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Chapter 14

Disputing Water Rights: Scarcity of Water In Nepal Hill Irrigation

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1. INTRODUCTION

Nepal's water household is characterized by a basic contradiction. While the Himalayas contain vast water resources, which feed the big rivers of the northern part of the South Indian continent, the geological and ecological conditions make it difficult to put water to economic use. The high potential for hydro-energy is tempered by geological and social factors that make its development highly problematic.[1] Irrigation is difficult and hazardous because of the steep and unstable mountains with their annually recurring landslides and mudflows. Yet without irrigation that allows the bringing of water in sufficient quantity to the appropriate place at the right time, most water would flow away unused and agriculture would not be productive enough to feed the fast growing population. In practice, therefore, many areas in Nepal either suffer from or are faced with a constant and serious threat of water scarcity. Throughout Nepal, water is the subject of serious and at times violent conflict among its users. In the more densely populated areas where industry is growing, the increasing demand for water for different pur-

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[1] A. Dixit, "Water projects in Nepal: lessons from displacement and rehabilitation," Dipak Gyawali and Ajaya Dixit (eds.), *The Himalaya-Ganga: Contending with interlinkages in a complex system*, 4 *Water Nepal* (1994), pp. 74–85.

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poses, such as irrigation, drinking water and industrial use, has led to intense intra and inter-sectoral competition over water. Scarcity of and competition over water are crucial social, political and legal issues in Nepal today. Irrigation, intended to solve the problem of water scarcity, can only do so to a limited extent while it creates its own scarcity and competition problems.

Irrigation has been known for thousands of years in Nepal.[2] For a long time the various rulers and their governments were interested in the revenues only and put taxes on irrigation works and irrigated land. For that purpose they regulated land tenure and stimulated irrigation by providing local elites and landlords with feudal grants. Some irrigation systems have been built at the specific directive of a ruler, but most irrigation works were built at the initiative of feudal landlords, other rich landowners or religious leaders. After the demise of the feudal system, irrigation became more and more a matter of the farmers who received water from the canal, but the families of the former feudal landlords still exert considerable influence on management and operation of irrigation systems. Only recently have government agencies, often with the support of international donors, become actively involved in building, operating and maintaining irrigation systems. Many new systems are built and existing systems are rehabilitated and enlarged.

Government and development project intervention has had a great impact on access to and distribution of water and the management of the irrigation systems, and in many cases this has led to serious problems. One of the major reasons for this has been that such projects are launched without much knowledge of and insight into the functioning of existing irrigation systems and the rights and obligations relating to water, land and system management. Pre-set technocratic and bureaucratic notions of how irrigation systems ought to be managed are forced upon water users, who are lured into cooperation with the bait of large credit facilities. New organizations, Water Users Associations, have to be formed by all potential users within the command area, without considering what this might mean for prior users. Large irrigation projects that showed little sensitivity to the existing rights and to the needs and wishes among the local population have met with overt or tacit resistance. The Nepal Government and donor agencies are becoming increasingly aware of these problems, and there are signs of policy change. Turnover policies figure prominently on the national agenda, especially since recent studies have indicated that farmer managed systems tend to be more effective than agency managed systems.[2a] However, the fact that new material infrastructures and enlargement of command areas always imply changes in water rights is still rarely considered a problem for planners, whose main concern is the development of more, better and more efficient irrigation. Reactions to

[2] The following section is based on P. Benjamin, "Farming in the Himalayas; living in a perilous environment", P. Benjamin et al. *Institutions, incentives, and irrigation in Nepal. Workshop in Political Theory and Policy Analysis* (1994), pp. 1–14.

[2a] Wai Fung Lam, M. Lee and E. Ostrom, "An institutional analysis approach. Findings from the NIIS on irrigation performance", J. Sowerwife et al. (eds.), *From farmer fields and back: A Synthesis of participatory information systems for immigration and other resources* (Colombo: IIMI and Rampur, IAAS, 1994), pp. 69–93.

these smaller rehabilitation projects are diverse. Those who expect to gain (better) access to water where they were excluded before, are in favour of government intervention and tend to de-emphasize prior rights by stressing the government's legitimate involvement. Others, notably those who controlled the old system and had full rights to the water, are less supportive of the intervention and criticize the expropriation of their rights. On the whole, however, local people share the critique that their needs, existing relationships and rights are being neglected by the project management.

Over the years, several studies have been carried out in the field of water law, the results of which were presented at a workshop held in Kathmandu, 22–24 January 1996.[3] These studies document the old and new water right problems in irrigation systems. One of the striking results that have come out of these studies is the fact that rights to water over the past decades appear to have been under almost permanent *negotiation* in situations of scarcity that may be more or less acute, more or less permanent and may pertain to a whole population of an area or to certain persons only. Rights to access, allocation and distribution of water, as well as obligations and rights to contribute labour and material to the maintenance and repair of irrigation systems, are renegotiated over and over again. As a consequence, these negotiated orders are highly provisional and temporary.

This chapter will show that these negotiated orders which embody elements of state, customary and religious legal rule systems, are crucial to understanding the working of irrigation systems. The important legal issue concerning water rights in Nepal does not seem to lie in a contradiction between alternative and contradictory legal formulations of water rights, but rather in the provisional character of the negotiations over water rights. The significance of this is particularly great because of the high *frequency* of these negotiations. In this chapter it is argued that a combination of factors has led to the recurring negotiating of rights and obligations concerning irrigation water. It is due to the geomorphic conditions, which make shifting and rebuilding canals and irrigation works frequently necessary. It is further due to demographic developments, notably migration. This necessitates enlargement of irrigated areas and causes problems of how to include or exclude newcomers of various caste, status and ethnicity. Also changing irrigation techniques and cropping patterns have changed the irrigation patterns substantially. Finally, changing regulations of land tenure and local administration under the various rulers and governments, and more recently, regulations and management forms imposed by donors, have repeatedly necessitated new regulations within and between irrigation systems.

After a brief historical overview of the political and legal development of irrigation in Nepal and of the principles on which water rights are established, the arguments will be illustrated by two cases. One brings out changes in irrigation

[3] Research was funded by the Ford Foundation and carried out by the International Irrigation Management Institute (IIMI) – Nepal, in collaboration with FREEDEAL (Legal Research and Development Forum), and by the Institute of Agriculture and Animal Science (IAAS) of Tribhuvan University at Rampur. We are greatly indebted to the Rajendra, Mahesh, Ujjwal Pradhan, K.C. Durga, Shantam Kadhaka, A.K. Shukla, Ganesh Shivakoti, Rabi Poudel, who were willing to share their experiences with us. In this chapter we lean heavily on the results of these research teams.

arrangements resulting from recurring negotiations between higher caste and higher status migrants and lower caste and lower status original settlers, under conditions of natural catastrophes and technological innovation and government intervention. The other case concentrates on the negotiations among old and new users as a result of changing cropping patterns, migration and government intervention.

2. HISTORICAL BACKGROUND

With 141,000 km^2 Nepal is slightly larger than England. Of the total area, over one third (3.97 Mha) is cultivated, of which 2.37 Mha is hill and mountainous land, and 1.6 Mha is situated in the lowland at the southern border, called the Terai. Only 15 per cent of the hilly areas can be irrigated, of which half is actually irrigated. The rest of the land under cultivation depends on monsoon rains, which fall during a four-month period between June and September.[4] There is some debate as to how much irrigation there was before the late eighteenth century, but it is certain that irrigation has been known for centuries and some of the present systems are very old.[5] Before the end of the eighteenth century demographic pressure on land was not such that it required intensification of agriculture, but there is evidence that rulers pressed for intensification in order to extract taxes. Irrigation systems were built by temple communities or by individuals. Temples often had extensive irrigation works attached to them. Many temples received religious endowments, *guthi*, from a ruler to build irrigation works in order to increase their income, but common people also could form a *guthi* and together build an irrigation system of which both the priests and the ordinary farmers profited. However, most irrigation systems were built by wealthier individuals, especially *birta* and *jagir* grant owners, owners of grants of land to which various privileges were attached. The birta owner was exempt from taxation and was entitled to draft tenants for work on irrigation systems. He had also judicial authority and could collect fines. The jagir owner had similar but less secure privileges. Tenants rarely built irrigation systems at their own initiative, due to a lack of means and because of insecure land titles. Rulers never managed and operated irrigation systems themselves. The systems were supervised by the feudal landlord, or by the landowner at whose initiative the canal was built, but the actual labour was done by tenants, bonded labourers and slaves. Birta and jagir owners were hardly controlled by any central government and acted more or less freely in the management of irrigation systems. During the wars that ultimately led to Nepal's unification in the middle of the nineteenth century, land titles became extremely insecure while tax pressures increased, not only for ordinary farmers, but even for birta grant holders whose land was often

[4] Jayanta Bandyopadhyay and Dipak Gyawali, "Ecological and political aspects of Himalayan water resource management", *The Himalaya-Ganga: Contending with interlinkages in a complex system*, 4 *Water Nepal* 19, *supra* note 1.

[5] The following is mainly based on Benjamin, *supra* note 2, p. 15.

confiscated by the various rulers who happened to control an area. According to Benjamin,[6] this greatly hindered further development of irrigation systems.

It was not until Nepal was united and settled down, that the network of irrigation systems started to expand. This was to some extent stimulated by the regulations of the Law on Reclamation of Wastelands of 1853 and the Muluki Ain (Basic Law) of 1853, in which land belonging to the state was "to be redistributed in proportion to the available area among the local population on the basis of 'physical capacity and size of the family'".[7] A person who reclaimed wasteland or who built irrigation works on it with his own resources became owner of them. This meant that a person could obtain more land by investing in irrigation than through land redistribution.[8] The Muluki Ain also for the first time laid down the principle of first use for the builder of a canal with his own expenses or physical labour, and the primacy of access to water for the field closest to the source of water. It further laid down the obligation of repair by joint labour or provision of labourers by the landowners using the canal. Only if the costs of repair exceeded the possibilities of the owners, the Talukdar (landlord or rent collector) could apply for support to the government. If a canal was not repaired during three consecutive years, the Talukdar could do so on his own or government expenses and was then allowed to evict the tenants or landowners. Thus the fundaments of state regulation were laid in the Muluki Ain of 1853, but it is said to have been a codification of what already existed as customary law. Benjamin reports that by lack of an effective judicial and administrative organization, the building and management of irrigation systems remained a matter of local initiative until the 1950s. The government stimulated intensification of agriculture and provided for tax exemption during the first three years after construction of a canal, but it was not involved directly in building irrigation systems.

In contemporary Nepal, access to and distribution of water is highly complex. Migration of large numbers of people, from India and from different areas within Nepal, often caused by political pressure from the many different rulers, has been endemic for centuries. During the Mogul period, for example, many Brahmins were persecuted and moved from northern India to what is now Nepal to live under a Hindu ruler. As a result, Nepal is highly stratified on the basis of both caste and ethnicity and most regions in Nepal are ethnically and caste-wise highly mixed. Far more members of low castes and of peripheral ethnic groups exist among the poor than among the large landowners, and in the state administration there is an overwhelming over-representation of the higher castes.[9]

[6] *Ibid.*

[7] See Muluki Ain, *His Majesties Gazette of Nepal* (1870), pp. 51–52.

[8] Benjamin, *supra* note 2, p. 20, quoting Regmi.

[9] National Planning Commission, International Union for Conservation of Nature and natural Resources, "A Legislative and Institutional Framework for Environmental Management in Nepal. Review of legislation, administrative procedures and institutional arrangements relating to land use and resource management" (1991), p. 27; K. Pyakuryal, "Ethnicity and Rural Development in Nepal: some ethno-regional concerns", *Indian Journal of Nepalese Studies* II (1989–1991), pp. 7–16; Krishna B. Bhattachan and Kailash Pyakuryal, "Ethnoregional perspectives on national integration of Nepal". Paper presented at the Seminar on Ethnicity and Nation Building, Kathmandu, 22–23 Dec. 1995.

Demographic developments, the growth of energy demand and industry, as well as intensification of agriculture and changing cropping patterns have increased demands for water in the more densely populated areas of Nepal, notably the Kathmandu valley and the Terai, but also in more remote areas. The irrigated areas have been greatly expanded throughout Nepal. Today there are more than 17,000 irrigation systems in operation.[10] Of the total irrigated area 70 per cent is irrigated by farmer managed systems.[11] In the hills over 90 per cent of all systems have been built and are managed by farmers. The fact that the majority of irrigation systems are managed by farmers by no means implies that there is equality in rights to irrigation water. Though there had been some land redistribution under the Muluki Ain of 1853, and some attempts to reform the land tenure system were made in the first half of the twentieth century, until the 1950s, most arable land was controlled by large landowners, often former feudal landlords, usually belonging to the higher castes. With the Land Reform Act of 1964, large landholdings were to be dissolved and ceilings were put on land ownership.[12] Since then some land redistribution has taken place, though the Act has been poorly implemented. Today land is still unequally distributed and the bottom 60 per cent of landowners own only 20 per cent. One-third of all rural families are tenants and 10–20 per cent of all households are landless.[13] In the western regions bonded labour still exists, although slavery was abandoned in the 1920s.[14]

After the revolution of 1951 the government started to play a more active role in agriculture, land tenure and irrigation. It enacted several laws in which the state claimed increasing control over water. In the Electricity and Related Resources Act of 1967, for example, the state established ownership of irrigation systems that were rehabilitated or expanded by state investments, but it was not until the Water Resources Act of 1992 and the Water Resources Rules of 1994, that the state proclaimed ownership of all water. The ideology behind the law is that the state is both entitled and obliged to develop the country and intervene in all matters of water for that purpose. Hence enlargement of areas under cultivation and improvement of irrigation efficiency are considered a task of the government. Administrative changes in local government, to some extent specifically aiming at an improvement of local water management, accompanied these reforms. The feudal landlords were replaced by a panchayat (council) system and later by the present institution of VDC (Village Development Committee). However, the former feudal landlords usually remained very

[10] Bandyopadhyay and Gyawali, *supra* note 4, p. 19.

[11] G.J. Gill, "Irrigation policy research in Nepal: using PRA methods to investigate and incorporate indigenous knowledge", Jennifer Sowrine et al. (eds.), *From farmers' fields to data fields and back. A synthesis of participatory information systems for irrigation and other resources* (1994), pp. 34–46.

[12] S.K. Khadaka, "Nepalese Legislation on Environment; an Overview", Atkinson et al. (eds.), *Year 2000: Challenges and Prospects for a New Environmental Order in the Asian Region. Proceedings of the International Conference on Environment and Law, 6–8 March 1992* (1992).

[13] National Planning Commission, *supra* note 9, p. 40.

[14] Personal communication with S.K. Shantam and K.C. Durga; see also Benjamin *supra* note 2, p. 24.

influential. They often obtained important positions in the new administrative structure and since the introduction of the multi-party system, many have good connections in political parties. Where they have not managed to obtain a position in the new political and administrative structures, there is a lot of competition among the old and new authorities.

In order to cope with the increasing demand for water, the government, till the 1950s only remotely interested in irrigation as a source of income, has started to improve and enlarge many existing systems and to build new irrigation systems, often in cooperation with donor agencies such as the World Bank, the Agricultural Development Bank, CARE/Nepal and ILO. Some of the larger projects set off a new wave of migration. In 1953, Nepal suffered great floods and landslides, washing away many villages in the hill regions. At that time the Nepal Government had started the Rapti Valley Multipurpose Development Project, a large project to eradicate malaria from the southern region in the Terai and make it suitable for agriculture. The Terai has a somewhat special position in the history of Nepal. The Rana rulers from the middle of the nineteenth century on, appointed *pargana chaudary*, feudal district heads, and *zamindars*, feudal landlords and village heads, who were responsible for land revenue collection. Zamindars initiated the building of many irrigation canals, for which they used a system of compulsory labour, *jharahi*, of the local Tharu and Darai population. Tharus developed high skills in canal building. Some of the present systems go back to that period.[15] For a long time the area remained thinly populated. The area could become Nepal's main area of agricultural production after it was freed of malaria some 40 years ago. The Rapti Valley project, started in the 1974, set off a vast immigration movement from the hills to the Chitwan area in the Rapti River watershed. Migrants from the hills started to move into the area, bought land and settled as farmers. Within a few decades the area has turned from a sparsely populated area in which only a few indigenous Tharu communities managed to live, into a densely populated and intensively cultivated area in which Tharu and migrants of many different ethnic backgrounds from the hills live side by side. Ethnicity, caste, and class differences have created a highly complex and uneasy cohabitation in which competition over water has become intense and at times violent.[16]

3. LEGAL PRINCIPLES OF ACCESS, DISTRIBUTION, ALLOCATION, OPERATION AND MANAGEMENT

The historical account already gives some indication of the legal provisions upon which water rights can be based. One can observe an increasing legal

[15] A.N. Shukla et al., "Dynamism in water rights and arbitration on water right conflicts: cases of farmer managed irrigation systems form East Chitwan". Paper presented at the workshop on Waterrights, Conflict, and Policy, Kathmandu, 22–24 Jan. 1996.

[16] Bandyopadhyay and Gyawali *supra* note 4, p. 19; A.K. Shukla et al., Institute of Agriculture and Animal Science, *Irrigation Resource Inventory of East Chitwan* (1993), p. 18; Benjamin *supra* note 2, p. 24.

control by the state of all water related matters, culminating in the Water Resources Act of 1992 which vested the ownership of all water resources in the Kingdom of Nepal (section 3). While section 4, clause 1 states that "no person shall be entitled to utilize the water resources without obtaining a license under this Act", no licenses are required for most water uses in rural areas, such as drinking water, irrigation, water mills or water sources on the land of a landowner (section 4, clause 2). The Water Resources Act does not specifically indicate the legal basis for such uses, but it is generally assumed that the previous legal rules and principles relating to control and use of water resources remain recognized as valid. However, they are subject to intervention by the government, as the Electricity and Related Water Resources Act of 1967 had already stated. The Water Resources Act emphasizes the authority of the government to acquire and develop water resources and the land for purposes of extensive public uses (section 4, clause 2) against compensation. Section 11 which provides for the turnover of state developed water resources gives some indication of the meaning of ownership under this Act, for it provides that "the concerned users associations shall have the *ownership* [authors' italics] over the project turned over to it ... and the concerned users associations shall operate such project as if it had got a license under this Act" (section 11, clause 2). So unless the state government has taken over an irrigation system, the following rules and principles still prevail.

3.1 Rights of access

Rights of access are based on a combination of land ownership and inheritance and on labour input and other investments for the construction and the maintenance of infrastructure.

(a) Landowners participating by their own labour or expenses in building the canal obtain inheritable priority rights over the water. The labour input of tenants is usually ascribed to the landowners.
(b) Full rights in an irrigation system involve certain obligations: to retain one's right to water, one must contribute to the maintenance of the system. Full rights imply a right to a share of water both in monsoon and in dry season irrigation. Sometimes it also works the other way around: participation in the maintenance may provide a full right to the water.
(c) First users have priority over newcomers. Migrants need the consent of original settlers to build a canal.
(d) Fields irrigated of old (*sabik*) have prior rights to water over all others.
(e) A field closest to the source has a prior right over the fields further away.
(f) One may not control more water than one can use for one's own purposes. Surplus water must be shared with minor rights holders or even outsiders.
(g) A new intake may not be built in such a way that it diminishes the water intake of existing systems; it must be built at a sufficient distance from a downstream intake.
(h) Building an intake may not destroy the land around the intake.
(j) Landowners may not prevent an irrigation canal being led over their land, but they must be compensated.

(k) A water source confined to a particular plot of land is property of the landowner and does not have to be shared.
(l) Government funded systems are a public facility and therefore not subject to existing local principles and arrangements.

3.2 Distribution

The distribution of water is usually controlled by specially appointed functionaries.[17] A distinction must be made between water abundance and water scarcity. In water abundant areas during the monsoon, water flows continuously and rightholders may tap freely. Abundance and scarcity, however, to a large extent depend on the crops that are under cultivation. This means that, though there is more water during monsoon than during the winter season, during monsoon water may be more scarce, so that only rice fields (*khet* land) may be irrigated, whereas during the winter season owners of unlevelled land (*pakho* or *bhit*) are often also entitled to irrigation. If there is not enough water, a distribution system has to be developed. This usually is based on rotational use, or on a combination of several rotational mechanisms, each adjusted to a particular phase in the cropping cycle. There is considerable variation in the basis upon which rotation takes place (duration, volume, order). Over time an irrigation system may change its rotation principles several times. Durga and R. Pradhan report that a system in the Tanahu district started out with a water distribution system for monsoon rice in which a period of continuous irrigation was followed by two different rotation systems. With the introduction of a new rice variety they turned to a three-stage rotational system for monsoon rice.[18]

The order of water application may start with the head-reachers or with the tail-enders. Which option is chosen is not unimportant, for generally speaking it is of advantage to be among the first in a rotational system. Rights on volume relate to the branch canals and to individual fields. The volume that goes in the branches may depend on the total area that is to be served by the branches, or on the labour and financial input in the maintenance of the main canal; but it also may be shared in equal shares, independent of the size of the land in the respective command area. More or less permanent distribution works distribute the water over the different branches.

[17] Over time, systems employ different operators and controlling officers see e.g. K.C. Durga and R.Pradhan, "Conflict and conflict management: waterrights in a farmer managed irrigation system in Tanahu". Paper presented at the workshop on Waterrights, Conflict, and Policy 5, Kathmandu, 22–24 Jan. 1996. It may be done by a professional operator who is appointed and paid by the users. In many cases officials from among the users are appointed to do the work. Sometimes the users themselves have to see to it that they get their water in due turn. Depending on the time the government became first involved in a system, government regulation may have its influence.

[18] Durga and R. Pradhan, *supra* note 17, p. 7.

At the level of individual fields, there is again considerable variation. Sometimes the volume is directly related to the size of the fields, but there are cases in which the quality of the soil, as well as the type of crops, is also taken into account. In the most equal distribution systems there is also a rotation as to day and night turns; in unequal systems, some persons, notably low caste, low status persons and widows, always have to take their turn at night, while influential people get water during the day.

3.3 Maintenance

Irrigation systems need a lot of maintenance work. Every year the canals have to be cleaned and repaired before the irrigation season starts. If there are no permanent diversion works, these have to be built every year, but semi-permanent or permanent headworks are also frequently destroyed due to heavy monsoon floods and landslides. As mentioned above, full rights in an irrigation system involve the obligation to contribute to the maintenance of the system. The yearly maintenance work is done by labour and financial inputs of the water users themselves. The amount of work may be divided among the households of the users. Other ways to divide the work is on the basis of size of land or on the basis of water shares, or on the basis of one share for each settlement. Financial inputs are usually raised by the users. If the government has made permanent structures, financial demands for maintenance are relatively low and labour is recruited from among the users. However, the costs of repairs after floods or landslides may be far too high for the users. Nowadays, the government often pays at least a substantial part of the repairs. Participation in maintenance establishes or confirms rights to water. Because of that, persons who are not granted full rights usually may not participate in regular maintenance work, but they can called upon for emergency repairs. Emergency repair does not establish rights to water.

3.4 Principles, rights and negotiations

Many of these provisions have the character of principles rather than of rules. They legitimate access, control, management and utilization of water by villages, groups, families and individuals. However, no constellation of water rights between different right holders or the group rights to water in actual rivers and irrigation canals can be directly deduced from legal principles. Such principles require concretization as *water rights* in relation to the concrete ecological and socio-political situation. This means a clarification of what the general principles mean in terms of actual rights-relationships in a specific social and ecological context. To some extent this clarification is also necessary because the various principles derive from different legal orders and/or may also be mutually exclusive and because it is not certain which principle has priority over another. They provide a repertoire of accepted justifications and options of possible arrangements, but do not lead unequivocally to particular solutions.

In the agreements and settlements that are reached in negotiations it is established which of the principles are followed and in which hierarchy. There are

many occasions on which new regulations have to be made about access, distribution, operation and management. This is necessary when people want to build a new canal, when existing structures have been destroyed, when new crops are introduced, and when an existing system is being rehabilitated and enlarged. Rehabilitation projects in particular are often felt to have been imposed upon local communities, in which users have not had a voice, and in which they feel their interests and rights have not been fully taken into account. This is a complaint that is heard in particular from the old users. As will be seen, new users may profit from the projects and from the fact that it is initiated by the government, because that gives them a legitimation for their use of the system which they did not have previously. The resulting changed allocation, distribution, operation and maintenance systems distribute the burdens and profits in very different ways.

Shukla et al. describe the results of such negotiations in terms of a set of agreements, or a social contract, in which the irrigators realize their own claims and acknowledge the claims of others, thereby "making every effort to maximize the benefits of irrigation".[19] This is a rather euphemistic representation of the fighting, pressing and disputing that goes on among the various users and other participants. To be sure, agreements are made, but often grudgingly and provisionally until times have changed and new alliances may bring a chance to negotiate a more advantageous agreement. Negotiations are usually intense and sometimes fierce. This is not surprising given the high economic interests that are at stake. As we shall see, the outcome of negotiations depends on the mutual interests and strength of participants, their wish to look for workable solutions and the extent to which they manage to mobilize support for their standpoint.

4. CONTESTING RIGHTS – PRECARIOUS NEGOTIATED ORDERS

4.1 Case 1: The negotiated order of Jivanpur and Badgaon irrigation[20]

More than 100 years ago, a Tharu feudal landlord (*zamindar*) of Badgaon, in the Chitwan Valley of the inner Terai, built the village's first irrigation canal with its intake in the Budhi Rapti River. He later abandoned the canal because it was too labour intensive to maintain. The abandoned canal from the Budhi Rapti River was later taken over by tenants from a small settlement, Pipra, in which drainage water from a canal upstream was collected. In 1922 the landlord with the help of his villagers, dug a canal to a parallel river, Dhongre Khola. From then on Badgaon was in continuous competition over water with its neighbouring village Surtana, located at the other side of the river, which also had an irrigation canal built by its landlord with an intake from Dhongre Khola. Over time Dhongre Khola changed its course several times and each time Badgaon or Surtana were

[19] A.N. Shukla et al., "Dynamism in water rights and arbitration on water right conflicts: cases of farmer managed irrigation systems form East Chitwan". Paper presented at the workshop on Waterrights, Conflict, and Policy, Kathmandu, 22–24 Jan. 1996.

[20] This case is described in A.N. Shukla et al., *supra* note 19. Additional information was collected during a brief field visit in Feb. 1996.

forced to change the place of their intakes, and each time there was a dispute in which a new agreement was negotiated. Sometimes Surtana managed to move its intake upstream from Badgaon, and then it was the other way around.

In 1958 the village Jivanpur, at the initiative of its former feudal landlord constructed a canal with its intake in the Budhi Rapti River, close to the place where the drainage water of the abandoned Badgaon canal was collected. They claimed to be the oldest settlers in the area and therefore to have prior rights. After a flood of the Dhongre Khola in 1970, the river ceased to be dependable for irrigation and Badgaon had to look for additional water, and again searched for ways of getting it from the Budhi Rapti River. From that time on, Badgaon and Jivanpur were in continuous contest for Budhi Rapti water. This led to a series of arrangements in which their mutual relationship was negotiated over and over again and in which Badgaon over time managed to get an ever larger part of the water against increasingly favourable conditions.

Badgaon approached the Chairman of the Village Development Committee, the (ex-) landlord of Jivanpur, who granted them access to their old canal, because it was assumed that Badgaon together with Pipra would mainly use the drainage water through its formerly abandoned canal. But Badgaon needed more and started again to tap water directly from the Budhi Rapti River at the place where Jivanpur also had its intake. Because the Badgaon canal was on lower land than the Jivanpur canal, more water flowed towards Badgaon than to Jivanpur. Jivanpur farmers complained to the Development Committee Chairman, who negotiated a settlement according to which Badgaon would get one-quarter and Jivanpur three-quarters of the water. The reason given was that Badgaon had access to Dhongre Khola as well and therefore did not need as much water as Jivanpur which depended entirely on the Budhi Rapti River. New arrangements had also to be made for maintenance and repair matters. It was decided that each household would contribute labour and cash. Badgaon, having four times as many households than Jivanpur, thus had to contribute about four times as much as Jivanpur.

Badgaon continued to use more water than was agreed. A new development was that in 1987 a government rehabilitation project diverted the drainage water away from Badgaon with the promise to rehabilitate Badgaon's system so that they would no longer depend on this drainage water. Badgaon farmers then changed the division at the intake at the Budhi Rapti River so that they got one-third instead of one-quarter of the water, but in fact because of the advantaged position of their canal, they would even get more than one-third. Understandably, Jivanpur objected strongly. In 1992 the dispute erupted and was brought to the Village Development Committee. The Chairman negotiated a new (written) agreement: in the future, one-third of the water should be for Badgaon, and two-thirds for Jivanpur. They would jointly mobilize all resources necessary for maintenance and repair of the system, as well as for possible resources for government rehabilitation projects, in proportion to the area which they had under irrigation. This meant in effect that Badgaon, which had about three and a half times as much land under irrigation as Jivanpur, would have to contribute three and a half times as much as Jivanpur. The flood of 1993 washed away the intake and the government stepped in with a large rehabilitation programme. Again, Badgaon

took that opportunity to start negotiating a better agreement with Jivanpur, but Jivanpur objected. The government made it clear that it would only provide aid to those who would manage to settle their disputes and much pressure was put on Badgaon and Jivanpur to do so. Badgaon felt it was carrying an unjustly heavy burden and wanted half of the water, on the ground that it had a much larger area under irrigation. Jivanpur was irritated because Badgaon continued to "steal water" and take almost three-quarters instead of the one-third it was entitled to. Once more the Chairman of the Development Committee offered his mediation and proposed an agreement according to which the villages would each get one-half of the water, while the resources for the rehabilitation project would be divided according to area under irrigation. Each system would contribute one half of the resources for maintenance. The dispute went on until early 1996, when pressure from the side of the project management became so high that they threatened to cancel all assistance. In February 1996 the two villages finally came to the agreement that each would receive one half of the water and contribute one half of the resources, under the condition that there would be a permanent division structure, which would put a stop to further theft of water.

The case shows how over a period of time water rights are renegotiated over and over again among users of adjacent systems. In the course of time, Badgaon managed to get a larger share of the water under more favourable conditions. It might be asked why its share was initially so small and why it became larger subsequently. The reasons for the small share were twofold. In the first place Jivanpur considered Badgaon as newcomers, who therefore had a lesser right. Secondly, they argued that Badgaon could tap from another source and therefore needed less water from the Budhi Rapti River than Jivanpur which depended entirely on that river. But over time the relationship changed. In their struggle to get more water and contribute less labour and financial inputs, Badgaon referred to different, but also recognized, principles from those which had been embodied in the regulation agreed upon in the earlier agreements. Although the principle of contribution according to household, or equal shares for villages, were both basically acceptable principles, this does not explain why the alternatives were accepted by Jivanpur, who seemed to lose every time new negotiations were entered into. One reason was that Badgaon people were of higher caste and status, were better educated and had better connections to administrative offices and to influential party members. Moreover, the rehabilitation project preferred a "just" 50–50 solution. Another reason was that Badgaon had in effect continuously taken far more than its share and Jivanpur had been unable to effectuate its own claims. Jivanpur therefore insisted that a permanent division weir be constructed, even though the project had planned a less permanent gabion structure. With the construction of the permanent structure, stealing would become almost impossible, or so Jivanpur hoped. They felt that the new agreement would in practice bring them a more favourable position than before, even though the official regulation may have been worse. Thus, the permanent structure was a way to prevent further disputing.[21] Jivanpur farmers hoped that

[21] Durga and Pradhan, *supra* note 17.

this negotiated order would be less unstable and less in discord with practice than the ones before.

4.2 Case 2: From water theft to water right in the Telia Kulo irrigation system[22]

The Telia Kulo irrigation command area, located in the Bijauri administrative village area, which belongs to the Dang district in the Terai, was constructed between 150 and 200 years ago by the Majhgainyas, feudal landlords (*zamindars*), and has until recently been managed under their supervision. The area consists of two main types of arable land: fields entitled to permanent irrigation (*khet*) and fields allowed access to irrigation in the winter season only (*bhit*). In the past local rules strictly prohibited change to the existing arrangement by diverting irrigation water to bhit land, converting it into khet land. The ruling Majhgainya landowners, fearing that their monsoon crops in the tail of the command area would suffer from water shortage if too much land was converted into khet land, used to punish bhit land farmers severely when they were caught diverting water from the canal during monsoon. These water stealing *Bhitwalas*, as the bhit farmers were called, were fined and their livestock and household items were forcibly seized. Village authorities, mainly dominated by Majhgainyas, never intervened on the Bhitwalas' behalf. This changed, however, when the Majhgainyas' local power and influence, as well as their interest in irrigation management, started to decline. The decline of Majhgainyas dominance coincided with demographic changes in the region as well as technology, crop choice, and changes in legislation. Increasing government intervention, immigration and land reform brought about more intensive cultivation, smaller land holdings and a growing demand for water. In the changing administrative and local power settings the (new) claimants' constant search for more water to irrigate their fields increasingly clashed with the prior appropriators' interests and established rights.

At first only some other big landowners, rivals of the Majhgainyas, started to convert bhit land into khet. Encouraged by this example and supported by a few more liberal landlords, gradually some low caste, small farmers took to converting their bhit into khet as well. These Bhitwalas were also encouraged by the fact that the Majhgainyas at the time had lost their leading position in local village politics to rival elites, who were more sensitive to the bhitwalas' wishes. Of course the Majhgainyas objected and tried to fine the persons diverting water to their recently (illegally) developed khet lands; but after several interventions by the new village authorities on behalf of the water "thieves", the Majhgainyas came down a peg or two and entered into negotiations with the Bhitwalas. In

[22] This case is mainly based upon Mahesh Pradhan and Rajendra Pradhan, "Conflict as a means to acquire and protect water rights: A case study of conflicts in Dang". Paper presented at the workshop on "Water Rights, Conflict and Policy", Kathmandu, 22–24 Jan. 1996. Relevant information has also been taken from R. Pradhan et al., "Laws, Rights and Equity: Implications of State Intervention in Farmer Managed Irrigation Systems". Paper presented at the workshop on "Water Rights, Conflict and Policy", Kathmandu, 22–24 Jan. 1996.

1984 a written document was drafted and signed which recognized the Majhgainyas historical claims but also claimed room for future new water rights for the Bhitwalas.

These later developments came about because, between 1978 and 1982, the Nepal Department of Irrigation had set itself the task of carrying out a project of rehabilitation and extension of the Telia Kulo irrigation system. The Guhar River Irrigation Project (GIP) extended the main canal from 6 to 13 km covering 700 ha instead of the 450 ha of the former Telia Kulo system. The new GIP system also planned to irrigate an additional 525 ha in a new command area, around Hemantapur village, which before had never been attached to the Telia Kulo system at all. According to Pradhan, Haq and Pradhan[23] some of the villages in the planned new command area had so far only managed for a few years to buy some water for a few days annually. Hemantapur, one of the villages that for decades already had been trying to acquire full access to the Guhar River water resources for their winter crops, now, in the context of the GIP had seized their opportunity. They had persuaded the Dean of the neighbouring Sanskrit Institute, whose lands, donated by the King, would also profit from access to the Guhar River resources, to plead their case with the King of Nepal. The Dean, who was close to the King, successfully requested the King to order the Department of Irrigation to include in its project an extension of the Guhar River resources to the Hemantapur area.

Fearing that this new extension of the original Telia Kulo irrigation command area would cause water shortage, especially in the old Telia Kulo tail end, Telia Kulo tail-enders, supported by their upstream relatives, succeeded in mobilizing sufficient political support at both local and national levels to get the GIP plans substantially modified. Rioting and damaging the already initiated headworks as well as petitioning the Prime Minister formed part of their political pressure. In 1983 the Cabinet issued a decision. According to M. and R. Pradhan, the Cabinet decision ordered the plans for the additional command area to be reduced from 525 to 250 ha.[24] The other authors on the Telia Kulo case, R. Pradhan, Haq and U. Pradhan, using the text of the letter that was sent by the Department of Irrigation to the GIP office, mention a further interesting point made in the text; one of its paragraphs says that for winter crops water from the GIP will be given only to the traditionally (sabik) irrigated fields of Telia Kulo.[25] This can be seen, as the authors remark, as an instance of upholding local customary law by the Cabinet. Yet the Cabinet decision also granted water for 250 ha of new command area during the monsoon period. However, while in monsoon Hemantapur and its surrounding settlements had sufficient other water resources and did not really need the GIP water. Within the Telia Kulo system, as we have seen, competition for access to monsoon water had become endemic, which also was the reason why the customary (Majgainya) law excluding the Bhitwalas from monsoon irrigation was being re-negotiated.

[23] Prahdan et al., *supra* note 22.
[24] Pradhan and Pradhan, *supra* note 22.
[25] Pradhan et al., *supra* note 22.

In this process, the threatening inclusion of "outsiders" in the use of Guhar River water resources, which Telia Kulo farmers (head-enders, tail-enders, khet- and bhit-farmers alike) apparently considered to constitute their own exclusive water source, as well as the involved political manoeuvering, may have been a factor in the more lenient attitude that was being taken by the Majhgainyas of Telia Kulo with respect to their "own" Bhitwala water "thieves". Another reason for this more lenient attitude is, more or less explicitly, hinted at in the text of the above mentioned agreement in which, after a formal recognition of the original khet farmers' first right to the Telia Kulo water (followed by a provision allowing the Bhitwalas a modest amount of water on a rotational basis) a further sentence was added, stating (in the translation by M. and R. Pradhan): "We (bhitwalas) agree that once His Majesty's Government project is completed, we will accept its decisions regarding water allocation, howsoever and to whomsoever it decides to give water, and until then agree that the bhit lands will remain as bhit and the khet as khet".

According to M. and R. Pradhan it has been confirmed in interviews with both Bithwalas and khet owning tail-enders in Telia Kulo that the idea behind this sentence in the agreement was to bring home the point that, as long as Telia Kulo was considered a non-government (private) system it was just and lawful that the prior right to its water should remain with the descendants of the first irrigators, but now that Telia Kulo had become a government (public) system in the form of GIP, the traditional bhit holders and newcomers as Nepali citizens could also claim a full right to the system's water. As the authors note: "As if to emphasize this point, they [now] call the canal Sarkari Kulo [government kulo] or [just] Sinchai Kulo (irrigation kulo) instead of Telia Kulo". From the viewpoint of the GIP this would be only correct, because, as R. Pradhan, Haq and U. Pradhan remark, the Department of Irrigation claims that, on the basis of the Electricity and Related Water Resources Act (1967), it follows from the Department's investments in rehabilitation and extension of the canal that the Department has taken over the Telia Kulo system.[26]

Anyhow, whether Telia Kulo was further to be considered a government system or not, until recently the matter does not seem to have had immediate significance. The Bhitwalas neither contributed nor were allowed to contribute labour for repairs and maintenance. The original irrigators feared that if they allowed the Bhitwalas to contribute labour they might indeed claim full water rights in the future. Over the past few years, however, the tail-end khet farmers seem to have more or less accepted the fact that the Bithwalas will divert water to their fields, legally or illegally. An important feature in the process of gradual accommodation, moreover, is the development of kinship relations between bigger Bhitwala farmers and Majhgainya elites; a bigger Bhitwala farmer marrying a daughter to an influential Majhgainya may prove an asset in securing "unofficial" water rights.

Finally, "rather than ignoring them, attempts are made to coopt them within the Telia Kulo system".[27] In some cases, occurring in the Telia Kulo settlement

[26] *Ibid.*

[27] Pradhan and Pradhan, *supra* note 22.

area of Kashipur village, the recently converted khet lands are not allocated water officially, but the (former) Bhitwalas are allowed to deliver water to their fields unofficially and are even allowed to contribute labour for emergency repairs of the canal. Initially their contributions were left out of the records, but that is also changing even to the extent that their labour contributions are actually demanded. In other cases, as in the Kharkare settlement area, as M. and R. Pradhan note, it has started to be considered good policy to officially allot certain minor water rights (a few hours a day) to their "potential water thieves" in order to dissuade them from diverting water at the times they themselves may see fit to do so. This arrangement does not allow these new beneficiaries to contribute their labour for system maintenance for fear of letting the "thieves" establish formal rights. Here, a combination of legal parameters and expediency seems to force the water users associations to create, in the words of the authors, a category of "accepted free riders".

5. CONCLUSIONS

The two cases show how dynamic the development and change in constellations of water rights are. Changes in ecological conditions and agricultural production patterns, which change the availability of and the need for water, necessitate frequent renegotiating of rights to water. Physical factors are a crucial element in the establishment and maintenance of rights for several reasons. Negotiations become urgent whenever an intake or irrigation canal structure is destroyed by floods; but there are other reasons as well. In the Jivanpur–Badgaon case the fact that the Badgaon canal led through lower land than the Jivanpur canal, made it an absolute necessity for Jivanpur to enter into negotiations in order to stop Badgaon from stealing water. Their arguments focused on the issue of the priority right of first settlers to take water in from the river. In the Telia Kulo case, it was also the physical lay-out which made it impossible to enforce theft prevention. Here, the negotiations turned around two questions, i.e. the question of whether bhit land owners had a right to convert their land into irrigated land, and secondly, who was entitled to use the water from the canal after rehabilitation. The owners of old irrigated land denied the new claimants a right on the basis of their prior use rights, whereas the new claimants defined the rehabilitated canal as a government canal, to which all persons within the command area have a right. The negotiations also revolved around the question of who was obliged and entitled to participate in the maintenance of the canal. In the Telia Kulo case people were excluded from participation in the work in order to exclude them from full rights to water. In the Jivanpur case there was no disagreement that Badgaon was entitled to some water, and no-one wanted to exclude them altogether. Here the dispute turned around the *amount* of water and extent of the villages' contribution to maintenance. As we have seen, Jivanpur was prepared to make considerable concessions, but insisted on a physical structure that would give maximum protection against further theft. In Telia Kulo, too, considerable, though "unofficial" concessions were eventually made.

The cases illustrate how a number of interconnected factors underlie the highly unstable nature of water rights in these irrigation systems: unstable geomorphic conditions and changes in the physical structure force people to practically rebuild the system, change the location of intakes and the course of a canal, which requires a new concretization of water rights related to the changed physical structure. Increase in population, especially as a result of immigration, increases the pressure of taking new land under cultivation, turning unlevelled and unirrigated land into levelled and irrigated rice land, and to allow land to be irrigated both in the winter season and during monsoon. The introduction of new crops, especially of high yielding varieties of rice and new cash crops, and innovation of irrigation techniques have increased demands for water and often changed the irrigation cycles. New irrigation techniques often coincided with enlargement of a command area, an ensuing increase of the number of users and changes in water rights. These changes in the agricultural-economy have made water an increasingly scarce resource and have intensified competition among the users seriously. Changes in the state administration at various levels and changes in legislation concerning land tenure and rights to water, have changed the local power constellation among former feudal landlords and old landed elites, small landowners, migrant farmers, new emerging elites, local administrators, higher authorities, and project functionaries. Still, when the feudal system was officially abolished and replaced by a system of bureaucratic office holders, many old feudal families remained large landowners, despite the land reforms, and continued to initiate irrigation works. Many members of the old feudal families managed to obtain a position in the new administrative apparatus; their historically grown networks with their relations of political authority and economic dependence remained largely intact. The invasion of foreign donor institutions has occasioned the rise of new local institutions, the Water Users Associations with their own authority structure over matters of water management.

Technological innovations, especially if introduced by the government or donor agencies, changing agricultural practices, but above all the frequent destruction of existing physical structures due to ecological catastrophes, regularly provide occasions to contest exclusion from water and to change inconvenient arrangements. Contesting water rights almost inevitably become involved in these wider networks of power relationships and become strongly affected by the relationship between the persons in key positions. The provisional character of water rights and their instability through time is thus enhanced by the shifting networks of political relationships in which the negotiation and decision making processes over water rights take place. The Telia Kulo case demonstrates this particularly vividly. As we have seen, kinship ties, caste and status play an important role in the power structure. Badgaon was of higher status and generally speaking of higher caste than Jivanpur, which made it more difficult for Jivanpur to assert its rights, and from the moment low caste farmers in the Telia Kulo command area were backed by new elites, they were no longer punished by the old feudal landlord family.

The government and donor agencies are often an additional source of uncertainty and dispute, because they interfere in existing rights, often without acknowledging that they are doing so. Thus, prior right holders may feel they

are expropriated, but their arguments are not taken seriously in a development policy context where water is considered to be a matter involving all users together, and where the government regards it as its task to develop an area and improve the irrigation situation.[28] Thus, the project management showed little interest in Jivanpur's arguments and pressed it to agree to a 50–50 settlement.

Although the power structure at a given time is of crucial importance for the outcome of negotiations, these are also formulated in terms of law. In order to justify their claims, either to defend existing rights, or to obtain new rights, people have a reservoir of legal rules and principles at their disposal. These include the existing negotiated order, in the form of the last agreement that was made, former agreements, references to newly made state legislation, as well as to principles that are considered to be legitimate – but only rarely are people aware of the existence of different legal *systems*. As we have seen in the case of Telia Kulo, reference to government law occurs especially when new users come in with the support of an irrigation project financed by outside donors, but against the wishes of older rightholders. The only way for the bhitwalas to legitimize their claim was to refer to the government status of the canal. With the increasing numbers of immigrants and the ensuing increasing need for water, negotiating in the shadow of a quickly changing legal, administrative and technological universe appears to have increasingly become a means of acquiring access to water for those who had no access to water before, while old owners are losing control over water and are forced to share it with others, whom they no longer can exclude.

[28] Pradhan et al., *supra* note 22.