive aspects' from water users who supported the candidature of the current president for the elections of 2011.

Although, water users have intervened less for maintenance works in the main canal, they still support to WUA when there is a serious problem. For example, a collapse in the main intake destructed a section of the main canal and the sediment blocked a tunnel in 2009, causing the lack of water service to the southern-area of the irrigation system. By means of manual labour of water users, operational staff of WUA and hired external staff of the WUA, the rehabilitation of this section was finished in 8 days. Several water users (belong to the main intake No. 46, 47, 48, 49, 58, and 59) contributed with their manual labour (Revista de la JGUSR "El Pisque", 2009).

The coordination for the O&M works between WUA and JM's depend on the organizational level of every Junta Modular. For example, when the JM's leaders want to organize "mingas" for cleaning works in the secondary canals and/or the concreting canals works in its modular area, the JM's Directory coordinates with the WUA's irrigation boss for making these kinds of activities. However, there are Juntas Modulares, which have its own water guard who is responsible to coordinate these activities with the WUA's irrigation boss such as the JM No. 27.

Depending on the organizational level of JM's, the time of the maintenance works of the secondary canals is diverse. Some of them are made once or twice per year by means of "mingas" or external workers in its modular area. For example, the Junta Modular No. 22 which receives water from the main intakes No. 47, 48, 49, must make the maintenance works of these three secondary canals and preserve and maintain the section 47 to 79 of the main canal. As they do not have a water-guard and all activities are made by water users. Another example is the JM No. 12 which has a water guard who is responsible of the water distribution in the modular area; he cleans the area around of the intakes, and he has a permanent communication with the WUA´s irrigation boss. Moreover, he submits the 'notification letters' wrote by the JM's secretary to organize maintenance works in the modular area. This works are made by sectors within the modular area. These activities are made both the right-holder and/or the company's workers.

This section indicates that the majority of maintenance and operational works realized in the main canals has been resolved by the hiring of external workers and operational staff of the WUA. Only few times the water users participate in these activities by means of "mingas" (when there is a serious problem). In the secondary canals, depending on the organizational level of the *Junta Modular*, the works can be made by a 'mix' of manual contribution: hired manual labour, companies' workers and/or water users. On the other hand, this section has demonstrated that there are privilegious of the investment in infrastructure works, thereby the *Juntas Modulares* which have more economic power are those receive more investment, excluding to others that have fewer economic resources.

4.7 Financial resources of the WUA

This section will provide an overview of the developing the financial resources of the WUA and some *Junta Modulares* and how the actions realized by WUA has lead to the individualization of the system.

4.7.1 The economic evolution of the WUA

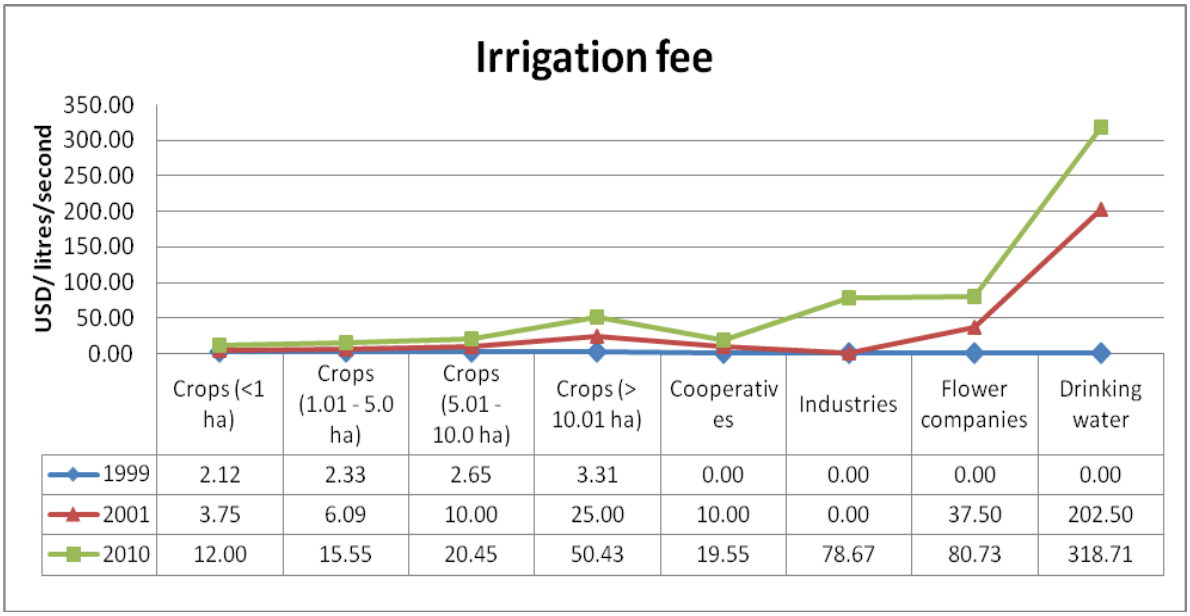
The evolution of the irrigation fee and economic resources in the WUA

The economic resources are important in order to cover the WUA's expenditure. Meinzen-Dick (2000) points out that the economic resources are very important for WUAs in comparison to the public institutions which can operate at a deficit. In the same line, he mentions that these are essential because not only include the manual labour and materials for maintenance works but also patrolling to ensure rule compliance and transaction costs (Meinzen-Dick, 2000). In the case of El Pisque, the financial resources have become the main important source to manage the irrigation system. During the initial years, the WUA had problems to collect the irrigation fee from water users. For example, in 2000 the collection fee was 6.419 USD which was not sufficient to cover the O&M work; for that reason its main source was the "mingas" (See chapter 3). However, after three years the revenues increased to 150.000 USD (Revista de la JGUSR "El Pisque", 2004). Subsequent years, a strategy used by the WUA to deal with the irrigation infrastructure problem was to establish an emergency fund (approximately of 50.000 USD) which covered several of the infrastructure problems and depending on the problems these are supported by water users.

The main revenues acquired by the WUA come from the water fee. For that reason, it is important to mention its evolution. During the public management, lower costs were retained, because the State subsidized the irrigation fees for water users. In 1999, the irrigation fee was adjusted to the land size without considering the type of crops or water use as is illustrated in the figure 10. By 2001, after the transfer process, the WUA increased the irrigation fee (three times more until seven times more depending on land size) and established categories not only related to land size (as the public management) but also to the type of crop and water use. Thereby, the cooperatives, industries, flower companies, and drinking water categories were determined. During the period 2001 to 2010, the irrigation fee has been increasing overall for the drinking water category. The term 'crops' refers to short cycle crops (maize, potatoes, strawberry…), even livestock production is considered within this group. Moreover, within this group ('crops') there are subdivisions in accordance to the land size from less than 1 ha to more than 10 ha. Another classification refers to the 'cooperatives' which are formed by the agricultural cooperatives, urbanizations, and schools (gardens). Whereas the poultry and textile activities are part of the 'industries' group. An interest point worth mentioning here is that this categorization was established few years subsequent to 2001 because at that time, the information in the user's registry was insufficient. Within the 'flower companies' there are farmers and companies who cultivate crops such as roses, carnations, and summer flowers. The last categorization regards to 'drinking water'. The Metropolitan Company for drinking water- Quito (Empresa Metropolitana de Agua Potable, EMAP-Q) is part of this.

The establishment of categorization is not only based on the size land but also on the type of crop and water user. This reveals a certain criteria of "equity" in terms of water fee, which is linked both to land size (water volume to linked to land size) and the type of use. For example, a water user who has 7 hectares cultivated with short cycles crops (i.e 'crops' group) has the right to receive 5.60 litres/second and his irrigation fee is 112 USD/year. Whereas a water-user ho has the same cultivated

land with flower, has the same right in terms of volume but his irrigation fee is 448.000 USD/year[53] (see figure 10). However, the term "equity" is not adequate when it is related to amount of water that water-users receive. The table 2 demonstrate that a flower producer receive 11 times more water than a farmer who cultivates short-cycles crops. This can be explained because the water right is lind to amount of land.



	Crops (<1 ha)	Crops (1.01 - 5.0 ha)	Crops (5.01 - 10.0 ha)	Crops (> 10.01 ha)	Cooperatives	Industries	Flower companies	Drinking water
1999	2.12	2.33	2.65	3.31	0.00	0.00	0.00	0.00
2001	3.75	6.09	10.00	25.00	10.00	0.00	37.50	202.50
2010	12.00	15.55	20.45	50.43	19.55	78.67	80.73	318.71

Figure 10. Water fee during the period 1999-2010

Source: the WUA's files (1999-2010)

Table 5. Distribution of water and land per water-user

Types of water users	Water users		Area		Volumen		Volumen/water user	Area/water user
	No.	%	ha	%	l/s	%	(l/s) / water user	ha/water user
Short-cycle crops	5831	97.8	8008	80.8	6384	80.8	1	1.4
Companies/Flower producers	102	1.7	1445	14.6	1146	14.5	11	14.2
Industry	10	0.2	97	1.0	77	1.0	8	9.7
Cooperatives	17	0.3	317	3.2	254	3.2	15	18.6
Drinking water	1	0.02	46	0.5	37	0.5	37	46.3
Total	5961	100	9913	100	7898	100	1.32	1.7

Source: JGSRP, 2011

The principal incomes of the WUA had been derived from individual users' payments for the rent of water which covers the O&M and administrative activities. By 2010 the irrigation fee represented 83% of the total revenues. Water users, the WUA´s representatives and the WUA´s staff have

[53] I used as a referential year to 2010, in order to compare the water fee with 2001 and 1999

benefited from the WUA revenues. On the one hand, the incomes received by the WUA let to provide the water service to water users, who can irrigate their crops, producing incomes for them. On the other hand, the technical and operational staff received their salaries from the WUA's revenues, causing a type of incentive to provide the water service. The 'economic recognition' of the WUA's representatives has been related to travel and the roles that they have performed. Although, the WUA has obtained revenues to cover its expenditure, occasionally expenditure exceeded the revenues. During the period 2004-2005 the WUA´s representatives focused more on the O&M works than on administrative activities. At the end of this period, there was a surplus of 76.344 USD, which was invested in works by the next WUA´s representatives. The new representatives were elected for the period 2006-2007, and re-elected for the period 2008-2009. Its main investments was the acquisition of a GIS programme, accounting software, additional works in the main canal and secondary canals, provision of motorbikes for some water guards, materials for the maintenance works etc (the WUA ex-Administrator, 2011). By 2010, there were some changes in the Administrative staff causing instability to manage the economic resources (See previous paragraphs). Revenue and expenditure made by the WUA during the period 2003-2010 is illustrated in the following table.

Table 6. Revenue and expenditure of the WUA during the period 2003-2010

	Revenues	Expenditure	Balance
Year	USD	USD	USD
2003	280.271	171.546	108.726
2004	242.284	322.069	-79.785
2005	261.619	185.275	76.344
2006	244.579	225.254	19.325
2007	323.815	302.280	21.535
2008	267.713	302.721	-35.008
2009	286.092	280.683	5.409
2010	316.651	364.682	-48.032
Average	277.878	269.314	8.564

Source: Revista de la Junta de Usuarios del Sistema de Riego "El Pisque", 2004-2010.

The current revenue and expenditure of the WUA

In order to understand the current relationship between the WUA's revenues and expenditure, I present the expenditure areas and the WUA's revenue composition in 2010. In accordance with the available information, the O&M costs refer to 28,40 USD/ha/year[54]. As I mentioned above the irrigation fee contributes to 83% of the total revenue in 2010, this means a total dependence of the irrigation fee for the WUA's revenue. Moreover, because there are farmers who pay the irrigation fee after the time established in the regulation, they must pay fines. As a result, the WUA receives an additional income for the water users´ delay. When a water user wants to pay the irrigation fee and/or fines, she/he has to come the WUA's office for getting an 'authorized paper' from the

[54] In accordance with Cisneros (1999) the required budget for covering O&M refers to 150 USD/ha/year. This means that JGSRP was not covering with the required budget, influencing on maintenance and operation works.

collection area and deposit the money in the Saving and Credit Cooperative located next to the office. Subsequently, he/she has to deliver a receipt in the collection area as a way of confirmation of his/her deposit. Hence, the collection´s area staff does not manage the money directly.
On the other hand, the WUA's expenditure is focused to cover the administrative, operational, and maintenance costs of the irrigation system as well as the additional expenditure concerned with the travel allowance (e.g.) of the WUA´s directory. Thereby, the administrative staffs concentrate almost of 50% of the WUA's total expenditure[55]. The administrator (who is the current president as well), irrigation technical boss, secretary, technician (database), financier, and tax collector are part of this staff. Furthermore, the cost of operating staffs refers 17% of the total expenditure. This is composed by 7 water guards who have the responsibility to manage the main intakes from the main canal and they are controlled by the technical boss. The WUA invests in the main canal and in secondary canals, which covers 23% of the total expenditure (see Figure 11).

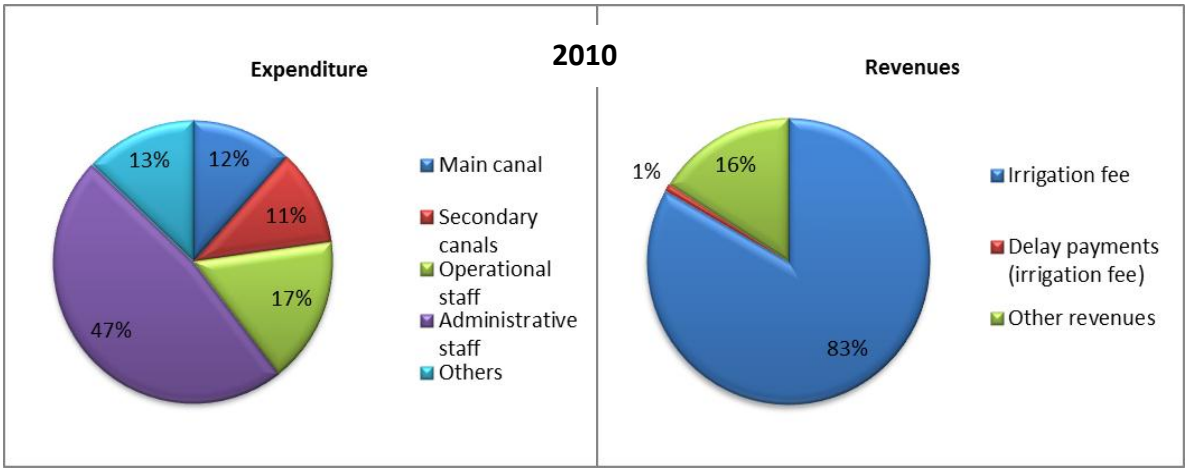


Figure 10. The WUA's revenue and expenditure in 2010

Source: The WUA's files, 2010.

This sub-section demonstrates that the management of the irrigation system has a strong relationship with the fee collected by water users. The WUA's revenue is linked to cover the all expenditure relating to the functioning of the irrigation systems, creating a high extent of dependency of the payments made by water users. This means that the security of the system is based on the economic resources rather than collective labour power. Only when there are a serious problems in the main infrastructure water users can help to resolve it. Thereby, the WUA uses its economic funding in order to confront some emergency situations, to operate and administer the irrigation system, to incentive the WUA's representatives, to incentive the collection fees as well as to establish the criterion of 'equity'. As Carruthers (1991) mentions there is a direct link among the WUA and the fees for services, establishing a "farmer-financed irrigation" system (Carruthers, 1991 in Meinzen-Dick, 2000). In the same line, Boelens (2008) names 'commoditized security system' to those which have a close relation between commodities and the security of management (Boelens, 2008).

[55] Here, it is important to consider that in 2010, the total settlement for the WUA's administrator was made. It was around 24.000 USD (The WUA's president, 25/08/2011)

4.7.2 The economic evolution of the JM's

The evolution of the irrigation fee in JM's

Water users not only have the duty to pay the irrigation fee to the WUA but also to the JMs. These collection fees cover the O&M activities related to the secondary and tertiary canals. In accordance with the available information, every JM has had its own criteria to establish the irrigation fee. Due to the fact that the WUA did not exert total control over JMs, these determined their own organization which gave 'freedom' to decide criteria for the irrigation fee. Moreover, the WUA did not establish any accountability mechanism to control the revenue and expenditure of JMs, influencing on some corruption situation in JMs. For that reason, the development of every JM is diverse as well as its criteria to decide about the irrigation fee is different each other. In order to reveal the evolution of this fee at the Junta Modular level, I will present the case of JMs No. 12 and 5.

> *In the JM No. 12 prior to 2006, criteria to establish the irrigation fee were based on two aspects. On the one hand, the size land which was divided into four categories (0-1;1-5;5-10;>10 ha). The second was related to the type of crop and water use. For example, a water user who had 1 ha, must pay 7.5 USD/ litres/second/year in 2002. Whereas a producer who had more than 10 hectares, had to pay 50.5 USD/ litres/second/year in the same year. If a farmer produced flowers, he/she had to pay 76.5 USD/ litres/second/year independently to the size land. Because the JM´s Directory had changed the new (see the first section) representatives established a new criterion to collect the irrigation fee. Thereby, water users who had less than 1 ha, had to pay 12 USD/year; whereas someone who had more than 1ha, had to pay 1 USD/month per every litre used. These criteria have been retained currently.*
>
> *In the JM No.5 (intake No. 20), at the end 2009, the irrigation fee was established in accordance to land size. Thereby a water user had to pay 1 USD/ha. In 2010, the General Assembly established an irrigation fee based on land size and the type of crop. For example, if a water user had less than 1 hectare, he/she must pay 10 USD/year; whereas if another water user had between 1.01 to 5.0 hectares, he/she must pay 15 USD/year independently of type of crop. If someone had a flower production she/he had to pay 50% of the irrigation fee established in the WUA, i.e. around 40.35 USD/litres/second/year. The irrigation fee is still valid.*

This information reveals that JM´s had the right to establish their own criteria to adjust the irrigation fee. Initially, JM No. 12, considered both land size and type of crop, but subsequently it was changed by size land and water flow without considering the type of crop. Whereas, that in JM No.5 it was the opposite to JM No. 12. Initially, it determined the irrigation fee based on land size, however, due to the new directory the irrigation fee was established taking into account the categorization of land size as well as the type of crop. These differentiations respond to the 'freedom of right' to set up the irrigation fee in every JM, supported by the WUA´s regulations (2001 and 2006). Although, the WUA had to approve this establishment, it did not intervene in the decisions of JMs´representatives. For that reason, every *Junta Modular* has its own criteria to establish the irrigation fee as I show in the Table 7. Criteria can be based on surface, water flow, type of crops or numbers of water users. For example, in the case of the *Junta Modular* No. 12, the main criteria are related to surface and water

flow more than to the type of crop. Although, this junta modular is one of JM's recognized by flower production, the type of crop is not its main criteria. Whereas, that in JM No. 22, the most important criteria has been the number of water user. Here, a water user has the duty to pay 0,50 USD/water user/month. Another case is JM No 5. which establishes a categorization according to land size and type of crop (especially between flower and "other" crops). Another case is JM No. 22 which determines the irrigation fee in accordance to land size. These criteria refer to the current management.

Table 7. Different criteria to establish the water fee by JM´s

Junta Modular No.	Water comes from intake No.	Criteria				Irrigation fee	
		Surface (ha)	Water flow (l/s)	Crop	No. water user		
5	20	< 0.25	no	all crops except flowers	no	5.00	USD/ha/year
		0.25 - 0.5				7.50	USD/ha/year
		0.51 - 0.75				10.00	USD/ha/year
		0.751 - 1.0				12.00	USD/ha/year
		1.1 - 5.0				15.00	USD/ha/year
		5.01 - 10				20.00	USD/ha/year
		> 10.1				25.00	USD/ha/year
		no	yes	flowers	no	40.35	USD/ litres/second / year
9	25-29	no	no	no	yes	5.00	UUSD/water user/year
12	32	< 1	no	no	no	12.00	USD/ha/year
		> 1	yes	no	no	1.00	USD/ litres/second / month
22	47-49	no	no	no	yes	0.50	USD/water user/moth
28	59	< 1	no	no	no	10.00	USD/ha/year
		> 1	no	no	no	20.00	USD/ha/year

Source: Fieldwork, 2011

The right of JM to collect the irrigation fee for the O&M works (following its own criteria) from water users belongs to their modular area. This takes place without any control mechanism from the WUA which leads to economic autonomy in every modular area. In the same line, revenue and expenditure are different. For example, although that JM No. 9 has more number of water users (579), it collects less revenue than JM No. 5 which has fewer number of water users (386), because in the first case the irrigate fee is lower than in the second case and there is not any kind of categorization. Whereas, in the second case, due to the fact that there is a diverse irrigation fee in accordance with land size and the type of production, its irrigation fee is higher than in the first case, although it has fewer users. Thus, every JM is different to each other. Table No.8 represents the potential revenue which some JM´s collected.

Table 8. Potential revenue in some JM´s in 2011

JM No.	Water comes from Intake No.	Revenue USD/year
5	20	11042
12	32	7127
22	47-49	990
28	59	14933

Source: Database of the El Pisque irrigation system 2011; field work. 2011

An interesting point to mention here, is that depending on the economic capacity of water users and the organizational level of the every *Junta Modular*, the collection of the irrigation fee can be achieved. The table above shows the potential revenue that some JM's should collect, however not always they can collect these amounts of money. For example, JM No. 12 has to collect around 7.127 USD/year but in practice it collects around 5.800 USD/year, i.e 81% of the collection. Whereas, JM No. 22, has to collect approximately 1.000 USD/year, however, it collects around 600 USD/year. In the same line, the organizational capacity of JM´s determines their expenditure. For example, the JM No. 59 has 2 water guards and 1 secretary who realize the operative and administrative activities respectively. This expenditure cover 75.2 % of the total revenue (12.000USD/year); whereas in JM No. 22, where there are no water guards neither operative staff, the expenditure is based on 'snacks' when there are *"mingas"* in its modular area. In the whole irrigation system there are 6 JMs (No 5, 9, 12, 14, 27, 28) which have administrative and operational staff; whereas that the majority of JMs do not have this staff. This depends on the organizational level that every JM has. In order to explain the diverse management of the *Juntas Modualares* I divided in two groups:

a) Juntas Modulares with operational and administrative workers

JM 5 (intake No. 20): Its is located in the Guayllabamba parish. The current representatives of the *Junta Modular* were the WUA's representatives in the period 2004-2005 (the ex-militaries). It has 386 water users, the majority of them are non-flower producers. Initially the *Junta Modular's* representatives established a water fee of 1 USD per hectare. However, in the last years the representatives decided to re-establish the water fee based on land size and type of crop. For example, a farmer who has less than 2.500 m^2, he/she has to pay less than 1.0 USD/year; whereas a farmer who has from 5.1 ha to 10 ha, he/she has to pay 20 USD/ha/year. A flower producer has to pay 50% of the water fee established in the WUA i.e. 32 USD/ha/year. The amount of money collected is deposited in its own bank account. It has approximately 620 hectares as irrigated area. This *Junta Modular* has a secretary who works every afternoon and a water guard who works from Monday to Friday and Saturday until midday. The maintenance works are based on the collective work. If someone cannot to participate during the collective works, the fines are established which are 10 USD. Currently, the JM's leaders have begun to build its own office in order to realize meetings (e.g General Assembly) or rent for other activities. Water users have the duty to pay an additional fee for that, which is 5.00 USD/year.

JM 27 (intake No. 58): The *Junta Modular* located in the Puembo parish. This played an important role during the transfer process. As I mentioned in chapter 3, water was not sufficient in these areas during the public institution management, therefore the *Junta Modular's* representatives supported

the WUA's representatives in all aspects as an alternative to get water. The "*mingas"* and the companies' workers were essential for cleaning canals and 'recuperating' the water flow from the secondary canals. Since 2000, it has a permanent water guard who is charged with water distribution and administrative tasks. Moreover, the water guard has a motorbike to realize his different activities. He received a monthly salary and extra-fund for keeping communication with the *Junta Modular's* representatives and water users. March and April are official months to collect water fee which based on volumetric criteria i.e. 10 USD/litres/second per year. Therefore, they manage an 'emergency funds'. There is not differentiation among crops to establish the water fee. The collection fees are retained in the Treasurer's bank account. This Junta is characterized by the presence of big companies (such as Pronaca), ex-bureaucrats (ex-Ministers, ex-Major) and entrepreneurs.

b) Juntas Modulares without operational and administrative staff

JM 21 (intake No. 46):. It is located in the Yaruquí Parish. Although, it has the biggest number of water users in the whole irrigation system, it has not the operational and administrative staff as the cases explained above. Based on the "mingas", they maintain the secondary canals. It's unusual that the directory collect money from water users for O&M works. One of the important crops in this modular area is strawberries which have been cultivated by farmers belong to the Chimborazo province. Due to the fact that they do not feel part of the system lead to have some conflicts. Currently, they are considered as the "most trouble people" in the irrigation system.

JM 9 (intake No. 25-29): The principal water resource before the construction of the El Pisque irrigation system was an ancient irrigation system titled 'Acequia Iguiñaro´. The concesion from this *acequia* refers to 160 litres/second, part of that has been stored in a treatment plant for drinking water and the other part is used for irrigation. Since 1990's, the urban growth in the area and reducing of water flow from this *acequia* influenced on the renting water from the El Pisque irrigation system. Nowadays, El Pisque canal provides water for water users however, the land size is small for the agricultural production, and therefore many water users are beginning to disaffiliate of the El Pisque system. A small producer is the JM's president who has been re-elected for a period. He mentioned the agriculture is not the main activity in the *modular* area. Many people work in the flower companies located in the parishes of El Quinche and Checa. Land size and cultural changes have changed as a result of the introduction of the flower production which influenced the lack of manual labour for collective works in the secondary canals. The internal irrigation fee refers 5.0 USD/water user/year.

The cases above exemplify the different kinds of organizational levels within the *Juntas Modulares.* These have similarities and differences. The main similarity is that the *Juntas Modulares* used the 'local manual labour' and whose which have companies use company' workers as the principal resource to maintain the secondary canals since these had the O&M responsibilities. The manual labour came from rights holders or their workers (such as the companies' workers). The possibility to manage the secondary canals themselves led to the establishment of a relationship among water users, but also with the irrigation infrastructure (although that they did not construct them) creating a feeling of "property". Although these are not recognized by the State, because these are not a "legal" organization, water users recognize and legitimize as part of the system. In the same line,

these do not have a 'legal' membership for the State, both water users and the WUA's representatives legitimate its presence and importance within the irrigation system. Following the regulatory framework of the WUA, those can develop their internal rules with certain 'freedom' to do that. Therefore the Juntas Modulares have established its own criteria to determine the water fee (based on the surface and/or volumetric criteria), organizational level, and operational and administrative tasks (water guard, secretary) which are the main differences among them.

4.7.3 Relationship between JM´s and the WUA

As I mentioned in the previous sections there are two irrigation fees in the El Pisque, one refers to the WUA and another to the JM´s. On the one hand, water users had the duty to pay the irrigation fee in the WUA´s office directly. Depending on the month that water user pay he/she will receive a fine or discount as the regulatory framework establishes i.e. a fine when the farmer pays after June 30th, of every year and a discount if water users pay before this date. Due to the fact that the WUA has legal membership, it can exert pressure on water users to pay the irrigation fee. If a water user does not pay the irrigation fee during a year, the WUA informs the lawyer who is responsible to notify this the water user by means of a 'legal document'. When this notification does not give the results, WUA can suspend the water service. Because the WUA is a legal organization, it can start civil judgements if there are problems with the farmers. In the same line, if water users feel any detriment from the WUA, they have the right to begin a legal proceeding. When a farmer pays his/her fee, he/she receives an invoice. This is very important especially for the companies, which have to make an income tax return. The annual economic contribution of every *Junta Modular* to WUA is detailed in the next Table.

Table 9. *Juntas Modulares* of the El Pisque irrigation system

JM	Intake	Users		Area		Water Flow		Flow/area	Area/user	Flow/user	Water fee	
No.	No.	No.	%	Ha	%	l/s	%	(l/s)/ ha	ha/user	(l/s)/user	USD/year	%
1	1-12	181.0	3.1	627.9	6.7	487.4	6.5	0.8	3.5	2.7	24633.5	9.6
2	13-17	239.0	4.0	515.7	5.5	412.4	5.5	0.8	2.2	1.7	18585.9	7.3
4	19	89.0	1.5	99.4	1.1	79.5	1.1	0.8	1.1	0.9	1858.9	0.7
5	20	386.0	6.5	620.7	6.6	488.5	6.5	0.8	1.6	1.3	16573.7	6.5
8	23	139.0	2.3	342.8	3.6	274.3	3.7	0.8	2.5	2.0	16573.7	6.5
9	25-29	579.0	9.8	272.7	2.9	216.7	2.9	0.8	0.5	0.4	9806.7	3.8
10	30	62.0	1.0	79.3	0.8	63.5	0.8	0.8	1.3	1.0	2052.2	0.8
11	31	211.0	3.6	577.2	6.1	461.8	6.2	0.8	2.7	2.2	23114.1	9.1
12	32	290.0	4.9	1173.5	12.4	937.4	12.5	0.8	4.0	3.2	16062.9	6.3
13	33	115.0	1.9	149.6	1.6	119.7	1.6	0.8	1.3	1.0	3527.2	1.4
14	34-35	394.0	6.7	727.2	7.7	572.0	7.6	0.8	1.8	1.5	21174.5	8.3
16	36-39	150.0	2.5	255.6	2.7	204.5	2.7	0.8	1.7	1.4	3773.0	1.5
17	40	248.0	4.2	372.1	3.9	297.5	4.0	0.8	1.5	1.2	9720.3	3.8
18	41	185.0	3.1	122.2	1.3	93.0	1.2	0.8	0.7	0.5	7912.9	3.1
19	42	44.0	0.7	13.4	0.1	10.8	0.1	0.8	0.3	0.2	532.5	0.2
20	43-44	94.0	1.6	48.7	0.5	38.7	0.5	0.8	0.5	0.4	1195.4	0.5
21	46	613.0	10.4	532.0	5.6	424.8	5.7	0.8	0.9	0.7	13526.1	5.3

22	47-49	166.0	2.8	200.8	2.1	160.6	2.1	0.8	1.2	1.0	4080.3	1.6
23	50	76.0	1.3	100.9	1.1	80.7	1.1	0.8	1.3	1.1	3141.6	1.2
24	52	440.0	7.4	576.1	6.1	459.0	6.1	0.8	1.3	1.0	13309.9	5.2
25	54	208.0	3.5	328.5	3.5	262.8	3.5	0.8	1.6	1.3	7248.6	2.8
26	57	67.0	1.1	38.7	0.4	31.0	0.4	0.8	0.6	0.5	1239.1	0.5
27	58	366.0	6.2	809.4	8.6	644.4	8.6	0.8	2.2	1.8	19457.1	7.6
28	59	579.0	9.8	850.3	9.0	680.0	9.1	0.8	1.5	1.2	16237.2	6.4
TOTAL		**5921.0**	**100.0**	**9434.9**	**100.0**	**7500.8**	**100.0**	**0.8**	**1.6**	**1.3**	**255337.1**	**100.0**

Source: Database of El Pisque irrigation system, 2011.

On the other hand, the JM´s have established their own water fee to cover the O&M works which have been different to each other. Depending on the organizational level of the JM, water users can pay this fee in the JM's office (if it has) or in the place that has been established by the Directory (it can be in the representative's house or his/her office). Due to the fact that the JM´s do not have the legal membership, they cannot deliver an invoice when a water user pays his/her fee. This has been the main problem in collecting the irrigation fee for the JM´s especially if these have companies in their modular areas. In this case, the JM´s ask the WUA for support. So, the WUA takes advance of the 'legal document' prepared by the lawyer in order to include the amount of money that a water user has to pay not only to the WUA but also to the JM. However, it does not mean that the WUA can collect the internal irrigation fee instead the JM. This document only serves to remember the debt that water users have to the JM. This is the contribution that the WUA has made to support the JM. Nevertheless, this mechanism has not always given results. In the JM´s there are many water users who have some bills outstanding as the president of JM No. 5 mentioned *"There are some defaulters who have more than ten years without pay their irrigation fees"* (The president of the JM No. 5; 02/08/2011)

The JM´s have formulated two possibilities to the WUA in order to support the collection of the irrigation fee. The first has been that the WUA finds a legal alternative to help the collection of the irrigation fee. The second one has been that the WUA 'to lend' its invoices for collecting this fee. However, both are considered as illegal as the current president of the WUA mentions: *"We (i.e. the WUA) cannot collect money of maintenance works providing our invoices, if we do not know which works have been made or what those funds will be allocated…"* (the current president of the WUA, 24/07/2011). Although, this has been a problem in many JM´s, there are cases where it seems that this has not been really a problem and in accordance with the internal arrangements among water users, this will be overcome. For example in JM No. 12, the Hilsea company deliver a document to the secretary-treasurer as if she was hired by the company. The legal figure of this document is "payments for services". The secretary-treasurer provides her identity card for filling this document. Subsequently, the company makes out a check in the JM´s name. This arrangement has been operating for more than 4 years. This case demonstrates that depending on the internal arrangements between the JM´s representative and the water users and the organizational level of the JM, the lack of a 'legal document' is not a problem for keeping the economic autonomy.

4.8 Duty and authority for maintenance

Due to the fact that the WUA had the duty to maintain the infrastructure, but not the property rights over it, it could not apply direct sanction to someone who broke the rules of the regulatory framework of the organization, because it did not have the authority to do so. Thereby, for example, the WUA did not have the right to suspend the water service directly to someone who broke the rules; in that case, the WUA only had right to 'inform' the Water National Authority to require a sanction and this institution had the legal authority to do that. However, in many cases this method did not work. Therefore the WUA had to suspend the water service directly, although it did not have this right. Sometimes, to do this, they had to confront some problems as an ex-Administrator mentioned: "*Sometimes*, *they (i.e. WUA´s representatives) suspended the water service although, it was illegal. If water users knew the law, they would know that the WUA could not suspend the water service, thus, they would start judgments against the WUA*" (The WUA´s ex-Administrator, 15/08/2011).

The lack of truth co-property for use right and infrastructure had led to the formation of conflicts relating to water thefts, abuse cases, and blocks of water conduction. These conflicts have been linked to the flower companies and agribusiness companies. The WUA tried to deal with these conflicts by means of the local authorities such as the Municipal Commissioners. When the flower companies blocked the water conduction, water users could not materialize their rights to use the water flow for their plots. Sometimes, WUA required the help of policemen to enter to the flower companies' plots and unblock these blockades. This reflects the lack of authority of WUA within its own area to exert pressure for the fulfillment the rules.

The lack of a clear relationship with the State in order to comply its responsibilities influences on the 'authority' to make changes in the system by the WUA, which prejudiced on improving of the water service provision and reducing the conflicts in the area. The following case exemplified this:

> *There were conflicts between the Hilsea flower company and 'La Sofía' Agriculture Cooperative for several years. This company has different plots in the influenced area of the El Pisque irrigation system. Two of them are located in the El Quinche parish which receive water from the main intake No. 31 of the principal canal and its water right represents 103.4 litres/second that irrigate 129 ha (of two plots) in this sector called 'San Miguel'. They used to block the canal to fill their reservoirs and this caused struggles to the tail-end water users in downstream for several years. 'La Sofía' Agriculture Cooperative and water users next to the Cooperative are the last water users (112 water users) which have water rights of 65 liters/second and are located in Guayllabamba parish. In 2010, the Cooperative's General Assembly decided to formulate a project to change its water intake from the secondary canal because it crossed within the Hilsea's plot. They proposed to put a tube of almost 3 km long (the capacity was in accordance with their water right) several meters before water entered to the Hilsea's plots, avoiding the blocks of the canal. In order to implement this project, they required the authorization of the National Institute for Irrigation's Manager (who was the INERHI's and CORSINOR's Manager as well) to put tube which was accepted. Moreover, they received the authorization and cooperation from the WUA. This*

caused some reactions from the Hilsea's staff who rejected this project because it would decrease the water flow for water users belong the sector. This reject had the President's support of the San Miguel sector (who was the ex-President and ex-Administrator of the WUA). The project had the total cooperation of the WUA, although Hilsea disagreed even, it wanted to participate in the measure of the water flow when the project would finish. Finally, 'La Sofia' and water users next to this cooperative, received their complete water right and the conflicts with the Hilsea company stopped. The project cost around 26.000 USD, 62% was paid by 'La Sofia' Cooperative and the rest was paid by water users located next to the cooperative. All technical assistance was given by the WUA's staff.

This case demonstrates the lack of co-property rights and its real fulfillment over the infrastructure led to keep dependency from the WUA to the State to make any change in the irrigation infrastructure which limits the WUA's decisions by itself. Moreover, it influences on the WUA's management because it cannot exert a totally control over water thefts in which canals cross inside a private owner. As a result, WUA cannot stop the abuse situations and water thefts. Therefore, it is very difficult for the WUA to set up and enforce the rules to reduce several conflicts around the resource. A strategy used by the WUA to control the abuse situations was the hiring of a lawyer, who informs water users by means of 'notarized documents' about their infractions and the consequences if they do not meet with the regulatory framework of the WUA. In a certain way it gave to the WUA the possibility to regulate conflicts among water users.

4.9 Conclusions

This chapter demonstrated that the current management of the El Pisque irrigation system is the result of a development process of WUA and JMs. During this process, water rights were modified and adjusted in accordance with changes established by their leaders and their position of power. The position of power has been reflected in the leadership by water users linked to agribusiness who have kept the water control within the WUA and *Juntas Modulares* in order to benefit their interests. As a result many conflicts among water users were present during the access of water and a little social control which influenced on some corruption situations.

The participation in political and organizing activities has served as a 'political connection'. By means of the conformation of AEJUR and its role during the abolishment process (2001-2004), WUA's representatives have gained a 'political terrain' to retain a close relationship with bureaucrats during the subsequent years of the WUA's management. This relationship brought the mutual benefits. On the one hand, the WUA was provided of some inputs to deal with irrigation infrastructure problems and improve their services. On the other hand, bureaucrats were provided the WUA's support for political positions.

The management of the systems has a high extent of dependency of economic resources. During the reform of the legal framework, some elements were re-organized (fees, incentives, punishment, emergency situations, responsibilities, establishment of "equity" criterion) based on the economic criteria. In the same line, the functioning of the WUA has a strong relationship with the water fee

collected by water users, which represent 83% of the total revenue. Therefore, the security of management is in the 'commodity' hands rather than collective labour power, putting in risk its sustainability in a long run.

The actions made by the WUA's leaders led an individualization of irrigation management among *Juntas Modulares* which have been characterized by their unequal development. Some of them were more advanced than others, in terms of the organizational and economic capacity. Their high extent of individualization led them establish its own criteria for collecting water fee which can be based on land, type of crops, water flow or time. In the same line, the *Junta Modulars'* individualization let them to manage their secondary canals by means own local manual labours, hiring the external workers, or/and the permanents administrative and operational staff.

These differentiations were also reflected on the 'right' to receive infrastructure works from WUA, which reveals the social power relationship among *Junta Modulares* because those which have more economic capacity were those that can demand more investment in their *modular* area. Thereby, a certain kind of exclusion was established for *Juntas Modulares* which cannot collect a huge amount of money.

Chapter 5. Current legal and institutional rearrangement of irrigation management

5.1 Introduction

Since was approved the new National Constitution in 2008, the term 'transfer of irrigation competences' has risen to the government agenda. This process just began in the recently years as part of the current legal and institutional rearrangements of irrigation management in Ecuador. In the irrigation sector, provincial governments will play an important role. These rearrangement in irrigation management caused some reactions from the public and private sector. This chapter will focus on how this process took place and which were the main actors involved. After the introduction I will provide the general context of the relationship between the national constitutions (1998 & 2008) and provincial governments in relation to irrigation management. Subsequently I will reveal the transfer process from the State to provincial governments, their main actors, and struggles during the policy maker´s decisions. Finally I will draw some conclusion of this chapter.

5.2 The National Constitution and irrigation management at the provincial level

The Ecuadorian Constitution was re-formed in 2008 during the first year of the Correa's presidency (2007-current). The constitution established a new decentralized model and several reforms at the national level. However, I will focus on the reforms at the provincial level, because these re-assumed responsibilities in relation to irrigation management. In order to understand the role of these governments in the irrigation sector, I will provide an overview on their relationship with the National Constitution of 1998 and 2008, which are explained in the first subsection. An important point to mention here is that until 2008, the provincial governments were known as 'Provincial Councils' after that, these were entitled as 'Decentralized Autonomous Provincial Governments' (Gobiernos Autónomos Descentralizados Provinciales; GADPs).

Because this chapter is focused on the current legal and institutional rearrangement of irrigation management it is important to consider how the Decentralized Autonomous Provincial Governments´ responsibilities (GADPs) were re-allocated. The National Constitution of 2008 established an official proceeding to achieve the multiple reforms and a new decentralized model that the government is promoting in all sectors, including the irrigation sector. The legal means that allows these reforms is known as 'the Legal Code for the Territorial Organization, Autonomy, and Decentralization (Código Orgánico de Organización Territorial, Autonomía y Descentralización; COOTAD). COOTAD established how GADPs must assume the irrigation management responsibilities. This is explained in the second subsection.

5.2.1 The National Constitutions and provincial governments

The national constitution of 1998 established that the central government' competences can be decentralized. The responsibilities can be required by a local government which will have the

operational capacity to assume it[56]. Furthermore, it established that the Provincial Councils (administrative bodies) are responsible (among others things) to promote and implement some of works related to highway, environment, **irrigation**, and management of watershed affairs within their administrative area[57] (Constitución Política de la República de Ecuador, 1998). This meant that a part of the National Council of Water Resources' responsibilities (CNRH) was transferred to the Provincial Councils (INAR, 2010).

Although the Provincial Councils' responsibilities related to irrigation and watershed management were established in the constitution, these responsibilities were not operationalized in the same way. Some of them worked based on the citizens' requirement and without coordination with other government levels (cantons, parochial boards, irrigation public institution, etc); another Provincial Councils followed their own initiative, which focused on the coordination with some stakeholders within their administrative area, which included the irrigation aspect as part of their objectives; and another did not exert activities related to the irrigation and watershed management.

For example, the Pichincha Provincial Council implemented irrigation projects by means of the requirements made by citizens instead of their own initiative. A public staff of the ex-Provincial Council mentioned: *"The provincial councils were political institutions which worked by means of requirement from the communities. For example, the water users from the El Pisque irrigation system did not require anything; the farmers belonged to the irrigation systems in the Cayambe canton asked us for some irrigation projects, so we worked there. Everything was based on the people's requirements"* (the GADP's staff, 10/10/2011).

The Tungurahua Provincial Council in 2003 promoted a provincial management model including the participation of whole stakeholders (municipalities, indigenous movements, parochial boards, universities, NGO's, etc.) involved in their administrative area. Here, the irrigation management was a part of the model. This was based on three important elements: water, job, and people. They wanted to organize a 'block' which let them to bargain with the central government and coordinate activities with these stakeholders inside of the province (Tiaguaro, in Isch and Zapata 2010).

In some Coastal and Amazon Provinces (Esmeraldas, Morona Santiago, Napo, Orellana, Sucumbíos, Zamora Chinchipe) where the rainfall is sufficient, the participation of Provincial Councils in the irrigation, drainage, and watershed management were limited.

This reveals that the Provincial Councils' intervention in the irrigation and management of watershed were carried out in accordance with their criteria. This was seen as an alternative activity more than compulsory as was established in the constitution. Therefore, some of them acquired experience more than others in the irrigation affairs, producing a differentiation of capacities among them.

The unlinking between irrigation activities and GADPs can be expressed by means of their expenditure in the last years. In accordance with the Sub-secretary for Irrigation and Drainage (Sub-secretaría de Riego y Drenaje; SRD) (2011), GADPs invested 0.2% of their total budget for irrigation

[56] Art. 226 National Constitution (NC) 1998

[57] Art. 233. NC 1998

works in 2000; whereas 1.9% of their total budget in 2008 (Subsecretaria de Riego y Drenaje, 2011). This information indicates that within GADPs´ budget, the irrigation sector has not been a priority activity for them.

Hence, the fact that the irrigation activities were not assumed in the same way for GAPDs and their economic resources were invested in other activities, they do not have sufficient experience in irrigation management. Mosquera (2011) mentions that "*within the new territorial organization model, it is important to mention that GADPs have a weak management capacity yet, taking into account that this competence is new for the majority of them"* (Mosquera, 2011 pp: 25).

The Ecuadorian Constitution of 2008 re-affirms the territorial organization, which has been established based on regions, provinces, cantons, and rural parochial, but it includes three more such as metropolitan districts, territorial circumscriptions of small towns and indigenous, afro-Ecuadorian and *'montubias'* nationalities, and a council in the province of Galapagos. Nowadays, these are considered as government levels and are recognized as Decentralized Autonomous Government (Gobierno Autónomo Descentralizado; GADs). Thereby every government level receives its name. As I explained in the previous paragraphs the Provincial Councils are entitled as Decentralized Autonomous Provincial Government (Gobiernos Autónomos Descentralizados Provinciales, GADPs). Furthermore, the National Government is entitled as 'Central State' instead of 'Central Government' (Constitución Nacional del Ecuador, 2008).

The responsibilities of the GADPs (ex-Provincial Councils) in irrigation and watershed management are re-confirmed in the new constitution with a major specification, especially in irrigation management. Art. 263 establishes that GADPs' responsibilities (among others) are: to coordinate with the regional government[58] for making works related to watershed management; and to plan, build, operate, and maintain the irrigation systems. These are exclusive responsibilities (Constitución Nacional del Ecuador, 2008). This meant that part of the ex-National Institute for Irrigation and Drainage's responsibilities (Instituto Nacional de Agua para Riego y Drenaje; INAR) was transferred to GADPs (INAR, 2010) (see chapter 1). In order to assume these responsibilities, GADPs must follow the proceeding established in the Legal Code for the Territorial Organization, Autonomy, and Decentralization (Código Orgánico de Organización Territorial, Autonomía y Descentralización, COOTAD). This will be explained in the next section.

5.2.2 The National Constitution, COOTAD and GADPs

The national constitution and COOTAD determined crucial aspects about the territorial organization in Ecuador and the responsibilities of the different government levels, however in this section; I will go into depth the relationship between the constitution, COOTAD and GADPs relating to the irrigation sector. The national constitution of 2008 established that the diverse government levels must follow their respective legal framework, which is established in the National System of

[58] The regional governments there are not conformed yet.

Competences (Sistema Nacional de Competences, SNC)[59]. These competences are linked with other competences, which will affect each other. Thereby, the irrigation competences assigned to GADPs (provincial level) shall have a close relationship with other scopes such as the planning of the provincial development, formulation of land use planning, implementation of works related to watershed, provincial environment management, development of agriculture and productive activities in the provincial territory [60], and the provision of the public water service. In accordance with the Foro de los Recursos Hídricos (2011) the irrigation responsibilities should be articulated with others competences which will be transferred. Thereby, it is possible to understand the real impact of the irrigation responsibilities assumed by GADPs (Foro de los Recursos Hídricos, 2011).

Furthermore, the constitution establishes that the State shall regulate the use and management of irrigation water for food production, following the equity, efficiency, and environmental sustainability principles[61]. Moreover, it shall be responsible for the planning and management of the water resources for human consumption, irrigation to guarantee food sovereignty, ecological flow, and productive activities, which must follow this order of priority[62].

As water is considered as a strategic sector in the constitution and irrigation is part of this sector, thereby, water and irrigation management are related each other. The Central State must control, plan, regulate and manage the water affairs at the national level. The provincial governments (GAPDs) must exert their specific responsibilities in the irrigation sector in their administrative area, following the framework established in the water strategic sector made by the Central State.

The responsibilities and proceedings to assume new competences (if it is applicable) of every government level are established in COOTAD. This is a legal framework which determines a regime of the different government levels in order to provide them a political, administrative, and financial autonomy. COOTAD establish some principles that every government level must follow in order to exert its authority in its administrative area. These principles are: unity, solidarity, coordination and co-responsibility, subsidiarity, complementary, territorial equity, **citizen participation**, development and sustainability[63]. The citizen participation consist in that all government levels can share the decision-making process with citizen as well as the shared-management by means of citizen participation in the planning, establishment of policies, programmes, public projects, design and implementation of participative budget of the government levels.

Furthermore, this develops a compulsory and a progressive decentralized model by means of a National System of Competences[64]. The proceeding to budget distribution that the diverse government levels will receive from the General Budget of the State is also established in COOTAD.

COOTAD determined four important aspects related to transfer of competences or responsibilities: a) all responsibilities transferred from the State must be compulsory and exclusive; b) these responsibilities must have a progressive implementation; c) if a responsibility is transferred to a

[59] Art. 239. NC 2008
[60] Art. 263 No. 1,3,4,6,7 NC 2008
[61] Art. 282. NC 2008
[62] Art. 318. NC 2008
[63] Art. 3 COOTAD
[64] Art. 1 COOTAD

provincial government (for example), this same responsibility must assume by all provincial governments. This will occur with the municipal, parochial and other government levels; d) before transferring the responsibilities a sector analysis must be made. In terms of the provincial level, this means that the GADPs have the exclusive and the compulsory responsibility to plan, build, operate, and maintain of irrigation systems, i.e. this is a compulsory task instead an alternative task as I mentioned in the previous section. Furthermore, this must be transferred to all GADPs without exception, which must follow the proceeding established in COOTAD. Before transferring the competences, the irrigation sector must be analysed. The main objective of COOTAD is that each citizen can identify which the responsibility of every public institution is in order to demand accountability (COOTAD, 2011).

COOTAD establishes the National System of Competences[65] as well. This is a target of institutions, plans, policies, programmes, and activities related to the competences for every government level (COOTAD, 2011). Furthermore, this has a technical body entitled as ´National Council for Competences´ (Consejo Nacional de Competencias, CNC). This body must control the proceeding of the transfer of responsibilities from the State to government levels (GADs) in all competencies at the national level, including irrigation.

This means that for transferring the irrigation responsibilities (to plan, build, operate, and maintain the irrigation systems) from the State to provincial governments (GADPs), the National Council for Competencies must act. A scheme of the territorial organization of the State established in the National Constitution and the organizational level of the transfer process, highlighting the GADP's responsibility in irrigation management is presented in figure 12.

This section reveals that the provincial government' roles in irrigation management have been limited. As I explained in the first sub-section, the provincial governments had responsibilities to promote and implement works relating to irrigation and management of watershed affairs. However these responsibilities were not fulfillment because these were seen as alternative task. As a result a diverse level of experience was present among provincial governments, demonstrating that the majority of them have not sufficient experience on irrigation sector. By means of the National Constitution 2008, the Central State intents to organize the responsibilities in all government levels, including provincial governments, provide them specific and compulsory functions in accordance with their administrative area. This means that the State decentralize but at the same time creates self-territorial governments (Foro de los Recursos Hídricos, 2011) by means of the government levels which can exert control in their area. Following the legal framework, the State promotes the transfer of competences which can be made by means of a technical body (CNC) which must control the procedure of the transfer. In the case of irrigation management the central objective is that all provincial governments can exert the activities concerned to operations, planning, managing and building irrigation systems at the national level. In order to understand how the State intents to transfer the irrigation competence to the provincial governments and how some actors were self-introduced in the process, I will explain in the next section.

[65] Art. 117 COOTAD

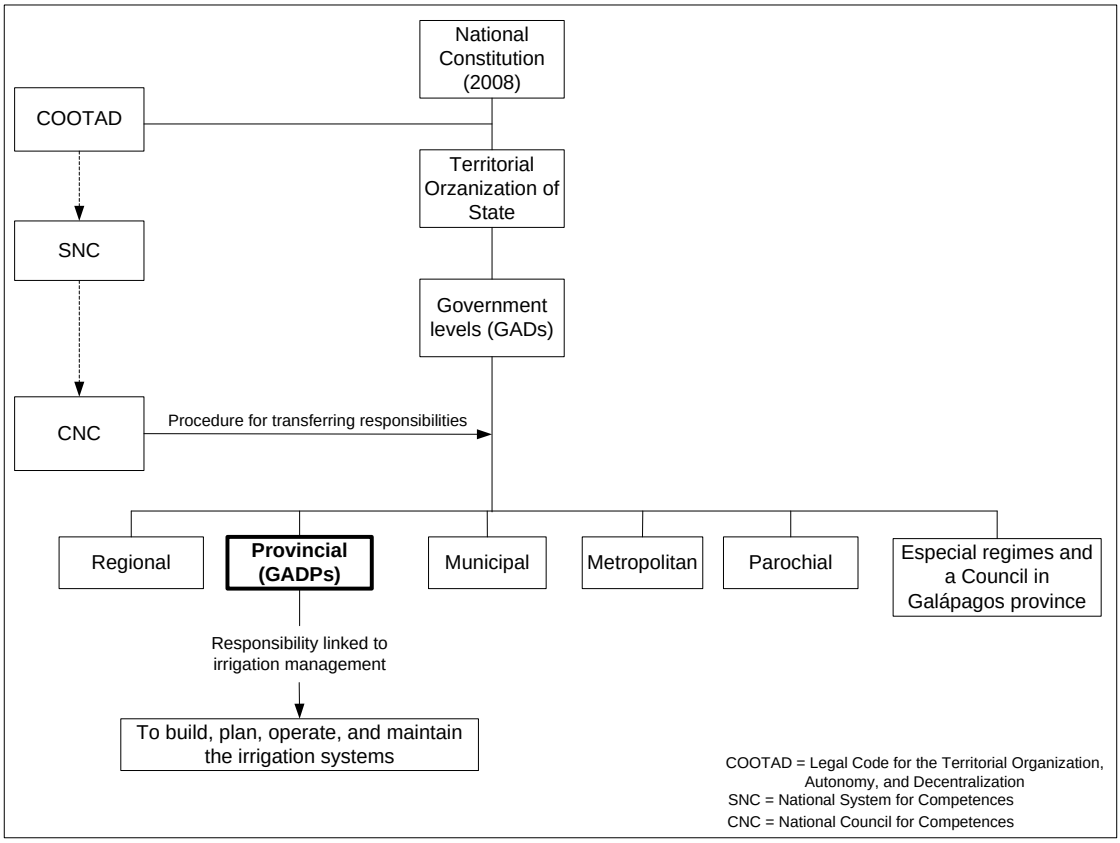


Figure 11. Procedure for transferring irrigation responsibilities

5.3 The transfer process of irrigation responsibilities from the State to GADPs

In this section, I will explain how the current transfer of irrigation responsibilities is taking place by the State to GADPs. During the fieldwork of this research, the current process was just beginning, for that reason the following analysis is related to the first phase of this process. This phase refers to the preparation of the transfer process until its official establishment. This section is divided into two sub-sections. The first describes the main actors involved in the process and the second one how the process took place.

5.3.1 Main Actors

During the transfer of irrigation responsibilities from the State to GADPs some actors took place. The official actors carried out specific responsibilities during the preparation and implementation of the transfer process. In the case of INAR, this signed several formal agreements with GADPs to secure its support (financial and administrative) during and after the transfer process. This responsibility was assumed by the Sub-secretary for Irrigation and Drainage subsequent abolishment of INAR (see chapter 1). As COOTAD demands the formation of CNC for controlling the transfer process, a technical body was formed. This counted with the participation of a representative of every government level. At the same time, COOTAD also stipulates the preparation of three reports, which

were made by the Ministry of Agriculture, Livestock, Aquaculture, and Fisheries (Ministerio de Agricultura, Ganadería, Acuacultura y Pesca; MAGAP), the Consortium of Provincial Governments in Ecuador (Consorcio de Gobiernos Provinciales del Ecuador; CONGOPE), and the Ministry of Finance (Ministerio de Finanzas; MF). Following this procedure, a Sectoral-Technical Commission was established, which had the responsibility to prepare the final report based on the three previous reports. This had to evaluate and determine the resources required for irrigation transfer.

During the transfer process other actors (no-official actors) were presented. The Foro de los Recursos Hídricos was a key actor during all process, which prepared an alternative proposal. This is a platform created since 2001 and considered as a referent in the investigation and development of proposals related to water management in the country. Furthermore, its structural organization is composed of the national, regional, and provincial working groups. These groups are formed by communal and indigenous organizations, farmer organizations, communal boards for drinking water, research institutions and development agencies. The next table summarized the main actors involved during the transfer process

Table 10. Official and no-official actors in the transfer process

Main Actors	**Responsibility during the transfer process**
Official Actors	
INAR/Sub-secretary for Irrigation and Drainage	Agreements to support GADPs
CNC	Control of the transfer process
SENPLADES´secretary (Central State´s representative)	
Provincial Prefect of Pichicha (GADPs' representative)	
Municipal Major of Ibarra (Municipal Government´s representative)	
Quimiag Parochial Board´s president (Parochial Goverment´s representative)	
SENPLADES	Technical assistance to the Central State's representative
MAGAP	Preparation of a report on the current conditions of the irrigation systems
CONGOPE	Preparation of a report on operative capacity of GADPs Technical assistance to GADP's representative
Ministry of Finance (MF)	Preparation of a report on economic resources required for the transfer process
Sectoral-Technical Commission (MAGAP´s, MF's, SENPLADES´, GADPs´representatives)	Preparation of a final report on the resources required for irrigation transfer
No-official actors	
Foro de los Recursos Hídricos	Alternative proposals

5.3.2 Transfer procedure

Grindle and Thomas (1991) establish that the policy reform initiative can be altered at any stage in its life cycle by pressures and reactions from those who oppose it (Grindle and Thomas, 1991). In the case of irrigation transfer procedure some reactions from forced intervention of local actors took

place, who influenced on the decision-making process of policy makers. This sub-section is divided into two parts: a first describes to some initial struggles from INAR during the preparation phase (2010); and a covers the policy implementation process during the period January to July 2011. This refers from the formation of CNC to the official establishment of the transfer process (establishment of the official Resolution No. 008). A scheme of a general process is shown in the following figure.

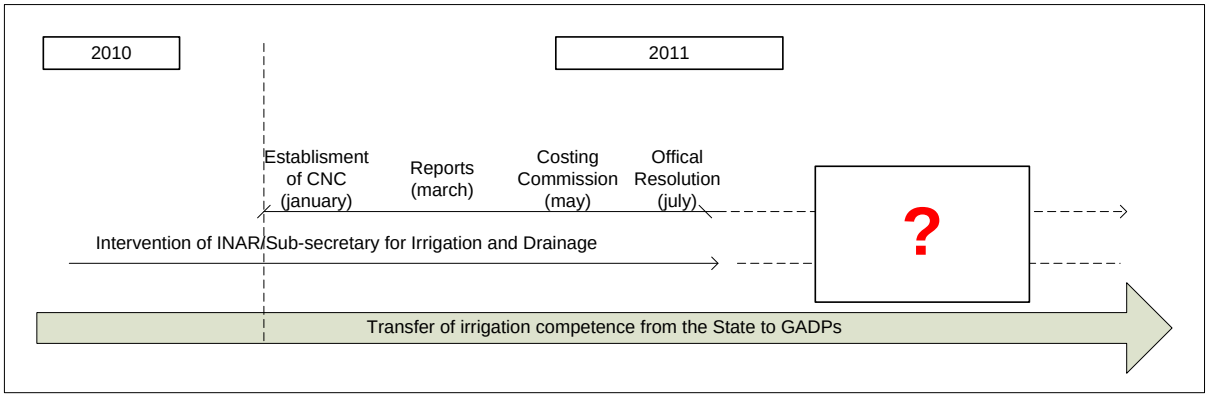


Figure 12. Transfer of irrigation competence from the State to GADPs

5.3.2.1 The preparation phase

In order to make the transfer process of irrigation competence from the State to GADPs feasible, INAR (nowadays the Sub-secretary for Irrigation and Drainage) realized some activities within the transfer framework. This institution made some studies related to registering the irrigation and drainage public irrigation systems, identification of irrigation systems able to be transferred, agreement for supporting the communal irrigation systems, technical reinforcement to support GADPs including agreements for the establishment of training programmes, and expansion of provincial irrigation areas (INAR , 2010). Furthermore, INAR transferred economic resources to GADPs for the realization of studies on implementation of irrigation systems, rehabilitation of irrigation infrastructure, operation and maintenance of irrigation systems, among others[66]. These kinds of activities continued to be implemented during the Sub-secretary for Irrigation and Drainage.

During the INAR's intervention some reactions emerged. For GADPs the 'exclusive competence' term (to operate and maintain the irrigation systems) established in the national constitution, meant that they will exert a total control on them. Thereby, during meetings between the State Government' representative (it is the National Secretary for Planning and Development; SENPLADES) and the provincial governments' representative (this is the Consortium of the Provincial Governments in Ecuador; CONGOPE); the last one pointed out its perception about the irrigation competence: *"either you transfer all competences or you do not transfer anything"* (SENPLADES´staff; 18/19/2011).

[66] During the period 2008-2009, INAR invested approximately 121 million dollars in irrigation projects. This exceeds all investment made by previous governments in irrigation management during the last 20 years. However, some corruption allegations have been attributed to this institution.

Another reaction from GADPs was related to the time of transfer. GADPs required an immediate transfer without considering the legal procedure. Their intention was to speed up the transfer process as the Foro de los Recursos Hídricos (2011) mentions in one of its publications:

> *"During the period between the approval of the national constitution and the establishment of COOTAD[67], some central and the provincial governments' representatives wanted to speed up the transfer process of competences, without taking into account the constitutional mandate Art. 269[68]"* (Foro de los Recursos Hídricos, 2011; pp: 26).

This reveals the initial intentions of GADPs. They wanted to take the total control of the majority of irrigation systems in a short term without following a legal procedure. This can be explained because the transfer process was seen as an opportunity to acquire new economic resources by means of the establishment of new water irrigation fees (for example) as the president of the Irrigation Systems Corporation for the Coastal region mentioned:

> "*The GADPs´ representative wanted to the competence for receiving economic resources from the State and impose new water irrigation fees…i.e. 'Do a business' "* (The Irrigation Systems Corporation for the Coastal region, 28/10/2011).

5.3.2.2 The policy implementation process (January to July 2011)

In order to understand the 'stages' of the transfer process, I will divide into four sub-sections: the establishment of CNC and demanding of reports, formation of the Sectoral-Technical Commission; pressures from no-official actors; and establishment of the official resolution No. 008.

a) CNC and demanding of reports

The formation of CNC took place in January, 2011. CNC follows the procedure established in COOTAD. This determines the elaboration of some reports as an initial stage: a) the elaboration of a report on the current situation of irrigation and drainage in Ecuador; b) a report on the operational capacity of GADPs to assume this competence; c) a report on existing financial resources. CNC demanded these reports to MAGAP, CONCOPE, and MF respectively in March, 2011.

Although, the national constitution (2008) establishes that the participation in the public policies[69] is a citizen's right, during the transfer process this right was not materialized. The participation was seen merely as a mechanical process in which actors approved (or not) the decisions already taken by policy makers. This was mentioned by public staff and other stakeholders. For example, a CONGOPE's staff mentioned that *"the participation process carry out by SENPLADES consist of*

[67] COOTAD was established on October, 19th, 2010.

[68] The National System for Competences must be composed by a technical body, which will have a representative for every government level. This has some responsibilities: a) Regulation of transfer process; b) Regulation of concurrent competences among different government levels; c) Provide the residuals responsibilities to GADs; d) Resolution of conflict among different government levels.

[69] Art. 61, 85.3, 95, 96, 100, 395.3. NC 2008

workshops where people are only informed about the reforms" (CONGOPE´s staff, 18/09/2011). At the same time, the Foro de los Recursos Hídricos (2011) brought up that:

> "*The initial activities made by CNC show clear exclusion actions of the communal, nationalities, and farmers organizations… The process should not focus only on workshops organized by public officials or consultant agencies, but also a broad participation of civil society such as social organizations, farmers, small producers, communities, and nationalities for decision-making together with authorities*" (Foro de los Recursos Hídricos, 2011 pp:13, 19).

I also observed that some WUAs did not know about the workshops were taking place. For example, during my fieldwork in the El Pisque irrigation system I noticed that WUA did not participate in any meeting related to the current reforms about irrigation matters, which were taking place. Although, this irrigation system has a lawyer who is in charge to manage all legal and administrative aspects, the systems did not know about the process of transfer competences in irrigation management. Hence, during the first stage of the transfer procedure carried out by CNC, the participation of local actors directly involved in the irrigation problems such as WUAs, farmer organizations, and communities was limited.

Due to the fact that the initial stage focused on a part of the evaluation of the current situation of irrigation and drainage in the country, the Foro de los Recursos Hídricos demanded the participation of farmers within this assessment. However, it was made by MAGAP without a real participation of farmers and water user organizations. In the same line, the assessment of the operational capacity of GADPs was made by CONGOPE. This consortium supported the GADPs, arguing that all of them had the capacity to assume the irrigation responsibilities. This evaluation was considered as a 'self-assessment' because they were declared as 'qualified bodies' without any intervention of the external stakeholders. Hence, the reports on evaluation the current situation of irrigation and drainage in the country and operational capacity of GADPs made by MAGAP and CONGOPE were written without knowing of the local stakeholders. This was also presented in the report made by the Ministry of Finance (MF). Therefore, these reports had to keep a certain extent of co-relation in order to avoid contradicting each other.

In accordance with the Foro de los Recursos Hídricos (2011) there was a clear sign that some sectors wanted to impose a model and transfer process according to their particular interests (Foro de los Recursos Hídricos, 2011). A clear example was some GADPs' intentions for assuming the irrigation competence as soon as possible occurred in the El Oro provincial government. This is exemplified in the following case:

> *The banana producers in the province of El Oro paid the water fee per hectare around 12 USD/year however, the provincial prefect (provincial government´s authority) increased to 113 USD/ha/year. The prefect mentioned that "the water fee was increased because this will allow the recuperation of irrigation systems…This resolution was agreed among everybody…"* (Ecuador inmediato, 2011). *However, this was increased without the social participation of producers in the decision-making process. As a result several manifestations were organized out of the provincial government´s office by banana producers, who demanded a decrease in*

*the water fee. Moreover, they claimed for feasibility studies, which will contain the agricultural and technical parameters before increasing the water fee (*The Irrigation Systems Corporation for Coastal region*,* 28/10/2011).

By means of this case, I can explain some elements. Firstly, some GAPDs saw the irrigation transfer as an alternative to gain economic benefits by means of mechanisms such as increasing of water fee. Secondly, the action made by the government prefect broke the legal procedure of transfer because the official transfer which determines that GADPs are responsible of the irrigation systems was not established yet. Thirdly, this indicates increasing of price on an important resource as water has a direct impact on the public (banana producers) who quickly manifested their opposition during the implementation of increasing price. Thereby, the characteristic of the irrigation transfer procedure is easily 'susceptible' to create a public reaction. Fourthly, this also reveals that the national constitution was violated because it establishes a direct participation of local actors in the decision making process of the public institutions that in this case was not present.

This part of the sub-section reveals that the participation of the closer actors in the irrigation sector such as producers, farmer organizations, and water users associations were not involved during decision-making processes during the initial stage of the transfer procedure. It also demonstrates that the same public staffs are actors who break the constitutional mandate, which demands the participation of communal and farmer organization in the decision-making process in order to achieve their own interests.

b) The second stage: formation of the Sectoral-Technical Commission

After the elaboration and submission of three reports mentioned above from MAGAP, CONGOPE, and MF to CNC, the last one organized the Sectoral-Technical Commission in May, 2011, as it was established in COOTAD. This commission had the responsibility to identify the resources needed for irrigation transfer and to elaborate a final report for the CNC. It was composed by MAGAP's, MF's, SENPLADES´s representative and three GADPs´ representatives (Pastaza, Pichincha, and El Oro provincial governments). The Commission' performance had a short term. During its performance some reactions occurred from some organizations. This will be explained in the following paragraphs.

c) Pressure from no-official actors: the right to be part of the process

Because the participation was limited in the initial stages, farmer organizations, water users associations, and other organizations by means of the Foro de los Recursos Hídricos decided to organize themselves in order to become part during the transfer process. Firstly, they intended to talk with the CONGOPE´s president, however it was not possible. In accordance with the Irrigation Systems Corporation for Coastal region (2011), they sent applications for getting a meeting with the Commission but they did not receive the approval. Therefore, they preferred to find other alternatives.

I will explain the strategies used by local organizations and the Foro de los Recursos Hídricos in order to understand how they exerted pressure on CNC's decision-making process. I will mention that they

used strategies at two levels. The first, they contacted with the lowest government level´s representative, i.e. the parochial government´s representative in CNC. The second one, they took in advance of social relationship with the public institution's staff, who had an influential political position at that moment.

- *Meetings with the parochial government's representative*

  The Foro de los Recursos Hídricos had meetings with some WUA's leaders of the provinces of Cotopaxi, Chimborazo, Tungurahua, and Guayas. The leaders exerted certain pressure on the Parochial Boards' president (member of CNC) for receiving the proposals made by local actors in an official meeting of CNC. Because the Foro de los Recursos Hídricos has regional and provincial working groups, this allows it to contact with several organizations and exchange information at the national level. The Irrigation Systems Corporation for the Coastal region mentions *"We have many people located in different provinces; we exchange information and organize meetings with all of them*" (The Irrigation Systems Corporation for the Coastal region, 28/10/2011).

- *Lobbying with highly place bureaucrats*

  During the transfer process, the Foro de los Recursos Hídricos had the support from the Sub-secretary for Irrigation and Drainage[70]. Before becoming the sub-secretary, he retained a close relationship with the Foro de los Recursos Hídricos because he worked on this platform a few years ago. At the same time, in accordance with the Irrigation Systems Corporation for Coastal region, they also were supported by the Agriculture Minister and the Vice-minister for Rural Development. Both the Sub-secretary and Agriculture Minister were key actors to include several proposals during the CNC's decision-making process (The Irrigation Systems Corporation for the Coastal region, 28/10/2011).

The original proposal made by CNC did not consider the resources distribution based on technical criteria, provision of resources for training and organizational alignment for GADPs and WUAs, neither differentiation between resources for irrigation and drainage. Furthermore, it also focused only on the public irrigation systems without considering communal and private irrigation systems which are part of the irrigation sector. In the same line, it did not take into account the social participation during the elaboration of reports made by MAGAP, CONGOPE, and MF. Moreover, the CNC' members wanted to provide the irrigation responsibilities to GADPs without a kind of legal procedure (Foro de los Recursos Hídricos´ staff and Irrigation Systems Corporation for the Coastal region's president; personal communication, 2011).

The alternative proposal made by the Foro de los Recursos Hídricos and local stakeholders were focused on:

- The transfer process of irrigation competence should include the participative, transparent, and legal criteria during the process itself and its implementation by means of monitoring

[70] He was also the National Institution for Irrigation and Drainage's Director since mid-2010

mechanisms. All reports made within the transfer framework should be submitted to local actors for incorporation of their suggestions.

- The new territorial development model, should take into account that irrigation is a key element of development. Investment in the irrigation infrastructure should be linked to agricultural and organizational development and integrated water resources management.
- Irrigation management should be considered as a shared-management. They mention that the State should consider within its policies all kinds of irrigation systems, i.e. communal, individual, and state. Moreover, they establish that all public irrigation systems should be managed by communal organizations in terms of the administration, operations, and maintenance activities. They determine that a shared management implies a actual articulation among national, regional, provincial and parochial public policy.
- The future institutions created in GADPs and MAGAP should be trained in irrigation topics as well as provide them by means of budget, statutes, structure for being compatible with the new irrigation model.
- The establishment of the national and provincial institutions should be democratic, efficient, and specialized in irrigation matters. Because the majority of GADPs did not have sufficient experience on irrigation management, it is important that they create an actual institution instead an only 'irrigation area' within their organizational structure.
- The establishment of participative areas in order to discuss the transfer process with the communal organizations.

In order to pressure on the CNC´s actions, the Foro de los Recursos Hídricos´ staff and farmer organizations assisted to a meeting organized by CNC, which took place in the province of Ibarra. Before assisting this meeting, local organizations planned a vast attendance of representatives of diverse irrigation systems of the provinces of Tulcán, Ibarra, Chimborazo, Tungurahua, and Guayas. As the Irrigation Systems Corporation for the Coastal region´s representative mentioned: *"Every Water Board brought at least 30 people per irrigation system"* (The Irrigation Systems Corporation for the Coastal region´s president 28/10/2011). Thereby, they exerted pressure on the CNC, which took the proposal prepared by Foro de los Recursos Hídricos and local stakeholders. Some of these suggestions and comments were included in the official resolution CNC No. 0008, which will be explained in the next numeral.

Here, it is interesting to analyze some aspects. Grindle and Thomas (1990) mention, *"reaction to policy change may come at any point in the process of decision and implementation*" (Grindle and Tomas, 1990; pp:166). In this case, reactions from local actors emerged during the decision-making process of the irrigation transfer procedure. The farmer organizations, WUAs, and the Foro de los Recursos Hídricos played an important role during this process. They organized and established their own strategies to find a 'space to be heard' and exert pressure on the CNC's actions in order to include their proposals. Their organizational level and formal and informal networks based on a close relationship with the official in the government (who were located at the different levels), played an important role. The fact that their networks were located closer the policy makers, gave them a major degree of influence for exerting pressure. This helped to include some suggestions in the final document realized by CNC. Hence, the social network around of Foro de los Recursos Hídricos was an

influential factor to mobilize efforts quickly from the local actors who exerted pressure on the transfer process in order to influence the CNC's decisions.

The CNC had to take actions to deal with the pressure made by no-official actors. Thereby that they decide to incorporate some suggestions in the official document (Resolution No. 008) as was recognized by SENPLADES official:

> *"We had some meetings with associations and organizations which are part of the Foro de los Recursos Hídricos…Many things that they suggested were included in the final document (i.e. official transfer), especially the social management of irrigation"* (SENPLADES's staff, 18/10/2011).

d) The official transfer process: Resolution No. 0008

The Sectoral-Technical Commission submitted the final report (costing report) in June, 2011 to CNC. This report determined the financial, human, materials, and technological resources referred to the irrigation competence and the distribution of them for every GADP. The main important findings from this report will be summarized as follows:

- At the national levels there are 65 irrigation systems. These are divided in irrigation systems non-transferred (15), irrigation systems transferred (39), irrigation systems managed by provincial governments (3) and public-communal irrigation systems (8).
- The differences among irrigation fees. Whereas the irrigation systems non-transferred have paid mainly the basic and volumetric water fee, irrigation systems transferred have paid only the volumetric water fee.
- The economic resources will provide to GADPs for rehabilitation, operation, and maintenance of the irrigation systems is 23.6 million dollars; whereas for investing in irrigation and drainage projects[71], it refers to 36.4 million dollars. This means 60 million dollars to be transferred for GADPs.

- In order to distribute the resources for rehabilitation, operation, and maintenance of irrigation systems (i.e. 23.6 million dollars mentioned above) for every GADP, the Sectoral-Technical Commission developed a formula. This takes into account some aspects: flat grant, irrigation grant, and drainage grant, groups of GADPs with different operational capacities, and technical criteria. Thereby, the resource distribution for rehabilitation, operation, and maintenance established in 2011 to every GADP is in Figure 14.

[71] These projects must be articulated with the National Plan for Irrigation, which will be elaborated by MAGAP during the period 2011-2013.

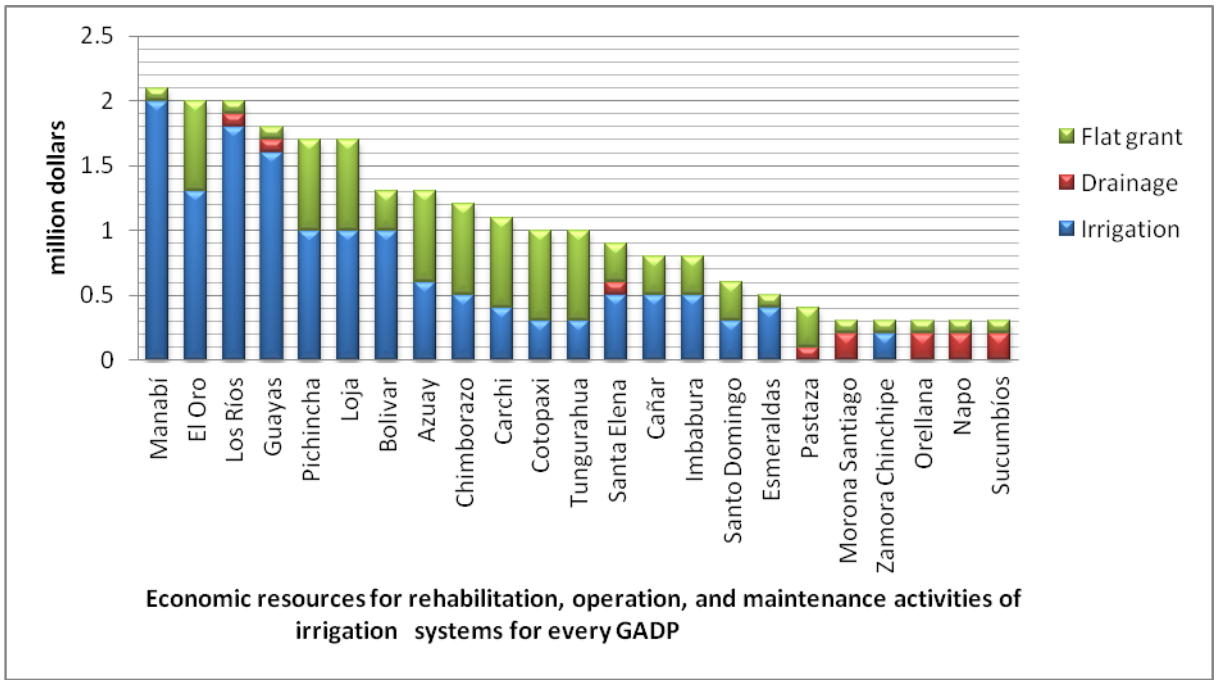


Figure 13. Economic resources for rehabilitation, operation, and maintenance activities of irrigation systems for every GADP

Source: Comision Técnia Sectorial de Costeo de la Competencia de Riego, 2011

Once that Sectoral-Technical Commission submitted the final report to CNC, this established the official resolution (Resolution No. 0008-CNC-2011) of the irrigation competence on July 14th, 2011. This refers to plan, build, operate, and maintain the irrigation and drainage systems by GADPs. This resolution also establishes the specific responsibilities of GADPs in accordance with the type of irrigation systems; responsibilities of WUAs and Rural Parochial Boards, and the Central State on the management of irrigation systems. Moreover, it determines the transfer of economic resources for GADPs.

The resolution No. 0008 determines that all GADPs have capacities to assume the irrigation competences. For some GADPs which have less experience in the irrigation area, the MAGAP will support them by means of training courses but these GADPs retained the competence. This received some critics from the Foro de los Recursos Hídricos because they proposed that while the GADPs do not have the capacity to take over irrigation management, this responsibility should be maintained by MAGAP. However, the resolution establishes that all GADPs have sufficient capacity to assume the irrigation responsibility. This can be explained by a political agreement made by the State and provincial governments (GADPs) before establishing of COOTAD. This was mentioned by SENPLADES staff:

> *"Because a strong demand by GADPs for taking over the irrigation management, the State decided to begin the irrigation competences…This refers to a presidential compromise when COOTAD was not approved yet. It was a technical-political decision because the State could not postpone this compromise"* (SENPLADES´s staff, 18/10/2011).

This demonstrates the political pressure on the State by GADPs was also an influential factor at the moment to decide how the transfer irrigation competences took place in practice.

Table 11 summarized the main responsibilities of the State and GADPs as established in the resolution. Here, it is important to mention that the decentralization process from State to GADPs has been a transfer of the same competences of the central state to a government level, in this case for the provincial government. This reveals that the control of the irrigation management is retained by the same state. Thereby, the decentralization in this case is a process that is coming back to centralize at the local government.

Table 11. Responsibilities of the central state and GADPs in the irrigation systems management

Government Level	**Rectory**	**Planning**	**Regulation**	**Control**	**Management**
Central	*Public national policy* (irrigation, drainage, agrarian development, water resources , environment and risk management)	*National planning* (irrigation, drainage, agrarian development, water resources, environmental, and risk management, productive national agenda)	*Establishment of framework* (establishment of fee structure of the irrigation and drainage public services; normative for quality of irrigation water and environmental management of the irrigation and drainage projects	*Monitoring and evaluation* of the National Plan of irrigation and drainage; provision of functioning authorizations of new infrastructure; legal membership of WUAs; authorization of irrigation water use and monitoring and evaluation of the national plan of	*Managing* (building, operation, and management of multipurpose and bi-national irrigation systems; modernization of irrigation, research and development of agriculture programmes, alignment of WUA for agriculture and productive development, administration of national information system)
GADPs	Building of new infrastructure Establishment of local public policy Approval of local irrigation and drainage plan Elaboration of competitiveness Local normative of irrigation and drainage Normative for applying water irrigation fee Monitoring and evaluation of irrigation and drainage plans Verify of performance of the provincial irrigation normative				According to type of systems

Source: Foro de los Recursos Hídricos, 2011.

Furthermore, the resolution No. 0008, determines the types of irrigation systems, which GADPs will intervene. In accordance with every type of irrigation system, the management will be developed. For example, in the irrigation systems transferred, GADPs will 'shared-management' jointly with WUAs in terms of administration, operation, and management activities. Whereas, the activities related to rehabilitation and extension of infrastructure, modernization, irrigation system

information, reinforcement of WUAs and articulation with the agrarian development will be managed by GADPs. Whereas that the multi-proposal and bi-national irrigation systems will be managed exclusively by the State by means of MAGAP. Depending on every type of irrigation system, GADPs will have diverse competence. The table 12 present the specific management will be made by GADPs in accordance with every kind of irrigation system.

In the same line, the resolution No. 0008 establishes the WUA and irrigators' responsibilities. Water users will have the responsibility to participate in the formulation of the national plan for irrigation and water resources, productive agenda, and local plans related to irrigation and drainage. They will participate by means of the Sectoral Council for Citizen and local council for planning. Moreover, WUAs will have specific responsibilities in accordance with the type of irrigation system.

Table 12. Relationship between type of irrigation system and GADPs activities

<table>
<tr><td rowspan="2">Activities</td><td colspan="9">Type of irrigation system</td></tr>
<tr><td>Public N-TR*</td><td>Public +provincial management</td><td>Public TR**</td><td>Public-communal</td><td>Communal</td><td>Associative & individual</td><td>Inter-provincial</td><td>Multi-proposal, Bi-national</td><td>Drainage</td></tr>
<tr><td>O&M</td><td colspan="2" rowspan="10">GADP</td><td colspan="2">WUA+shared-management</td><td>Communities+ GADP support</td><td>Individuals+ GADP support</td><td rowspan="10">MAGAP (temporally)***</td><td rowspan="10">MAGAP (non-transferable)</td><td rowspan="10">GADP</td></tr>
<tr><td>Rehabilitation of infrastructure</td><td colspan="2" rowspan="9">GADP</td><td colspan="2">GADP support</td></tr>
<tr><td>Technology innovation& research</td><td colspan="2">GADP</td></tr>
<tr><td>Building,O&M drainage</td><td colspan="2">GADP support</td></tr>
<tr><td>Information system</td><td colspan="2" rowspan="6">GADP</td></tr>
<tr><td>Management of local knowledge</td></tr>
<tr><td>Reinforcement to WUAs</td></tr>
<tr><td>Modernization of irrigation techniques</td></tr>
<tr><td>Agriculture development, food security</td></tr>
</table>

*N-TR = Non transferred; **TR = Transferred; ***MAGAP retains the irrigation systems until the formation of a "mancomunidad" among provinces respectively.

Source: Modified of Foro de los Recursos Hídricos, 2011.

Although the resolution establishes the responsibilities of the central government, the local government, and water users, some aspects are not totally clear. This leaves the 'open gate' for several interpretations. The fact that the State by means of GADPs wants to manage the majority of irrigation systems especially the administration, operations, and maintenance, means that its intervention will affect the normative basis of the irrigation systems because they will produce

changes on the water availability and a re-organization of the social capital of the irrigation systems (Beccar et al., 2001).

As the provincial governments have the responsibility to build new irrigation infrastructure, these new 'objects' will influenced on the modification or adjustment of water rights. Therefore, it is necessary that they consider that these 'objects' not only as a concrete canal which can transport water but also that the building canals is the creation of property rights for water users. As a result a relationship between water users with the object (canal, reservoir, etc) and a relationship among water users will emerge (Coward, 1986). As Beccar et al (2001) mention by means of water users' investment in the construction of irrigation infrastructure, they are creating individual water rights which will be consolidated when they can maintain them (Beccar et al. 2001). At the same time, the lack clarification of the responsibilities between provincial governments and water users in order to manage the irrigation systems will affect the water users´ interests in maintaining them. Therefore, it is necessary that GADPs consider the relationship between the contribution and benefit of water users before beginning its intervention. The extent of clarification will avoid the alteration of correlation between right and obligation of water users associations that already exist; thereby affecting the functioning of these organizations. For that reason, the implementation of irrigation competence 'in practice' led by provincial governments should consider the real dimension of water rights before their intervention.

On the other hand, the resolution No. 0008 does not specify the responsibilities of water-users and the State in the 'share-management' irrigation system. Here, arise some questions such as what the interpretation of shared-management is? How a shared management will be achieved when there is no clarity over property rights?; how to manage when the level of experience in managing irrigation systems are quite different between water users associations and the majority of provincial government?

The fact that the participation of local actors in the public policies is not a binding aspect means that water-users´ suggestions, opinions, and remarks, have not an actual application, i.e. that the policy makers will be the ones who make decisions based on their criteria without consider those who live day to day of the management of the irrigation system.

Nowadays, the discussion is focused on how the transfer of irrigation competence will be materialized and how the shared-management will be operationalized in practice between GADPs, the central government, and water-users. Depending on the expertise (if there is) and performance of every GADP, the outcomes of the irrigation management will be reflected. As well as based on that, the reactions of water-users will emerge to support or not to GADPs during their performance.

5.4 Conclusions

This chapter reveals that the policy makers involved in the transfer of irrigation competences from the State to provincial governments (GADPs) attempted to implement a reform just as it is established in COOTAD without consider some modifications during the process. However, some

reactions emerged from local stakeholders, who exerted pressure on decision-making of policy makers during the implementation.

The 'decentralization' in only a 'centralization' of power by means of the creation of self-territorial governments. Although, the national constitution (1998) established some responsibilities relating to irrigation and management of watershed affairs for provincial levels, these were not assumed in practice. The fact that provincial governments saw these functions as alternative more than compulsory task, the fulfilment was limited. As a result the development of a diverse level of experience was present among provincial governments, indicating that the majority of them have not the sufficient experience on irrigation sector. By means of the national constitution (2008) and a legal weapon (COOTAD) the government promotes the re-organization of territory is why it provides a specific responsibilities and compulsory for all government levels, including the provincial levels. Therefore, a new 'transfer process of competences' begins from the Central State to Decentralized Autonomous Provincial Governments (GADPs) in the case of irrigation management. This means a first sign of the transfer of control from the government, creating self-territorial governments as provincial governments with all power to exert control in their administrative area.

The particular conditions surrounding the emergence of transfer of irrigation competences respond to a political alliance. The fact that there was a 'political pact' between the State and provincial governments in order to take the irrigation responsibilities previously to the official establishment of COOTAD, made that provincial governments exerted pressure in order to speed up the transfer process. Thereby, their stakes were reflected on getting economic resources and a complete control of irrigation systems at the national level.

Although, that the national constitution and its legal framework for territorial organization demand a direct participation of local actors in the decision-making process of the public policy, in practice this has not been materialized. As a result some reactions from local actors were present during the transfer process, who by means of their high extent of organization and establishment of their own strategies to find a 'space to be heard', promote and exert pressure on the CNC's actions in order to include their proposal. The fact that they had some formal and informal networks located closer the policy makers were influential factors in order to mobilize efforts quickly and exert pressure on the CNC. Thereby, the process was different when the policy makers perceived they were dealing with some pressure from the some public staff and local actors. The fact that the transfer of irrigation competence was the first competence to be transferred, policy makers preferred to include some of the suggestions made by local actors for avoiding social consequences and critics forward the current government. The incorporation of these proposals served as 'buffer' to avoid more social reactions and retained the 'social support' of the current government.

The potential outcomes during the implementation of the official resolution will depend on the capacity of every GADP and their possible strategies to bring closer the cooperation from water-users in the irrigation and drainage management. A clear determination of the rights and duties will define a major relationship between the State and water-users in order to achieve an adequate management of the irrigation systems.

CHAPTER 6. CONCLUSIONS

In this research, IMT policy was studied as a process. In Chapter 2, I demonstrated that a policy does not begin with its official establishment but rather it was planned several years ago by policy makers (led by The World Bank) and national representatives of the private sector (IDEA). This close relationship was conceivably an influential factor why state bureaucracy did not have a direct participation during the development of the policy. This alliance allowed to manoeuver and organize the 'terrain' for establishing an autonomous-technocratic body (UEP-PAT) in which was incorporated some local policy makers. As a result, this body had a totally 'freedom' to make decisions on irrigation systems that could be transferred, time of this transfer process, international consultancies which could participate, management of budget and especially on circumvent the national bureaucrats' reactions. Hence, the introduction of IMT responded to a political negotiation between international and national policy makers who prepared the conditions for its introduction. As a result they were benefit during the implementation. This political negotiation was not only characterized at the national level but also at the local level.

As I indicated in Chapter 3 the implementation of the transfer process in the El Pisque irrigation system was also characterized by a political negotiation between interest groups and policy implementers who joined their 'forces' and promoted the policy implementation in the irrigation system after a crisis. In the same line with the national arena, this alliance allowed benefit each other. The materialization of this political negotiation was made in the official transfer contract. Hence, both in the national and in this particular case, the political negotiation was a 'via' which led the implementation of IMT policy. However, this policy does not finalize totally at the moment of its implementation, contrary, its effects continued in the subsequent years.

After the IMT implementation in the El Pisque irrigation system several changes took place. As I revealed in Chapter 4, during the initial years of the formation of the Water User Association (WUA) some resources were mobilized by small and medium farmers, and flower companies to access water. Although, the collective works of these groups led to access the water it did not mean that water-users had an equal water provision because some contestation processes were still present. Hence, the IMT policy was analysed as a process in which many actors and their interest were involved and were present during diverse points of the policy cycle, which were characterized by several struggles to control over resources.

This research finalized with a quick revision of the current legal and institutional changes in irrigation management at the national level, highlighting the 'transfer of irrigation responsibilities' from the State to provincial governments . In Chapter 5, I revealed that Ecuadorian policies attempted to be implemented a reform just as it was formulated by policy makers without consider the multiples reactions which will emerge during an initiative reform. Although, there are several legal 'weapons' for demanding participation in public policies, these are not materialized.

In the next paragraphs I will summarize the most important findings of this thesis.

The irrigation management transfer in the El Pisque Irrigation System

The transfer process in the El Pisque irrigation system was a result of the interaction between agro-exporter flower companies and policy implementers after a crisis that resulted from the breakdown a part of the main canal. In this research, I studied IMT at local level as a series of circumstances, which responded to particular conditions round the transfer process. I described the alliances, practices, and interests among several actors before and during the transfer process.

As I explained in Chapter 3, during the INERHI era, the close relationship between government staff and water-users was the main resource to access water. A clear "alliance" was constituted between the government staff and agro-exporters who at the end defined the 'rules of the game' in the management of the system. This resulted in privileged water access for agro-exporters and the lack materialized water rights for small and medium farmers. As a result many conflicts and struggles took place.

However, this "alliance" was weakened by the economic and managerial incapacity of CORSINOR to deal with a problem on a main section of the principal canal ("La Cintura"). This caused a crisis because this caused this suspended water delivery for a few months. In order to resolve this problem, a second 'alliance' was formed. The agro-exporters in order to 'save' their huge economic resources invested in the flower production, decided to organize themselves and invested in repairs of the affected sector. This was supported by medium and small farmers by means of their manual labour for cleaning activities in this sector. Meantime, a third 'alliance' took place. The crisis led to a negotiation process between agro-exporters and representatives of the ancient *acequias* who provided water during the crisis. As a result agro-exporters accessed water and the representatives of the *acequias* were provided of manual labour for maintenance of their old irrigation systems. This allowed an exchanging of resources in order to benefit each other. However, this relationship was short because the infrastructure problem was resolved.

Because agro-exporters invested more economic resources than small and medium farmers, they attempted to 'recuperate' some of their investment by means of the State, however they did not have success. During their search process, they contacted with policy implementers (IDEA Foundation' Manager and UEP-PAT' Director), who were in charge of implementing the transfer process at the national level. In an informal meeting both agro-exporters and policy implementers agreed to begin the transfer process in the El Pisque irrigation system. Here, their interests were intertwined and a fourth 'alliance' was created. As de Vries (1992) mentions that policy implementers employ diverse operational styles in response to the different socio-political commitments and interests that they have (de Vries, 1992 in Rap, 2004). Thereby the policy implementers mobilized their resources in order to incorporate the El Pisque system in the transfer process. However, behind this objective, their main interest was to increase the 'success' of the policy at the national level by means of inclusion of numbers of hectares transferred that El Pisque irrigation system represented. At the same time, agro-exporters also mobilized their resources (humans and non-human) in order to promote the transfer process locally and receive the support of small and medium farmers. Their main interest initially was to continue having the control over water. As a result, the irrigation management transfer was performed, embodied, and represented (Law, 1994 in Rap, 2004) in an official contract (October, 1999).

Hence the irrigation management transfer at the local level was a socially constructed process by interest groups who were interested in securing their control over water and to do so promoted the implementation of the policy. Therefore, the implementation of a policy is not totally in the hands of policy implementers, it can also be constructed in local arenas as a result of particular conditions. The particular manner in which IMT was introduced in the El Pisque irrigation system at a moment when the Ecuadorian IMT programme was almost closing, reveals that IMT was selectively introduced in Ecuador. Although an initial planning was made in which all irrigation systems that were to be transferred were chose, in practice the project implementation team worked with willing water-users organizations. The ad-hoc incorporation of the El Pisque irrigation system based on the water-users request, suggests that the project team was having difficulty in meeting its initial targets and that the decisions during the implementation phase were taken ad-hoc. This case resounds the work of Grindle and Thomas (1990) who argue that policy implementation is a contested process which gets shaped by means of interactions between diverse local actors and interests.

After the transfer process: the social construction of the Water User Association of the El Pisque Irrigation System

This case study of the El Pisque irrigation system demonstrates that the current management is a result of a development process characterized by struggles, conflicts, and organising practices of local actors.

As I explained in Chapter 4, during the initial years of the formation of the Water User Association (WUA) some interesting practices were developed in order to access water. Firstly, in order to re-covering to use part of water flow, the WUA's representatives organized collective works *("mingas").* These works were made by small, medium, large, and agro-exporters´ workers. As a result, water rights were recovered on the infrastructure and on the use water for those who were part of the irrigation system. At the same time, collective works *("mingas")* allowed to include others water-users who wanted to be part of the system. Secondly, by means of creation of a water-users census, the right-holders were identified. This allowed determining number, location, and participation of water-users in the diverse activities, especially collecting process of the irrigation fee. Thirdly, during the first election process, agro-exporter wanted to control the irrigation system, via 'straight-party vote'; however small and medium farmers claimed their right to be eligible and to occupy a position within the Water User Association. Their incorporation led to be part of the decision-making process on several important aspects of the irrigation management (establishment of water fee, rules, contraction of operations and administrative staff, inclusion and exclusion of members). Hence, in the initial years the irrigation system was co-managed by a 'mixture' of water-users; small and medium farmers, and agro-exporters.

Although, the linking of small and medium farmers in the WUA was a positive aspect, there were still many struggles in order to access the resource during the subsequent years of the transfer process. In order to detail some elements of water right' contents which were explained in Chapter 4, I will divide into some aspects:

-*Right to be eligible:* although all water-users have the right to become eligible, this research reveals that the majority of presidents was linked to companies/flower producers. In line with that, some representatives of *Juntas Modulares* were also led by flower producers. This allowed certain kinds of

privileges in order to access water without social control. As a result there were many abuses and conflict situations among water-users and unequal water distribution.

-*Right to change the regulatory framework:* The reforms in the regulatory framework made in 2006 in order to regulate the management of the irrigation system. However, not all changes were materialized. A critical element incorporated in the regulatory framework was the figure of 'treasurer'. The main objective was to exert control on the WUA's expenditure which was in the hands of the administrator and president. However, its real incorporation was only possible in 2010 with the appointment of a new president. At the same time, the establishment of 'annual plan' for every *Junta Modular* was also incorporated in the regulatory framework; however the WUA's directory was not materialized. As a result there was insufficient control on expenditure of the *Junta Modulares'* leaders, causing some corruptions situations. Furthermore, the regulatory framework was based on economic resources in order to manage the irrigation system (establish punishments, incentives, collecting fines, emergency situations funding, and hiring external workers for maintenance activities). This creates a high dependency on the payments made by water-users to secure the irrigation system. This means that the security of the system is based on the economic resource rather than collective labour power. As a result the management of the irrigation system has recently moved away from local forms of collective action in the *Junta Modulares*. These forms have been replaced by the WUA which installed a system of water fees that are used to hire external staff who manages water delivery. This move has not been uncontested locally as it entails a commodification of the water delivery service and a loss of the local autonomy of the *Junta Modulares.*

-*Right on infrastructure:* Although, the State retains the property rights on the main canal, its duties on that were not present. Multiples infrastructure problems were dealt mainly by the WUA during the initial years of management. These problems have been resolved by means of mobilization of diverse resources mainly hiring of external workers *"cuadrillas",* 'emergency funding', own operational staff. The collective works in the main canal were present in emergency situations. Since 2006, a norm was established in order to implement some infrastructure works (rehabilitation, lining, etc.,) from the WUA to *Juntas Modulares*. This was based on 20% of the irrigation fee collected from every Junta Modular in the WUA will be invested on infrastructure works by technical supervision of the WUA' staff. This meant that depending on the economic capacity of every *Junta Modular,* this would receive more infrastructure works and those which would not collect huge amount of money would receive fewer infrastructure works. This will cause a differentiation of the development in infrastructure among *Juntas Modulares.*

Although the WUA has dealt with the infrastructure by itself, it does not have sufficient autonomy to change and expand the hydraulic infrastructure. This research reveals that the lack of 'real' co-property rights between WUA and the State led a dependency relationship to deal with the changes to the irrigation infrastructure. As a result, the decision-making of the WUA is affected and its attempts to modify the infrastructure in order to avoid conflict situations are influenced by the State' decisions.

Additionally an important strategy used by leaders since the initial years of the formation of the WUA has been the close relationship with bureaucrats. The development of WUA reveals that the participation during the abolishment of the basic water fee served as basis to gain a 'political

connection' between WUA leaders and bureaucrats. During this process, the leaders of the WUA mobilized several resources, and human capital to achieve the abolishment of the basic water fee. This resulted in some favours from bureaucrats were reflected on the improvement works of the main canal and the provision of other services within the WUA. In line with that, bureaucrats were politically supported by water-users via votes to gain a political positioning in the public institutions.

In this research I revealed that the WUA has achieved a high degree of autonomy to manage the irrigation system according to its own internal water rights system. I reveals the diverse changes that water-users have made to irrigation management practices during its development after IMT. During this time the WUA has had capacity to develop some improvements for water service by itself, with a few or almost no intervention by the State. This led to achieve a high level of self-sufficiency. However its continuity will depend on the diverse reactions from water-users when future changes will occur.

The current transfer of irrigation competences from the State to provincial governments

Although the National Constitution (2008) and the current government demand by the citizen participation in the public policy, this is still a "*quimera*". A clear example was the current transfer process of irrigation competences from the State to provincial governments during the period January – July 2011. In Chapter 5, I revealed that during the transfer of irrigation competences, policy implementers attempted to implement a reform just as it was formulated without direct participation of water-users.

The transfer of irrigation competences was characterized by successive stages. The process began with the establishment of a technical body (CNC) which was in charge to control the transfer process. This demanded some reports to Ministry of Agriculture, Livestock, Aquaculture, and Fisheries; Consortium of Provincial Governments in Ecuador, and Ministry of Finance. These reports referred to current situation of irrigation and drainage in Ecuador; operational capacity of provincial governments, and financial resources available to be transferred, respectively. Secondly, these reports were reviewed and approved by CNC. Thirdly, a Sectoral-Technical Commission was created in order to determine specifically the economic resources what every government provincial could be provided. Following all this process, finally the official transfer process could be established (Resolution No. 008). Thereby, provincial governments could be 'equiped' to begin with their irrigation responsibilities which were relating to planning, building, operations, and maintains of irrigation systems. However, CNC did not consider that some of reactions could emerge from local stakeholders.

As Grindle and Thomas (1990) mention *"a policy reform initiative may be altered or reversed at any stage in its life cycle by the pressures and reactions of those who oppose it"* (Grindle and Thomas, 1990: 1166). In this case some reactions and pressures were present before the official resolution of transfer process by local organizations led by the Foro de los Recursos Hídricos. They used their high organizational level and their formal and informal networks in order to exert pressure on the CNC decisions. Among their strategies, they organized meetings with some leaders of the water users organizations and took contact with some bureaucrats who occupied high positions in the public institutions. These strategies created a 'space to be heard' in order to incorporate some elements in the final document made by CNC. Hence, the organizational level of the local organizations and the

location of the political network of the El Foro de los Recursos Hídricos were influential factors to exert pressure on the CNC decisions before the official resolution of the transfer of irrigation competences.

The potential outcomes of this reform will depend on the capacity of every provincial government and their possible strategies to managing the irrigation and drainage system in cooperation with water-users The determination of clear duties and responsibilities will define a major relationship between the State and water-users in order to achieve an adequate management of irrigation systems.

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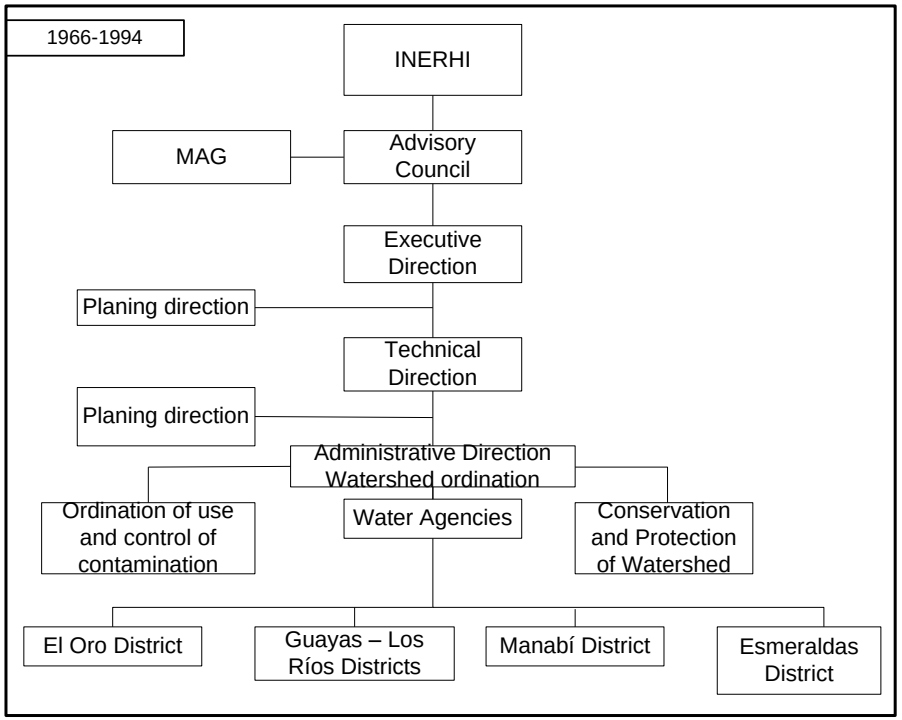
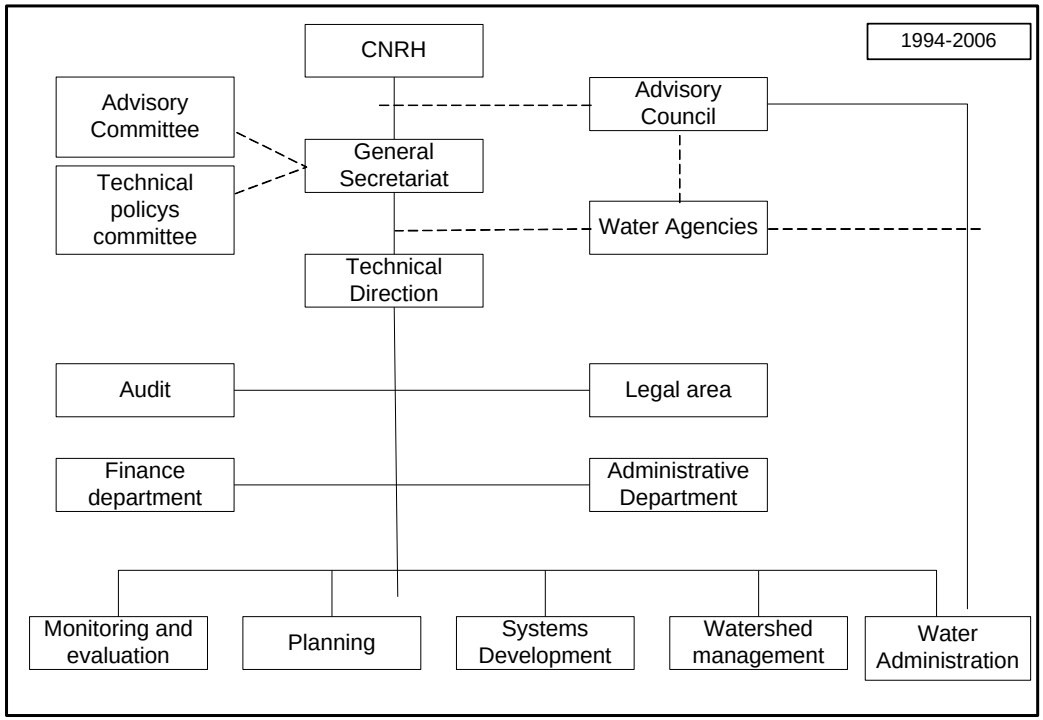
ANNEXES

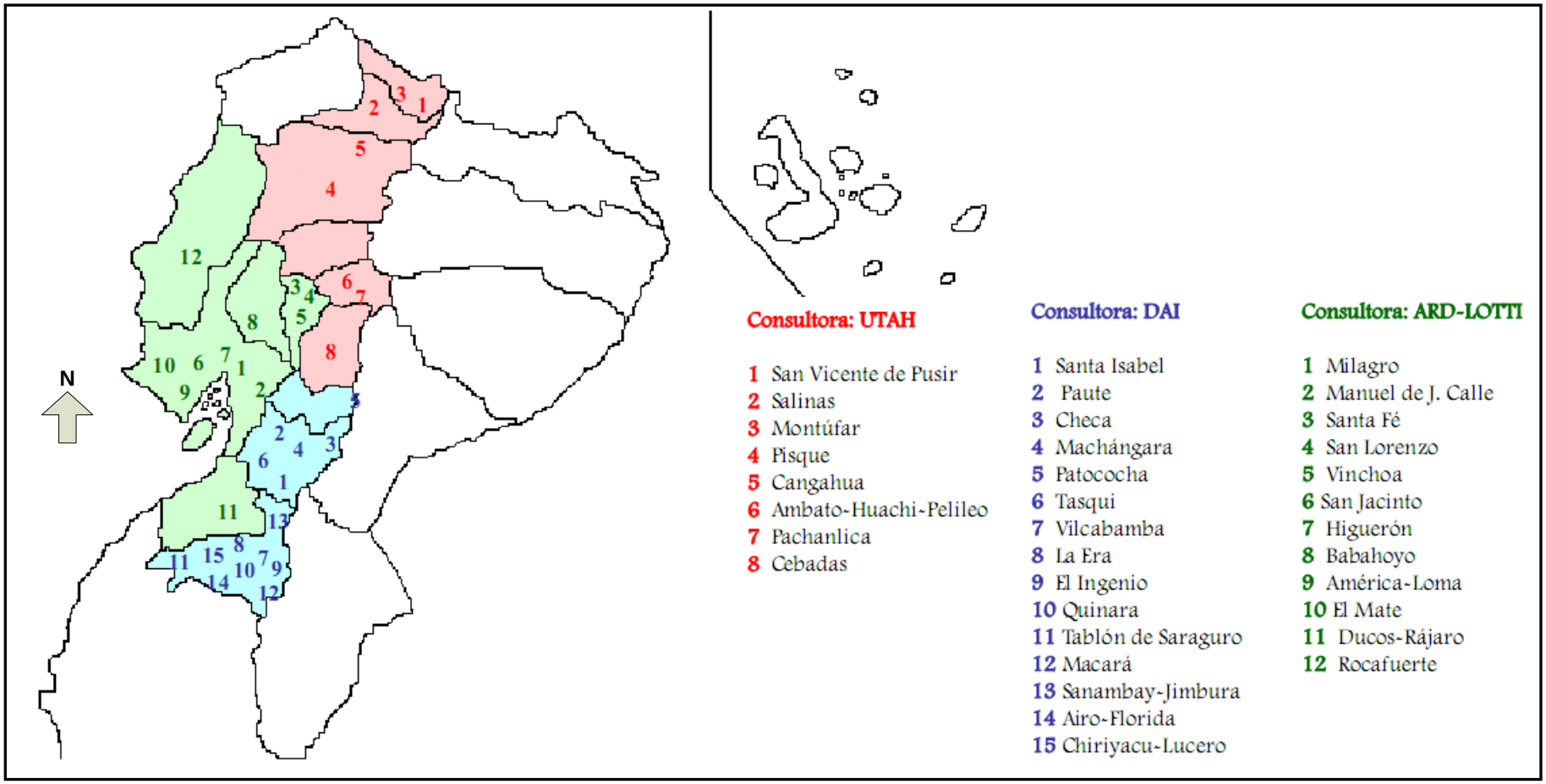
Annex 1. National Institutions for Water Management





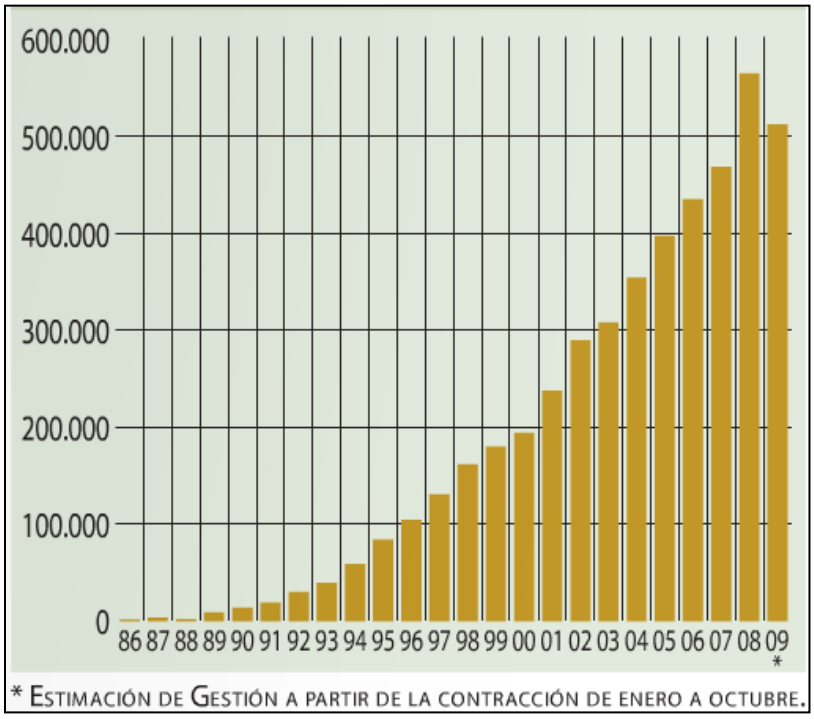
Source (Pérez, 1988)

Annex 2. Transferred irrigation systems by UEP-PAT by means of UTAH, DAI and ARD-Lotti Consultants



Source: (Vasquez, 2003)

Annex 3. Exportation of roses at the national level in the period 1986-2009 (million dollars)



Source: http://www.expoflores.com

Annex 4. Irrigated land and number of water users in the irrigation management of INERHI, CORSINOR, and El Pisque' WUA

INERHI*				CDR (CORSINOR)**		WUA**	
1968		1989		1994		2011	
Surface	Water users	Surface	Water users	Surface	Water users	Surface	Water users
Ha	N	Ha	N	Ha	N	Ha	N
-	668	6082	3065	8500	5441	9913	5948

*INERHI: 1966-1994
**CORSINOR: 1994-1999
***WUA: 1999- ?

Source: Whitaker et al., 1990; Corsinor, n.d; El Pisque irrigation system, 2010.