

Water Rights, Conflict and Policy

Proceedings of a Workshop
held in Kathmandu, Nepal
January 22-24, 1996



Organized by

International Irrigation Management Institute (IIMI)
Legal Research and Development Forum (FREEDEAL)
Department of Agrarian Law (WAU) and the Sanders Institute (EUR)

Rajendra Pradhan, Franz von Benda-Beckmann,
Keebet von Benda-Beckmann, H. L. J. Spiertz, Shantam S. Khadka,
K. Azharul Haq, editors.

1997

INTERNATIONAL IRRIGATION MANAGEMENT INSTITUTE

H 20123

Pradhan, Rajendra, Franz von Benda-Beckmann, Keebet von Benda-Beckmann, H. L. I. Spiertz, Shantam S. Khadka, K. Azharul Haq (Eds.) Water Rights, Conflict and Policy. Proceedings of Workshop held in Kathmandu, Nepal, January 22-24, 1996. Colombo, Sri Lanka: IIMI. x+250 pp.

Irrigation/Irrigation Management/Water rights/Water law/Customary law/Local law/State law/Conflicts/Conflict resolution/State intervention/Court cases.

ISBN: 92-9090-185-3

Please direct inquiries and comments to:

Information Office
International Irrigation Management Institute
P.O. Box 2075
Colombo, Sri Lanka

© IIMI 1997.

IIMI Background and Discussion Papers include papers and reports that are deemed by the author (s) to be of interest to irrigation and water resource managers and researchers. These papers have not been reviewed by IIMI; the contents are solely the responsibility of the author(s). All rights reserved.

Cover Design by Jim Lenahan, IIMI

Printed in Kathmandu by Jagdamba Offset Press.

CONTENTS

Foreword	vii
Keynote Address by the Chief Guest <i>R. L. Kayastha, Joint Secretary. MOWR</i>	ix
Address by Representative of the Ford Foundation <i>Ujjwal Pradhan</i>	xi
Introduction <i>Franz von Benda-Beckmann, Keebet von Benda-Beckmann.</i> <i>Rajendra Pradhan, H. L. J. Spiertz</i>	1
Water Use and Water Rights in Nepal: Legal Perspective <i>Shantam K. Khadga</i>	13 56
The Court System in Nepal <i>Ramchandra Bhattarai</i>	35-
Analysis of Supreme Court Cases and Decisions Related to Water Rights in Nepal <i>Bishal Khanal and Santosh K.C.</i>	47 23 54
Judicial Trends in Water Law: A Case Study <i>Veera Kaul Sing and Bharath Jairaj</i>	63 47 50
Delhi's Groundwater: Rights and Policy <i>Bhurath Jairaj</i>	81 60 59
Farmer Managed Irrigation Systems in Nepal: Some Issues and Trends <i>Gahendra Malla and Shantam K. Khadga</i>	93 64 60
Law, Rights and Equity: Implications of State Intervention in Farmer Managed Irrigation Systems <i>Rajendra Pradhan, K.A. Haq and Ujjwal Pradhan</i>	111 67

63	Improvement and Enlargement of a Farmer Managed Irrigation System in Tanahu: Changing Rights to Water and Conflict Resolution <i>Durga K.C. and Rajendra Pradhan</i>	135
63	Disputing, Negotiating and Accomodating as Means to Acquire and Protect Water Rights: A Case Study of Conflicts in Dang <i>Mahesh C. Pradhan and Rajendra Pradhan</i>	157
63	Dynamics in Water Rights and Arbritation on Water Right Conflicts: Cases of Farmer Managed Irrigation Systems from East Chitwan <i>A.Shukla, N. Joshi, G. Shivakoti, R. Poudel and N. Shrestha</i>	173
63	Inter-Sectoral Water Allocation: A Case Study in Upper Bagmati Basin <i>Ajaya Dixit</i>	195
63	Local Law and Customary Practices in the Study of Water Rights <i>F.von Benda-Beckmann, K.von Benda-Beckmann and H.L.J. Spiertz</i>	221

ANNEXES

1	Programme Schedule	243
2	List of Participants	247

FOREWORD

The mission of the International Irrigation Management Institute (IIMI) is "to create sustainable increases in the productivity of irrigated agriculture within the overall context of water basins and the analysis of water resource systems as a whole". In pursuit of this mission, IIMI has worked in Nepal and with Nepal Government agencies and with Nepal non-governmental organizations since 1986. Much of IIMI's work in Nepal has focused on studies of farmer managed irrigation systems. These studies have awakened us to the importance of issues concerned with water rights in Nepal because of their effects on the productivity of irrigation systems. IIMI's Nepal studies have also stimulated us to consider such issues elsewhere in the world.

Therefore IIMI was very pleased to be given a Ford Foundation grant for a study of water rights in Nepal. One of the activities under this grant was to collaborate in a workshop with other Ford Foundation grantees working on related topics. The proceedings of this workshop are documented in this volume.

We believe that the issues discussed here are fundamental not only to make irrigation systems perform well, but also to improving lives of rural peoples. Irrigation is the single largest user of freshwater resources: about 80% of the world's consumption of freshwater is for irrigation. However, irrigation systems and water sources developed for irrigation are increasingly being **used** to serve other purposes as well, including drinking water supply and domestic water. Assurances of rights to water for these uses as well as irrigation is critical to the livelihoods and welfare of rural peoples around the world.

I commend the authors of the papers in this volume for bringing together a fascinating and valuable discussion of a variety of issues related to water rights in Nepal and India. I hope that the readers

will be able to make use of the information and insights in this volume to clarify and strengthen the water rights so necessary for effective and equitable use of the world's limited freshwater resources.

IIMI wishes to thank the paper presenters, chairpersons, discussants and other participants of the workshop which was jointly organized by IIMI, FREEDEAL, the Department of Agrarian Law (Wageningen Agriculture University) and the Sanders Institute (Erasmus University, Rotterdam). The support extended by the Study Advisory Group, the Study Working Group, the National Planning Commission and the Department of Irrigation, Government of Nepal, is gratefully acknowledged. Funding for organizing the workshop was provided by the Ford Foundation. Finally, IIMI wishes to thank the editors and contributors of this volume.

Jeffrey Brewer
IIMI Representative for South Asia.

Speech by the Chief Guest, Mr. R. L. Kayastha, Joint-Secretary, Ministry of Water Resources

Mr. Chairman, Distinguished Participants, Ladies and Gentlemen,

First of all, I would like to express my appreciation to the organizers of this workshop for giving me the opportunity to inaugurate this workshop on the “Water Rights, Conflict and Policy”. The three main features of water resources in Nepal are abundance, scarcity, and competition. Nepal is rich in water, and the resources have to be harnessed sustainably for the development of our society. While water may be abundant, there is scarcity at certain times in many parts of the country to meet irrigation and domestic needs. Further competition is on the rise within and between different sectors, such as irrigation, hydro-electricity, and drinking water. As we continue in our efforts to harness and manage water, we have to follow an optimum approach to utilize the available resources. More specifically, we have to answer questions, such as, how do we make efficient, productive, and equitable use of water and how do we allocate water to different users within and between different sectors ?

The Water Resources Act of 1992 provides one framework for utilization and allocation of water. According to the Act, the ownership of all water within the Kingdom of Nepal is vested in the State. Right to use water is obtained either through license or is granted free for certain uses. The Act has laid down *priority* for use, the first of which is drinking water and domestic use, followed by irrigation, fisheries, hydro-electricity, etc. The Act provides broad guidelines on how water is to be utilized. However, there are specific cases where the laws and local water rights have to be reconciled.

It is time to strike a balance between, on the one hand, the principle of eminent domain, for the good of general public, the rights of existing right-holders, and on the other, decentralization and centralization, with the objective of ensuring social justice. Decentralization will mean not only transferring power and financial autonomy to the local bodies, but also respecting local practices and customs. It is in this context that the question of development of infrastructure for delivery of services has to be considered. In the development and management of water resources, therefore, issues of water rights and participation of all stakeholders in planning and allocation becomes and

important element. The first challenge is to bring the stakeholders within the planning framework and, subsequently, to set out appropriate institutional mechanisms for the management of water resources. Sustainable management of water would also depend upon our success to address the issue of local water rights and organizations.

The development and management of water have conventionally emphasized the technical, economic, and to some extent, the organizational and institutional aspects of project formulation and execution. The issue of water right is important, not just for the reasons of social justice, its neglect may lead to conflicts, which, in turn, may result in unjust or inefficient use of water or delays in our efforts to manage the water for our common **good**.

Water rights study ~~has~~ to be included as a mandatory aspect of feasibility studies of water resource projects and of water management. The papers ~~to~~ be presented in this conference, the discussions that follow, as also the panel session, I am sure ~~would provide insights of water rights issues~~ which will be of great help in our efforts to chart out the course for sustainable water management. I believe that the suggestions concerning water rights will positively contribute towards this endeavor and I wish the participants a productive discussion.

Before I close my remarks, I declare this workshop to be opened.

Thank you

Address by Dr. Ujjwal Pradhan, Program Officer, Ford Foundation

Respected Chairperson, Chief Guest Mr. Kayastha, Distinguished Participants,

I am very happy to be back once again with you, my colleagues and friends, to be discussing a topic close to my own personal work.

The Ford Foundation has been engaged for more than four decades in addressing the social needs and development challenges of India and her neighbors. The New Delhi office program activities have now begun to cluster around three common sets of concerns. These include rural community resource management, women's status and well being, and diversity and pluralism.

The Rural Poverty and Resources program in the New Delhi office concentrates on evolving more equitable, productive, and sustainable management institutions and practices for forests and irrigation. With a rural population in India and Nepal of over 700 million, competition for these resources is intense. The future of South Asia's embattled natural resources depends on a combination of more equitable and defensible rights for rural people, improved technologies and skills, and policies and procedures that encourage rural people to invest in their land, water and forests. Serving the needs of vulnerable groups, such as women in forest communities of downstream water users, are special challenges that add to the complexities of managing scarce natural resources.

The New Delhi office seeks to address these issues by facilitating government-community partnerships. Current programs in joint forest management and water resources management experiment with new relationships between the government, which usually has formal mandate, staff and budget to control the resource, and the community of users, who usually have considerable local knowledge, **skills** and resources. Foundation grants help evolve participatory mechanism of planning and investment in the resource, new sharing frameworks between local communities and the State, and greater community empowerment over key resources.

Irrigated land produces two-thirds of India's food production, and its careful management is vital for sustaining both food security and rural livelihoods. Since the **mid-1980s**, Foundation programs

have concentrated on the development and management of small-scale irrigation systems, such as ground water and hill irrigation. Cumulatively, small-scale systems serve more than half of all irrigated land in India and Nepal. They reach resource-poor farmers not benefiting from enormous state investments in large facilities. Their decentralized nature lends themselves to local management and potentially high productivity. And, significant participatory experiments by both government and non-government actors in small systems provide a strong platform on which to build larger and more systematic programs.

During the last five years, Foundation programs have been concentrated mostly in Nepal and the Indian states of Gujarat and Tamil Nadu, which together have a population of over 100 million people. These regions were chosen because of their combination of viable local management patterns, range of government experimentation, and strong non-government actors involved in the water sector. But small systems also face a variety of threats such as siltation and poor maintenance. The financial resources to maintain even small systems cannot always be met from within the community, and supra-local institutions are often needed to help manage water over longer distances.

The Foundation seeks to support the emergence of water management systems that are more equitable, productive and sustainable. Past experience in small-scale irrigation suggests that to achieve this goal it is essential to enable rural communities to assume more decision-making and implementing authority over water systems, and to effect a shift in the government's role at the local level from prime mover to enabler and arbiter of inter-group interests. Making this transition requires forging new financial and institutional partnerships between government agencies responsible for irrigation and the communities that depend on it. These new relationships can lead to improved government investment procedures and support services and, greater efficacy of management by the community. Developing viable models of these relationships is the short-term goal of the water resources management program of the Foundation.

While projects that foster better operational partnerships for water management are critical at the field level, equally important is the institutional framework that governs basic access to water. The water rights framework in India and Nepal suffer from a variety of anachronisms, imprecisions and lacunae. Surface water is regulated by colonial laws that assumed all-encompassing State control. Groundwater, on the other hand, is a private but indefensible property. Legally, those with capital and technology can drill a new or deeper well, causing a neighbor's to go dry. This often results in transferring water to the richer, or from drinking purposes to irrigation. Other conflicts are also increasingly common. Newer upstream systems sometimes take water from downstream users; municipalities appropriate water from irrigators without compensation; industry takes water from both rural and urban users; and water polluters in effect steal water from everyone. Rural people cannot be expected to invest their scarce resources in improving local water systems if they cannot be assured that their access to water is secure.

Signs of growing competition for water are becoming evident. In the mid-hills region of Nepal where the rural population is densest and landholding the smallest, new or expanded irrigation systems are being built by farmers or the government. During the critical post-monsoon period, these new entrants often divert water that customarily flowed to older systems. Irrigation systems that were formerly separate are now sometimes combined through government funded programs,

or existing systems are overlain by new structures, creating new tensions and managerial problems. In addition, water customarily used for irrigation is being appropriated by the growing urban areas of the Kathmandu Valley and other parts of Nepal.

What these changes have in common is that they all potentially challenge the adequacy of the existing water rights framework in Nepal. Much of the potential tensions lies in the dual nature of the country's water rights that encompass both customary rights systems and *formal* statutory rights frameworks. Nepal's long and rich tradition of water use has engendered the development of complex bundles of customary water rights in many parts of the country. These locally crafted rights systems are often finely tuned to local conditions, flexible according to need and water availability, dynamic over time, reasonably equitable in water distribution and attuned to processes as well as outcomes. They are also largely invisible to the State. The nature and functions of indigenous water rights traditions for the most part may be unappreciated by government planners and officials. The *locus standi* of customary water rights in Court is ambiguous, and the variability of local traditions is bewildering to a state that seeks uniformity for administrative case.

For its part, the State has been gradually codifying formal, statutory water rights. In 1992, a new national Water Resources Act was passed by Parliament vesting ownership of **all** the country's water resources in the State. The Act establishes a hierarchy of needs for water utilization and sets up the State as the licensor of water use. The Water Resources Regulations of **1993** devolves power to the district level to recognize and license users and resolve water disputes.

How customary water rights will mesh with strengthened and more pervasive statutory water rights codes in Nepal **is** a current question. Occasionally, elements of customary law have found their way into statutory law, such as in the *Muluki Ain*, the National Code of Nepal, which was promulgated in 1854. However, unless special efforts are made to identify and strengthen the positive elements of customary law, uniform statutory water law tends to gradually take precedence over customary **law**. This trend can be seen in the transformation of laws governing the *acequias* of Northern New Mexico, *subaks* of Bali, *ghuls* of Himachal and *kulos* of Nepal.

One of the first steps in raising the visibility of customary water rights has simply been to prepare inventories of existing water users. When traditional irrigation systems go unrecorded by the State, *their* water rights are especially vulnerable. Recording the canals initiates the process of legitimizing their claim to water in the eyes of the State. The Foundation has in the past supported efforts to develop inventory methods for indigenous irrigation systems in Indonesia and Nepal. In the case of Nepal, the Water and Energy Commission Secretariat has expanded the effort beyond the Foundation-funded pilot phase into a broad irrigation census of almost all 75 districts in the country.

While the irrigation census is one important piece in the water rights picture, in its current form it cannot accurately represent either the details or the dynamism of customary water rights. The inventory is a useful, but static snapshot of the existence of water using groups. How groups relate to one another, what different kinds of customary water rights exist, how indigenous groups deal with scarcity and resolve conflict, how they distribute responsibilities attached to the water rights **and how customary rights may or may not mesh with statutory water rights** all fall outside the scope

of an inventory. Moreover, what kind of local water rights and water rights institutions are needed to balance both local and supra-local interests is a question that demands different methods than the inventory has to offer. Nepal is at a stage where its water rights structures are still flexible. In-depth analysis of these types of questions can help planners protect earlier users of water while still taking a proactive role in developing the country's water wealth.

Thus, the Foundation has supported various institutions like **CEL, IIMI, IIDS, IAAS, DECAP** and **WAU** to undertake activities that address issues related to community irrigation partnerships and water rights.

Introduction

*Franz von Benda-Beckmann, Keebet von Benda-Beckmann,
Rajendra Pradhan, and H. L. J. Spiertz*

LAW, WATER RIGHTS, CONFLICT, AND POLICY

World wide, water has become a subject of great contention. Struggles over, or against, water are no longer exclusively the domain of arid, semi-arid or flood prone areas. They are found in virtually all parts of the world in some way or another, either because there is scarcity or floods, or because of pollution, or for several reasons at once. Water is also more and more becoming subject to intersectoral contention: industries, urban households, and agriculture all demand more water than is available. Technological solutions have been offered, ranging from more intensive use and re-use, to infrastructure for water transfer over ever farther distances and water extraction from ever deeper layers of the sub-soil. Each solution solves some problems, but often creates as many new ones at the same time. India, with its large (semi-)arid areas, its huge urban agglomerations and their growing needs for industrial water use, for a long time has been suffering greatly from water shortage and water pollution, and the problems are only becoming graver. In Nepal, which has vast water reserves in the Himalayas, water scarcity and pollution also have become a serious problem, especially in the Kathmandu valley and in other more densely populated areas with intensive agriculture.

The problems are not new and much has been written on the technological and management aspects of water scarcity, and much policy has been developed to address these problems. However, the legal issues involved and the wider social contexts in which these issues play a role have remained underexposed. Allocation control and actual access to water are to a large extent regulated by legislation and other forms of government regulation. These legal rules legitimate control over water resources, technological artefacts for the storage or transportation of water, over the intersectoral distribution of water and over the actual use and exploitation of water resources. Struggles over water therefore often take the form of conflicts over the applicable legal rules. They are conducted and decided in terms of law. The administrative and court system then

is to guarantee that such struggles are not determined through negotiations or fights that depend on the economic, political or even physical power of the contending parties, but according to the law which is presumed to embody the general will and the common interest of the people. However, laws and regulations made by governments are only one part of the motivations for human behaviour. In many cases there are also other (legal) rules, such as customary rules and regulations and rules deriving from religion, that bear on the control and use of water. Various contributions to this volume testify to the continued existence and practical relevance of this kind of rules. The contributions also show that such 'customary law' need not consist of time-honoured rules to which **all** rural people feel a strong emotional and cultural attachment. 'Customary' rules may be adapted to modern circumstances and in this process have incorporated elements of other legal regulations, forming a mixture which the *von Benda-Beckmanns & Spiertz* call 'local law' in their contribution. 'Customary' rules or 'local law' do exist and exert their influence in many ways. Law makers, NGO activists and researchers ignore them at their own risk - and at the peril of those who suffer from this neglect. As experiences in Nepal and India (and in many other countries) show, if one intends to control or change water management practices it is simply not sufficient to make a new law and expect people to behave accordingly. One of the reasons appears to be that what was called local customs and local traditions are more persistent than law makers hoped for. However, precisely how complex and tenacious these normative systems are, and which role they actually play is not sufficiently clear. Similar remarks can be made for disputing over water and processes of conflict management. As can be inferred from several papers in this volume, courts in Nepal and India handle numerous disputes over water, but their case load seems to form only a tiny fraction of the vast amount of disputes and conflicts over water taking place. The majority of such disputes seems to be decided in quite different processes of conflict management by a large variety of institutions, ranging from village councils to the highest levels of political and administrative organs of the state. Very little is known about the decision making processes, and consequently, which law, or which mixture of legal rules and principles really are used in these processes. Moreover, the research raises the question of what should be seen as disputes over water rights, and what not. As the contributions of *Veera Kaul Singh & Rharanth Jairaj* and *Bishal Khanal* show, disputes in which rights to water play an important role, the so-called 'water related cases', can be framed in quite different ways: as a straightforward dispute over rights to water, as a dispute over land, over inheritance, or as a civil case, a criminal case, a constitutional or human rights case. Whether one likes it or not, the non-official (legal) rules and procedures are factors which have to be taken into account. **As it is**, these factors are increasingly taken into account by the government administration and policy makers as well as by NGOs that strive for a more equitable, sustainable and efficient use of water.

It is these experiences, and the insight that research was needed into the legal issues involved in water conflicts, that form the background and motivation for the research projects taken **up** by the International Irrigation Management Institute in Nepal (IIMI-Nepal), the Legal research and Development Forum (FREEDeAL) at Kathmandu and the Institute of Agricultural and Animal Science at Rampur (IAAS) and some other institutions, with the active intellectual and financial support of the Ford Foundation. These groups initiated research programmes to look into problems of water rights, water disputes and conflict management. In India research on water rights was also initiated, among others by the Centre for Environmental Law (CEL) and by the Development Centre on Alternative Policies (DCAP). It is these same insights and experiences which led to the Workshop on Water Rights, Conflict and Policy which was held in Kathmandu in from January

22 to 24, 1996 and was jointly organized by IIMI-Nepal, FREEDeAL, Wageningen Agricultural University (Department of Agrarian Law) and Erasmus University (Sanders Institute). This workshop brought together researchers, NGO and INGO activists, consultants and Nepalese government officials from the National Planning Commission, the Water and Energy Commission Secretariat, and especially The Department of Irrigation, in an endeavour to improve communication between them, exchange knowledge and jointly discuss water related problems. The participants of this meeting discussed the research contributions from these research groups, the implications of this research for a better understanding of major problems in water management, and for new policies dealing with water rights and management.

The papers presented at the workshop and the discussions which ensued are a rich combination of new insights from the field, new knowledge about how irrigation actually functions, how water is allocated, what conflicts flare up and how they are managed, how people use the law, how courts and administrative institutions decide in water related disputes, and how water legislation actually functions in the rural areas. They provide new information which is very relevant for policy makers and action oriented research groups, since it contributes to the insights upon which policy objectives can be based and new legal and organisational guidelines to change water management to the better can be framed. At the same time, they highlight certain dilemmas with which policy makers and action oriented research groups are confronted.

The question of policy implications of the studies presented, which was pointed out in the keynote addresses by both the Chief Guest and the representative of the Ford Foundation, also surfaced as one of the major concerns and dilemmas addressed by the participants in the panel discussions. One of the key policy issues raised at the workshop was the question: Who should control water resources? The state or local communities? And further: How to develop and manage water resources and provide infrastructures for delivery of services to the consumers which take into account beneficial use and interests of the wider public on the one hand and the rights of the existing users on the other? What are the implications of state intervention in water management (rehabilitation/expansion, changes in management organisation) for the development of water resources and water rights of stakeholders? Should the existing (state) laws be changed to ensure better development and use of water resources, and for a better 'distributive justice'. Is it possible, or even desirable, to prevent conflicts over water rights? Moreover, should that be achieved by better laws or better management?

In the workshop papers, which are in this book presented to a wider public, not all the above issues are extensively discussed. But, whether being discussed in these papers or not, they were identified as important issues for future research agendas. It is unfortunate that for various reasons four papers from India, one each by Prof. Chhatrapati Singh, M.S. Vani, Rucbi Pant and Niumai Liangsi (see Programme Schedule in Annexure I), could not be included in this volume. The papers in this book are for a major part 'working papers', interim reports of on-going research, presented to share information and get suggestions. More 'theoretical' versions of these papers, with additional information, will be published elsewhere.

Although the issues discussed in the various contributions overlap to some extent, they have in this book been divided into two major sections. In the first section the papers have been placed that can be seen as mainly aiming at an introductory, or a more general discussion of water laws,

constitutional law, court cases and procedures. The second section contains a number of papers which report and reflect on field work carried out in hill and lowland irrigation systems in Nepal, and will introduce some basic concepts and methodological issues, which from a legal anthropological perspective, are (should be) involved in research on water rights and policy recommendations.

In the rest of this Introduction, we will first discuss the introductory and general papers, followed by the papers based on fieldwork on farmer managed irrigation systems (FMIS) and intersectoral water allocation. We will then discuss some of the questions and concerns which most of the papers in this volume have in common, and finally we will present an account of the issues and policy recommendations which came out of the discussions.

INTRODUCTORY AND GENERAL PAPERS

Three papers deal with the legal system concerning water rights and water related court cases at the national level in Nepal. *Shantam Khadka* sets the present legal structure of water rights in the Kingdom of Nepal in a brief historical perspective and presents the main substantive law and procedures concerning the various aspects of water rights, the centre piece of which is the Water Resources Act of 1992 (2049). This Act vests all surface and underground water in the Kingdom of Nepal, and regulates the priorities in the use of water, as well as various types of procedures in case of conflicts at the village level. The author raises some constitutional questions about the relationship between private property, community rights and the right of the state. The Water Resources Act is added as an annex to this volume. *Ramchandra Bhattarai* provides the reader who is not well versed in the Nepalese legal system with a brief outline of the court system of Nepal, with a summary of the jurisdiction and case load of courts at different levels. *Bishal Khanal* broadens the legal framework by presenting a brief survey on the cases related to water, dealt with by the Supreme Court between 1980 and 1990.

India has a much longer history of court involvement in cases of water conflicts than Nepal. *Veera Kaul Singh & Bharath Jairaj* give a comprehensive overview of this history. Analyzing the case load of the High Court and Supreme Court in the period between 1900 till 1995, they show that in the first period water problems were addressed by means of criminal procedures, while later on there was a shift towards tort law. Recently, there has been another shift: now constitutional law is being employed. At the same time, the formulation of claims in water conflicts has undergone a shift from riparian rights, to easement rights and recently to natural rights and fundamental rights. With the recent judicial activism, *Veera Kaul Singh & Bharath Jairaj* speculate on the emerging concept of Indian Environmental Justice vis-à-vis water law.

As part of a case study on water rights and policy in New Delhi, with its tremendous water shortage, unequal distribution and pollution, *Bharath Jairaj* provides in this volume an analysis of the attempts that government agencies in various Indian states have made to regulate and curtail groundwater extraction. While the regulations may be quite diverse, they all share the common feature that they are based on the right of a landowner to extract the water under his/her land. The author suggests that the inequality which is inherent to this legal fundament, is usually neglected

and deserves a fundamental discussion. On the basis of a discussion of the strong and weak points of various legal regimes, *Bharath Jairaj* points to a fundamental weakness in the Constitution, which assigns the right to regulate water to the State instead of the Federal Government. He suggests that groundwater regulations should rather be designed on the basis of aquifers than on the current political and linguistic boundaries between the Indian states.

Focusing again on water rights in Nepal, *Gahendra Lal Malla & Shantam Khadka* report on the survey they made on conflict resolution practices in 40 farmers managed irrigation systems in seven districts which represent the most intensively irrigated regions, the inner valley and the mid hill regions in Nepal. One of the aims of their research project was to go beyond the common type of legal research that concentrates on legislation and case law. The authors look into the history of canal building - including expansion -, land- and waterownership, rules of operation and maintenance, the role and functioning of water users associations. Most importantly, they make an inventory of the kinds of problems and conflicts that arise and of modes of conflict management. They sketch a wide range of institutions, both of the state administration at various levels and courts, as well as non-state institutions and informal leaders that deal in various ways with conflicts. The overview is a valuable addition to the in-depth studies presented in this volume. At the same time it is a starting point for further research on the theme of conflict management.

PAPERS ON CASE STUDIES OF STATE INTERVENTION AND ON METHODS

Four papers discuss how state intervention in irrigation systems in Nepal affects the water rights situation. Three of these papers result from the IIMI-FREEDeAL research project and deal with hill irrigation, while the fourth is a case study by IAAS in the Chitwan valley in the Terai. The studies show that the basic problems in these different ecological areas are quite similar.

Rajendra Pradhan. Azharul Haq & Ujjwal Pradhan stress the opportunities for contesting and changing property rights and obligation structures, created by external intervention of the state or donor agencies when they enlarge or rehabilitate existing irrigation systems. Successful use of these opportunities depends to a large extent on locally existing power relationships between the stakeholders; on connections in the state administration or in political parties; on caste relationships; on the position of fields within the command area. It also depends on the level of organization and of knowledge of the state legal system, both on the side of farmers and irrigation department representatives. The authors raise the question to what extent these new systems create or increase equity of water allocation and actual distribution and show how donors or state agencies try to influence the local power-relationships by introducing conditionalities, so that the poorer, low caste people are included in the new system. They are not always successful. Intervention and its conditionalities are often subject to negotiations and disputes, leading to adjustments in the water rights situation, which may be, but not always are, more equitable than before.

Durga K.C. & Rajendra Pradhan discuss some important mechanisms of conflict prevention in situations of water scarcity in systems in which both farmers themselves and the government make

improvements on the irrigation systems. Farmers are in general aware of the existing rules and regulations, but that does not prevent some from violating them, or exclusively interpreting them to their own advantage. The authors provide a history of water management and control of distribution and allocation regulations. They show that the level of organization and the presence of a special officers, such as the Pani Thakedar (water contractors) have a preventive effect. They also **stress** that the physical infrastructures themselves are a way to actualize and protect rights, because they determine the reach of the command area, and are more or **less** conducive to fixing water shares. Changes in the infrastructure are therefore extremely sensitive issues, because they concern questions of who will be included in or excluded from access to water, what the water shares will be and how well water division and allocation can be controlled.

Focusing on water conflicts and conflict resolution, *Mahesh & Rajendra Pradhan* offer the proposition that conflict can be a means to acquire water rights, which they demonstrate with case histories of disputes. Conflicts are used to express dominance. but destruction of physical infrastructure may be a 'weapon of the weak' (Scott) as it is employed by poor, low caste people who face exclusion from water allocation. During the panchayat period these conflicts were seen as public order problems and obstruction. They were therefore not tolerated by the state, in particular if the projects were foreign funded. The paper thus raises the important issue of the - mostly unintended - political role of foreign donors in such projects.

Shukla et al. approach similar questions from a slightly different angle. They focus on the dynamics of processes in which property rights are created, regulated and used, and on the mechanisms of what they call arbitration. They show how irrigation management is based on agreements, resulting from negotiation among those affected by the system, in which both collective and individual claims are (re)defined. The authors stress the importance of including ecological factors in the analysis of water regulation and water rights and emphasize that conflicts are both man-made and influenced by ecological forces. Depending on the flow regimes, different sets of rules are being worked out. The case material of this study is situated in the Terai, a region with a strong feudal tradition, that has experienced great movements of migrants from the hills, which has led to new constellations of water relationships, rights and obligations. Groups of newcomers, often wealthier and better educated, try to negotiate better rights and do not shy away from open conflict if they want to re-open negotiations. Kin relationships among the old ruling families, and between users in different systems, as well as the infrastructure itself have created complex linkages among the systems, with much tension and open conflict among the farmers drawing water from these systems.

While most studies presented in this volume deal primarily or exclusively with irrigation, *Ajaya Dixit's* account concerns inter-sectoral conflicts over water, as they have developed most acutely in the Upper Bagmati Basin. The paper addresses the changes that new lifestyles, urbanization and industrialization have brought in relation to water allocation. He describes the changes from a situation in which water was used for agriculture, drinking water and household purposes in a rural setting, to a complex and highly explosive situation of sharp competition between urban households, industry, energy producers and the needs for agriculture and households in rural areas. Water for urban centres is drawn from increasingly greater areas and over ever greater distances, thus expanding the area affected by water competition. The author describes the complex institutional setting that has been put in place to deal with these conflicts and the concomitant

expanding legal framework the state has developed. However, this institutional setting is highly fragmented, often hardly accessible, so that many consider it inadequate. Many conflicting parties go to other institutions that are willing to deal with their conflicts, such as local NGOs. The result is a paradox: a sharp increase in state legislation and state institutions, yet at the **same** time more rather than less conflict management **by** non-state institutions. Some of these draw on existing modes of conflict management, others are new. Dixit also finds contradictions within the national legal policy itself, notably between the Water Resources Act, according to which day to day irrigation activities may not be affected by state legislation, and public investment policies, which erode customary laws and norms regarding water management. He further points to some of the tensions between customary law, religious law concerning rituals and state law, and calls for a serious evaluation of the appropriateness of the Water Resources Act.

The paper by *Franz and Keebet von Benda-Beckmann and Joep Spiertz*, finally, undertakes to place some of the main issues of the study of water rights and policy which are touched upon in the other papers, in a legal anthropological perspective. They argue that the above mentioned research programmes have two things in common: 1) the wish to look into the actual practices of the various nonnative orders that appear to apply, and 2) the wish to improve the water rights situation of water users, especially of the poorer and less influential persons, while taking the existing legal constellation into account. The authors stress that such action oriented research is not unproblematic. In their view all the research reports presented at the workshop demonstrate how difficult it is to capture local law and the existing rights structure. Many of the norms are not precise; they are principles rather than rules, subject to recurring negotiation. Often they are not easily distinguishable from state law, or even from the 'official' repertoires of religious law or customary law. They may be formulated more clearly only in cases of dispute. The authors set out to develop a set of basic assumptions as analytical tools for studying the complexities of water rights in a pluralistic normative and institutional environment like the one found in Nepal. In view of the fact that, as the research reports show, the water rights situation may be extremely complex, with prior rights, lesser, rights, secondary rights and people with no legitimate claims whatsoever, it becomes understandable (according to the *von Benda-Beckmanns & Spiertz*) that donor agencies only rarely manage to improve the position of the weak effectively. There is a real danger that the wish to improve **unjust** situations tends to be so strong, that it interferes with the requirements of depth of a study that is needed for a proper analysis of the situation. Too often the analysis is based on a too cursory and shallow knowledge and understanding of the situation that is felt to be unjust. And researchers, who feel the hot breath of policy makers in their neck, may feel pressed to jump too readily to conclusions. They may fear that their research may remain unused, **as** so much other research has remained unused. In addition, as many researchers will have experienced, the relationship between the outcome of research and policy implications that might be drawn, is mostly not straightforward at all. But even if this were *so*, if policies would become based on in depth study and proper analysis of the existing water rights situation in the villages and irrigation schemes, there remains the question of what is meant by the intention 'to take the existing legal constellation into account'. It is argued that two separate issues are involved, namely 1) having a thorough understanding of an existing constellation, including the various normative orders that are valid in a particular area; and 2) **acknowledging existing rights** as deserving further recognition in a newly developed normative framework. These two meanings of "taking into account" are often not distinguished, and this may be to the detriment of both analysis and policy making.

COMMON PROBLEMS AND CONCERNS IN THE PAPERS

Besides a multitude of different water and water rights related situations and issues, the case studies presented in this volume show a number of common problems and concerns. Among these are:

1. Physical structures, such as intakes, diversion weirs, canals, as well as the physical conditions of water flows (floods, dependable or irregular supply) have direct legal implications. They determine the command area and division of water. Some infrastructures are less easily manipulable and therefore more conducive to conflict prevention than others. The legal implications are often not the same in the state legal system and in the local legal system (Shukla et al.; Durga & R. Pradhan; Dixit; M. & R. Pradhan; Pradhan, Haq & Pradhan).
2. Water rights are highly dynamic and require recurring negotiations, due to the geophysical conditions that cause frequent destruction of irrigation infrastructure, and due to enlargements of systems initiated by users or external agencies (Shukla et al.). Much negotiating takes place within village settings, but sometimes people go to administrative offices or to courts. 'Forum shopping' (F. von Benda-Beckmann, K. von Benda-Beckmann & J. Spiertz), the selection of that institution that might offer the best protection, is a commonly employed strategy to improve one's negotiating position. Power relationships among stakeholders are an important factor in such negotiations, with different persons or groups having different interests, different objectives, and often different interpretations of existing rights and obligations.
3. Customary rules and regulations are not always and in every respect equitable. Notably caste and class differences are reflected in water rights. Migrants and other newcomers have to break into the existing water relationships (Durga & R. Pradhan; R. Pradhan, A. Haq & U. Pradhan; Shukla et al.). Legislation and other state regulation intended to change customary regulations are often resisted successfully by wealthy and powerful local elites, who fear to lose some of their influence.
4. Interventions by state agencies or other development institutions usually imply more complex forms of water rights and water management structures. (Dixit, Jairaj); there also is a great range of institutions, both state and non-state, that deal with water conflicts, and there seems to be a tendency to try out the non-state forms of conflict resolution before turning to state institutions. On the other hand, as some of the papers show, courts are not always an instance of last resort (Shukla et al., Dixit; Durga & R. Pradhan). Often court decisions appear to become just another asset in ongoing struggles and negotiations involving water rights and many other local interests as well.
5. State intervention (expansion, rehabilitation) creates new institutions, as well as new sets of regulations for access, distribution, and management, and new 'normative idioms' (von Benda-Beckmann, von Benda-Beckmann & Spiertz). These may provide poorer sections of the populations with arguments to obtain access to water that they previously

had none, but the new arguments provided by the new idioms and the new institutional arrangements are not always readily accepted by the local elites. As most papers show, it may often be necessary to bring ensuing disputes before the courts (Durga & R. Pradhan). However, little is known about whether or not court decisions are actually carried out.

6. State legislation is often internally inconsistent (Dixit; Jairaj). Moreover, state institutions may have different interpretations of state legislation, while sometimes officers lack a thorough knowledge of the relevant legislation (Pradhan, Haq & Pradhan). On the other hand, government institutions often operate in isolation from each other. One agency may totally ignore customary law and **norms**, while others may try to accommodate them. And in some agencies there is hardly any knowledge about local norms, while others have some or even a good understanding of them.
7. One of the most difficult questions, and at the same time the question that research will never be able to answer, is which position and whose rights deserve to be supported. "These cases raise the question of equity, but how are we going to address this difficult question? [...] Are we to ignore customary laws and local rights and go strictly by statutory laws? Or are we to uphold customary laws and local rights, even if the existing rights holders monopolize all or most of the water? How do we strike a balance between respecting the rights of existing rights holders and the claims of those who are excluded? And who is to decide these issues?" (See Pradhan, Haq & Pradhan in this volume.) This is a purely political question.
8. As all case studies in this volume show, replacement of one set of regulations by another set does not work as simple as is often assumed. One cannot simply do away with existing **rules** by just declaring them to be no longer valid. On the other hand, simply giving recognition to the existing rules and practices is equally hazardous. If the papers in this volume show anything, it is the importance of looking at the power constellations in which irrigation projects are being carried out. They show the difficulties which the weaker actors have in actualizing their rights. If they have rights in the old system, they are now forced to share them with stronger newcomers, but if they had no rights in the old system, they are confronted with strong resistance against their inclusion included in the new system.
9. ~~Another important facet of the studies collected in~~ this volume is that they show how each new regulation tends to add to the complexity, even where it is meant to create a 'clean legal slate'. There are basically two related reasons for that. One is that important economic, social and political positions are at stake. People *do not* easily surrender their rights to their resources, or share them with others if that affects their income, their political or their social position: To have rights to water means to have wealth and power. And to be poor often means to have no access to water. The second reason is that water rights are not isolated from rights to other resources and from other social relationships, to be changed at wish. They are embedded in complex sets of other economic, social and political rights and obligations. Changes in water rights may have far-reaching consequences in other legal domains as well.

10. Similar problems arise when water is disputed. While a legal problem of 'water rights' may be isolated from its social, economic and political context, the actual conflict cannot. The social, political and economic relationships that exist between the contending parties, and between the parties and the decision making agency, are bound to influence the nature of the process, the decisions taken, as well as the implementation of such decisions. However this may be, depending on where one's loyalties lie and what kind of society one envisages, the answer to the above questions may differ. But however one decides these questions, it will not say anything about the ways in which policy objectives might be realized. One of the lessons we can draw from the case studies in this volume is, that ignoring existing rights will not help improve the situation of someone who is excluded from rights to water.

ISSUES RAISED DURING THE DISCUSSIONS

The aforementioned common problems and concerns also form the background of many discussions at the workshop. The discussions were lively and very useful because a plurality of views and approaches were expressed. The participants from different disciplines and occupations and with different interests and aims struggled to understand each other's terms and point of view. The participants felt that at the end of the three day workshop, if nothing else, they had learnt to listen and understand (to some degree) each other's perspective, and all came to understand that water right issues are more complex than they had imagined. Many of the participants felt that water right issues should be studied before irrigation or other water projects are implemented. Many also felt that framing water rights and irrigation management problems as a question of local versus state control was too simplistic. However, although all participants felt that the key question was how to develop water resources in an efficient, productive, sustainable, and equitable way, in discussing how to pursue these often contradictory aims, priorities and approaches remained a matter of (stimulating) debate throughout the workshop. Some of the main topics of debate centered around such questions as:

Should control of water resources be exclusively the domain of the state. and should the wider public interest receive priority over customary and local interests?

Should the question of public versus private interests not be seen in the first place in the light of support for the rights of the vulnerable sections of society (women, low castes, poorer sections of the population)?

Should the rights of the existing rights holders and customary law be protected, especially in relation to the rights or control assumed by the state and state law? As was pointed out, besides expressing the values and interests of the rural population, customary laws can be oppressive and unjust as well.

The question whether conflict is positive or harmful. For many of the policy makers and implementers, conflict was harmful as it led to delays, disorder and bad social relations. Others argued that conflicts can also play a positive role because disputing is one way of changing the existing structure of rights and social relations.

When the discussions, finally, embarked on the topic of the recommendations that should ensue from this workshop, it was interesting again to notice how wide an array of concerns and approaches, and how broad a variety of professional involvement in the issues of water rights, water conflict and policy had been brought together in the workshop: Policy makers wanting recommendations which would help them formulate better policies; implementers wanting recommendations which they could use to better implement projects; activists wanting recommendations which they could use to help local communities, especially the vulnerable sections; and some researchers cautioning against making too hasty recommendations on the basis of insufficient data and an inadequate understanding of the concepts and issues. There was a general consensus, however, on the point that some major topics and issues had not been discussed in the papers and these could be issues for further research. The main points mentioned, were:

1. Almost all the papers, especially on Nepal, discussed farmer managed irrigation systems. Further research is required on water rights issues in agency or jointly managed irrigation systems. Similarly, water rights issues in processes of 'turning over' irrigation systems to the user groups need to be studied.
2. Only one paper discussed water rights issues relating to groundwater (in India). This issue needs further research for Nepal, especially in the light of the new Agriculture Perspective Plan which recommends massive expansion of the use of groundwater for irrigation in the plains.
3. Land rights and water rights are intimately linked. The papers presented at the workshop did not discuss this issue which should be studied in future research.
4. There is a need for multidisciplinary approach to studying water rights. It is not sufficient to study only legal and institutional aspects of water management and use; 'hardware' aspect such as the physical structures (canals, tubewells, diversion weirs) as well as water discharge during different seasons, water use patterns, etc. also need to be studied to understand water rights. In order to gain a full understanding of the historical development of water management systems, their present functioning and future development, both kinds of study have to be integrated.

Water Use and Water Rights in Nepal: Legal Perspective'

*Shantam S. Khadka.*²

“The naturalness of natural rights to access and use of water as a resource rests on a belief that, all people, because they are people, whatever be their moral, legal, social or civil status, have a natural right to water since water as a resource is another way of describing the right to life.” (Upendra Baxi, in Singh 1991:111)

INTRODUCTION

This paper attempts to analyze the existing Nepalese legal framework in relation to water management and water rights. Further it deals with the acceptable extent of customary water use rights of the Nepalese people and resolution of water related disputes by mediation under the existing legal framework. This paper also gives a brief introduction to the status of water management and history of legal development in relation to irrigation management in Nepal.

Nepal is divided into three distinct geographical sectors; the northern most portion of the country is mountainous area, the middle consists of hills and valleys the southern part is plain land, known as Terai. They cover 17%, 68 % and 15% of the country, respectively. About 18 percent of the total land area (2323 thousand ha in 1991-92) has been brought under cultivation, of which 53% lies in the Terai.

Nepal is endowed with abundance of water resources and the total surface run off of the rivers is estimated to be around 20 m.ha. The abundance of water resources of Nepal has yet to be utilized

and exploited to its considerable extent. For example, in 1992-93, out of 2323 thousand ha. of arable land only 882 thousand ha (37.96%) was irrigated; 250 MW³ of electricity was generated, and a total of 140560 thousand liters of drinking water was provided daily to 1109 thousand people⁴. In the irrigation sector, the contribution of Farmer Managed Irrigation Systems is 72% of the total irrigated area as compared to Agency Managed Irrigation System's 28 percent.'

HISTORICAL DEVELOPMENT OF LAW IN NEPAL

For about 500 years in the early Nepalese history Nepal was ruled by Gopal (cowherds) and Aahir (buffaloherds) dynasties but no information is available about their legal systems. Then after, Nepal, as many small principalities, was ruled by Kirat, Lichhavi and Malla dynasties. The duration of regimes of the concerned dynasty especially of Kirat and Lichhavi period is confusing to some extent because different historians have mentioned different dates.⁶ Prithivi Narayan Shah, king of Gorkha, took the painstaking task of unifying the country. Thus since 18th century the unified Nepal is being ruled by the Shah Dynasty.

The first single codified law, valid for the whole of Nepal was promulgated in **1854**, and is known as the **Muluki Ain** (National Code). This Code existed for over a hundred years as the sole codified law to dispense justice in the country. Before the promulgation of the Muluki Ain 1854 and after its promulgation in the matters not dealt in the code, the task of dispensing justice was done as per the provisions made in different religious scriptures.

The historical development of legal system in general and water related laws in specific in Nepal are sketched in **Table I** (See also Annex I for the chronology of the water related laws and policies).

Very little information regarding water management and water rights of the people is available while studying the past legal history of this country. The provisions of Muluki Ain, 1854 as mentioned in the chart still exist under the New Muluki Ain of 1963 which is a signal of the legal provisions being deeply rooted in the society.

Table 1

Water Related Laws: Historical Perspective

#	Ruling Dynasty	Duration\ period	3 Prevailing Dharmashastra/Law	4 Substantive Law
1.	Kirat Dynasty	Before 464 AD.	Mundhum" (Chapter on Khasem Kharon Theem" rules for Administration of Justice)	No specific provision regarding water management found to date
2.	Lichhavi Dynasty	464 - 782 AD.	lanusmriti. laradasmriti. Yangya 'alka Smriti and other religious scriptures	As per customary practices and Dharmashastra
3.	Malla Dynasty	782 - 1768 AD.	As above	Annual repair of canal by its users made mandatory and non-compliance was punishable. Every one had right to use water irrespective of their caste on turn by turn basis.
4.	Shah Dynasty			
a.	Legal system before codification of law	Begins from from the reign of Drabya Shah in Gorkha in 1559 to 1854 AD.	As above	<ul style="list-style-type: none"> * First come first service in drinking water & irrigation. * Petty cases relating to drinking water and irrigation was not heard by state agency or royal courts (Rules 6 & 8 of Ram Shah) * The person who cut tree around drinking water tap was fined Rs. 5 (Rule 14)
b.	Legal system since the promulgation of codified law in 1854	1854 - 1963 AD	As above + National Code of 1854	<p>Makers of the canal had first priority to use the water but traditional water sharing pattern was upheld.</p> <ul style="list-style-type: none"> * Irrigation from top to bottom was recognized. * Canals could not allowed to be constructed upstream of existing canals if that lessened water supply to the downstream canals.

Table 1 (contd.)

#	Ruling Dynasty	5 Concerned Authority	6 Jurisdiction	7 Remarks
1.	Kirat Dynasty	Local Assemblies and Individuals	Water related conflicts as well as other issues	
2.	Lichhavi Dynasty	<ul style="list-style-type: none"> * Panchali, Drang, Adhikaran. * Birtawala 	<ul style="list-style-type: none"> * Panchali was village level assembly of five adults like a trial court, all cases within their jurisdiction. * Drang was province level or appeal level court and Adhikaran was central level. * Birtawala had authority to hear local level water related cases within their Birta land area. 	<ul style="list-style-type: none"> * Birtawalas were persons who received land grants, usually tax free, from the state.
3.	Malla Dynasty	<ul style="list-style-type: none"> * Pancha Samuchaya (Assembly of five local people) * Dwares (gateman) * Birtawala (land lord) * Pundits (Priests) 	<ul style="list-style-type: none"> * All village level disputes including water related. * All appointed by king, princes or ministers to hear petty cases including water related issues of their respective areas. 	<ul style="list-style-type: none"> * In 1626 AD. Jitmitri Malla of Bhaktapur issued a royal order to levy for the use of canal water. * Water related disputes were not considered as important disputes of the society.
	<p>dhah Dynasty</p> <p>Legal system before codification of law</p> <p>Legal system since the promulgation of codified law in 1854 AD.</p>	<p>Pancha Dware</p> <p>Thare Mukhiya</p> <p>Birtawala</p> <p>Choudhary</p> <p>Court of Bichari</p> <p>(Trial Court)</p>		<p>jurisdiction of state agencies and their authorities overlapped,</p>

CURRENT WATER RELATED LAWS AND POLICIES

The human body consists of about 70% (in terms of weight) of water thus human life is not possible without water. Therefore, "Water Right" in its broad connotation may be termed as "right to life". However, water right does not only entail water right for consumption but also the right to use and discharge it. Further in many occasions water right also entails protection from destruction and pollution of water sources and related construction works.

Keeping in mind the general meaning of water rights mentioned above, all the current Nepalese laws, related to water, may be broadly grouped into the following categories:

1. Consumption Related Laws

- (i) Drinking Water: Nepal Water Supply Corporation Act, **1992**.
- (ii) Domestic Needs: National Code **1963** (Muluki Ain,)
- (iii) Irrigation: National Code **1963** (Chapter of Land Cultivation: "Jagga Abad Garneko" Mahal)

2. Use Related Laws

- (i) Industrial Production: Industrial Enterprises Act, **1992**
- (ii) Hydro-power
 - a. Electricity Act, **1992**
 - b. Electricity Rules **1988**
 - c. Fixation of Electricity Tariffs Rules, **1993**
- (iii) Transportation
 - Vehicle and Transportation Management Act, **1992**
- (iv) Fishing.
 - a. Aquatic Animals Protection Act, **1960**.
 - b. Forest Act, **1992**.
- (v) Recreation: Trekking and River Rafting Regulation, **1984**.

3. Discharge Related Laws

Sewage into surface water and sewage into aquifer

- (i) Solid Waste Management and Resource Mobilization Act, **1987**
- (ii) National Code, **1963**

4. Protection Related Laws

- (i) Decentralization Act, **1982**
- (ii) Decentralization (Working Arrangement) Rules, **1982**

- (iii) Essential Commodities protection Act, **1955**
- (iv) Village Development Committee Act, 1991
- (v) Municipality Act, 1991
- (vi) District Development Committee Act, 1991
- (vii) Soil Conservation and Watershed Management Act, 1982 and its Regulation
- (viii) Local Administration Act, 1971
- (ix) Some Public Offences and Punishment Act, 1970

5. Umbrella Laws

- (i) The Constitution of the Kingdom of Nepal, 1990
- (ii) Water Resources Act, (WRA) 1992.
- (iii) Water Resources Rules, 1993.

The classifications made above are not hard and fast because one law or act often leads with many aspects. And water related laws are not confined to the provisions of one or two laws but scattered in different laws. We have included policies in the classification of laws because though policies may not have a direct bearing on a person's water rights, they nevertheless may affect water rights by affecting laws or implementation of laws.

Due to lack of space, this paper has not discussed all the water related laws but only with the following issues/topics and referred to the related laws wherever felt necessary. The chronological development of the water related laws and policies have been presented in Annex I.

Ownership Versus Management of Water Resources

As per the provision of Water Resources Act, 1992 (WRA 1992) the ownership of the water resources of surface, underground or in whatsoever form, available in the Kingdom of Nepal, is vested in the kingdom of Nepal. [Sec. 2 (a) and Sec. 3]

This provision rejects the existence of any individual or community ownership right over any of the water resources available within the kingdom of Nepal irrespective of its origin, place, mode of use, nature of water resources and management system. This provision rules that any water resources originated on private land should be considered as state owned, and negates the constitutionally awarded property right (to use it as he/she pleases) of the Nepalese citizen.

There may be serious questions raised in this regards such as: Will individuals or communities (who have been managing their water resources since time immemorial) keep "loving" the water resources as they used to when they know that the water resources no more belongs to them? Will they not take it as state's intervention in their local matters? Can the government manage and maintain the water resources for beneficial uses, for which the WR Act has come into existence, with its limited number of administrators and experts in this field?

While talking about nationalization of natural resources one may remember the Private Forest Nationalization Act 1957. This Act was brought into existence in the name of "better preservation

of the forest resources” but afterwards it was realized that the government, keeping the local communities out of the management system, can not effectively manage and protect the natural resources with its limited number of officials and the experts. Will the same story be repeated?.

Access to Water is a Natural Right

Considering the constitutional provisions, two provisions relating to fundamental rights, namely a) right to equality [Art. 11 (4)] and right to property (Art. 17) are found related in this regard. According to Article 11(4), no person shall be discriminated against as untouchable and be denied access to any public place or be deprived of the use of public utilities. Contravention of this law is punishable. According to Article 17, all citizens have right to property and private property can not be confiscated without paying due compensation. These constitutional provisions entail that every Nepali citizen has natural right of access to water of all public utilities without any kind of discrimination and the water source limited to a private land be considered as the owner’s private property so far the use of water is mingled with the use of the land.

Every Citizen Has Right to Sue with Regards to Public Water

Among other related provisions of the present constitution (under Art. 126) the ratification of, accession to, acceptance of or approval of a treaty or agreement including about natural resources and the distribution of their uses are subject to be done in the parliament. On the other hand, if any agreement or treaty is of an ordinary nature which does not affect the nation extensively, seriously, or in the long term, the ratification of, accession to, acceptance of, or approval of the same, may be done at the meeting of House of Representatives by a simple majority of the members present. Otherwise it may be done only by a majority of two-thirds of the members present at a joint sitting of both the Houses of the parliament.

Article 126 is vague in terms of spirit as well as letter and has provided grounds for debates and controversies. It is very difficult to define whether a treaty concerning water resources is of an ordinary nature or whether it affects the nation extensively, seriously or in long term. The criteria and mechanism to determine the nature of a treaty have not been fixed so far, either in the laws or in legal practices. Therefore, certain issues sharing of water resources in the “Tanakpur Barrage” case, in which the Supreme Court has made it clear that the deal of His Majesty’s Government (HMG) with India during the visit of the former Prime Minister, Mr. Girija Prasad Koirala, on Dec. 1991, was not merely an understanding, but a treaty, are still under consideration by the parliament. However, in the said case the Supreme Court has clearly established the precedent that water is one of the natural resources and matter of concern for common people so every citizen has a right to sue against anyone and a right to get information about the acts of the government in this regard.

It may be recommended that the Nepal Treaty Act, 1990 should contain clear cut criteria or establish specific mechanisms to determine the nature and extent of a treaty concerning natural resources, particularly water resources and sharing of their benefits.

Right to Utilize Water Resources

Although all water vests in the Kingdom of Nepal, i.e., that the state is the owner of all water resources in whatever form, all Nepalese citizens have the right to utilize water. Water may be utilized for some purposes without acquiring licence from the concerned state agency, while for other purposes licences are required. The WRA has defined when and for which purposes licences are required and when they are not required, as described below.

Water Uses for Which it is Not Necessary to Obtain Licence

As per the WRA everyone is entitled to utilize water resources (without obtaining a license) for the following uses:

- (i) For one's own drinking and other domestic use on an individual or collective basis;
- (ii) For the irrigation of one's own land on an individual or collective basis;
- (iii) For the purpose of running a water-mill or water grinders as cottage industry;
- (iv) For the use of a boat on a personal basis for local transportation;
- (v) For the use, as prescribed under Water Resources Rules, of the water resources confined to a plot of land by the owner of such land.

Although licence is not required for the use of water for the purposes mentioned above, the users are not free to use water as they wish. They must make beneficial use of water without causing damage to others (see Sec.4, subsections (2) and (3) of the WRA).

Water Uses For Which License is Required

Since the ownership of all the water resources available within the national boundary vest in the Kingdom of Nepal, no person is entitled to utilize the water resources, except as mentioned above, without obtaining a licence from the concerned authority under the WRA (Sec. 3 and 4). For the purpose of awarding license for survey and utilization of water resources, Rule 8 of the Water Resources Rules, 1993 has made a provision for one "District Water Resources Committee" in each district, under the chairmanship of Chief District Officer (CDO), and comprising the following members: representative from district level Agriculture Development Office, Forest Office, Drinking Water Office, Irrigation Office, Electricity Project Office of HMG, office relating to utilization of water resources, District Development Committee (DDC) and Local Development Officer (LDO). It is noted that the members, except the representative from DDC, all are bureaucrats.

Persons willing to make use of water resources for collective benefits or on an institutional basis can form a water users association and register it with the concerned District Water Resources Committee (Sec.8). [The registered water users association becomes an autonomous corporate body]. Even a person willing to survey water resources for possible project implementation needs to obtain a license and apply to the concerned authority as prescribed under the said Act. The license obtained under this Act can be sold or transferred otherwise to others. The licensee may collect fees from the users for the use of services generated out of the water resources and services

may be stopped on default of payment. A person or a corporate body, who is utilizing water resources prior to the commencement of WRA, is also required to apply to the concerned authority as prescribed under the act *within* one year of commencement of the Act.

The licensee is liable under the WRA to pay a charge or annual fee for utilizing water resources to HMG [(Sec. 8(5)]. HMG may prescribe the necessary quality standard of water resources for various uses and that should be maintained (Sec. 18 WRA). Similarly HMG may prescribe the tolerance limit for water resources and may prohibit water resources pollution by any means (Sec. 19 WRA)..

The license relating to the survey of water resources and its utilization for the generation of hydro-electricity is not governed by the WRA provisions as mentioned above but other matters relating to the water use is governed by the provisions of the Act (Sec. 9).

The license of such a licensee can be cancelled if he or she performs acts contrary to the WRA or Rules framed under it, or does not comply with the order given by the prescribed officer prescribing necessary improvements thereon.

While providing license for utilizing water resources following priority order, shall, in general, be followed:

- (i) Drinking water and domestic uses
- (ii) Irrigation
- (iii) Agricultural uses, such as animal husbandry
- (iv) Hydro-electricity.
- (v) Cottage industry, industrial enterprises and mining
- (vi) Navigation
- (vii) Recreational uses
- (viii) Other uses.

Hydro-Power

All forms of water use and license awarding process has to be guided by the Water Resources Act and rules framed thereunder except the use and licence awarding process for hydro-power. Thus the legal provisions regarding awarding license for hydro-power needs to be dealt *seperately*. No person or institution is authorized to generation, transmission and distribution of electricity unless permission or licence is obtained under the Electricity Act, 1992. However, it is not required to take permission to generate and distribute electricity up to 1 MW by a citizen or national institution, who only needs to inform the concerned authority about the project (Sec. 3).

The person or institution willing to survey or generate hydro-electricity needs to file application to the concerned authority for the purpose of obtaining a license as prescribed under the Electricity Act and the concerned authority will provide the required license following the due process as prescribed under the laws. The licensee with prior approval of the concerned authority can transfer his right by any way to others (Sec. 4). The duration of license of survey for hydro-power will be maximum 5 years and maximum 50 years for generation, transmission and distribution unless that

is renewed. The land and installation related to electricity generation, transmission and distribution lines established by foreign nationals or corporate body in which they have financed more than 50% of the total investment shall be under the ownership of HMG after expiry of the license (Sec. 5 and 10). The licensee is authorized to collect fees from the hydro-power users and terminate the service if the fee is not paid (Sec. 16, 17 and 19). He/she needs to run the project without polluting the environment (Sec. 24) and such license can be cancelled if the licensee acts in contravention to the Act and Rules framed thereunder and order given by the concerning authority (Secretary of the Ministry of Water Resources) in this regard.

The Electricity Act, 1992, has been promulgated with the objective to attract national and foreign private sector entrepreneurs to invest in the development of hydro-power and utilize the available water resources. Therefore, the Act has made provisions for many concessions and facilities to such investors.

But within the new legal framework, license to the private sector has yet to be issued. The private sector feels that until the Nepal Electricity Authority itself is privatized and/or greater opportunities are provided, the prospect of private sector participation in medium and small projects (1 MW and above) are bleak. The major constraints are as follows:

- (i) The uncertainties involved in the development of hydro-power projects due to a lack of hydro-meteorological data.
- (ii) Uncertainty over the continuous flow of the benefits and guarantee of being paid in the future.
- (iii) Uncertainty over tariffs which would be fixed by a proposed public tariff commission and further negotiation with Nepal Electricity Authority.

The legal situation of water rights regarding other uses such as agriculture, cottage industry, transportation, recreation, etc. are not dealt with separately in detail in the existing Nepalese laws. However, for the use of water for such a purpose a license is required.

Water Rights to a Water Source Which Originates in and Confined to a Private Land

The owner of the land on which the water resources is confined (to his/her land) may use the same without obtaining a license but subject to the provisions made under the Rules framed under the WRA (Sec. 4 (2) (e) of the WRA). But, surprisingly the Rules are silent on this issue; thereby it leaves room for confusion regarding the use of such water resources to both, users and law implementors.

All the water resources as per the provisions of the WRA is owned by the kingdom of Nepal whether it is originated or existed on private or public land and the provisions regarding to legal restrictions on its use may be considered as contrary to the constitutional provision of the property right, (See Secs. 2, 4 (2) (e) of WRA and Art. 17 of the Constitution) because the use of water is attached with the use of land.

Similar arguments can be put forward regarding to the Aquatic Animals Protection Act, 1960, which states that the term water includes lake, water reserve, waterfall, stream, river, watercourse,

pond, canal, etc. and their sources; and defining the term aquatic animal it states that the term includes all animals which live in water. The Act has made a provision that the owner of the private water may use the water to kill or catch aquatic animals anyway he likes except by using poisonous substances and without aquatic animals in other water. [See. Sec. 2 (a) and (b) and Sec. 3] The term “private water” has been defined as the lake, pond, watershed, or water reserve on a land of which the owner is paying land revenue of the land to HMG. [Sec. 2 (g) of the Aquatic Animals Protection Act, 1960]. Thus the concept of private water and its use to the extent accepted by the Aquatic Animals Protection Act has not been confirmed by WRA. Further the WRA has made room to frame rules imposing some restrictions on the use of private water which may contravene the provisions made under the Aquatic Animals Protection Act.

Irrigation and Customary Water Use Rights Vis-a-vis the Existing Legal Provisions

As mentioned above, *Muluki Ain* is the oldest codified law of Nepal. In 1950, there was a successful popular political movement against the then Rana rulers and the social, political, and economic situation of the country was changed but the same law remained in existence till 1963. It was only in 1963 that the old *Muluki Ain* was revised thoroughly as per social and political changes and a new, revised *Muluki Ain* promulgated

The *Muluki Ain* devotes one out of its 44 chapters, known as *Jagga Aabad Garneko* (Land Cultivation) to basic legal provisions regarding irrigation. Under the said chapter if someone wants to make a new irrigation canal above the existing canal he/she can make the new one only if that does not lessen the quantity of water to those plots of land which are being irrigated through the old one (Sec. 1).

Similarly, for the purpose of cultivating land, an irrigation canal can be made through anyone's private land, whether fallow or cultivated, and water can be channelized; no one should prohibit such an act. A landlord, on whose land the irrigation canal is made, unless his/her land is revenue exempted fallow land, should be given the price of the land or substitute land as a compensation for the loss of his/her land. The revenue of the cultivated land, on which the irrigation canal is made to cultivate a fallow land, should be exempted if the revenue of such newly cultivated land comes around double of the cultivated land used for making the canal (Sec. 3).

Likewise, land, on which a water resource or bank of a pond exists, should not be cultivated (Sec.4). The person who cultivates such a land is liable to be fined five times the revenue in addition to the revenue of the land and such land should be left fallow again (Sec.12).

The *Muluki Ain* contains several provisions that recognize existing social norms, values and practices. But the *Ain* is also confusing to many people. In the first place, the original *Muluki Ain* was drafted over one hundred years ago. The language is very difficult to understand. It contains many Urdu and Persian words which has made it very difficult for the common people to read and understand. Secondly, it contains some provisions that may lead to contradictions. For example, the upper riparian have prior right of water use to irrigate their land. On the other hand the traditional water distribution system is also recognized. What happens if the upper riparian turn

their *bari* (unleveled cultivated land which can be used to grow other crops than rice) into *khēt* (rice fields) lessening the quantity of water to the lower riparian? It is difficult to answer such a question under the provisions of this Ain.

Third, the fine of up to Rs. 50 for a person who compels someone to leave his/her land uncultivated is very nominal and therefore not a good protection against infringement of rights.

Fourth, being a general law of the nation specific laws, such as the WRA, prevail over it. This legal provision often leads to confusion, even among lawyers. Thus the Muluki Ain has recognized the prior appropriation and customary water use right, but the WRA of 1992 does not explicitly recognize customary water use rights. For example, in many parts of the country water users associations, who in general are not registered as institutions, have constructed irrigation canals and are charging fees from the beneficiaries: such water users committee and customary practices of levying water fees is not legally valid unless and until they obtain a license under the WRA [Sec. (8)3].

Likewise the WRA has broadly “nationalized” all water resources within the kingdom of Nepal. It also has fixed priority order for the use of the water sources and drinking purpose is on the top of the priority list. In such a situation, if someone or a group, without obtaining a license, has constructed an irrigation canal using the water from long past but someone comes to claim the same water for drinking purpose then what kind of right will prevail over there? The right of the person who constructed the canal as customary water use right under Muluki Ain? Or the right of a person who would like to use the water source for the drinking purpose? This question may be answered by a legal expert saying that WRA is applicable in this case because Muluki Ain, being a general law, cannot prevail over the specific law. But, will it be justified, that someone gets water use right under Muluki Ain since time immemorial but loses the same right under WRA?

Here the question arises what is customary water use rights? The meaning of the term customary water use rights has not been defined in any of the Nepalese laws. Thus it is up to the courts to define this term and determine how many years of use does it take for a practice to be considered customary use. The number of years may differ from one court to another unless and until the Supreme Court ascertains the number of years in this regard.

Nevertheless, the WRA has not completely rejected the customary water use right because some provisions of the Act have made room to recognize such rights. For example;

- i. Using water for certain purposes such as drinking, domestic, irrigation purposes on individual or collective basis does not require obtaining a license [Sec. 4].
- ii. On receipt of an application for survey and utilization of water resources from an individual or a corporate body the concerning authority or officer is required to make necessary enquiries before issuance of the license [Sec. 8 (2) and (4)].
- iii. If a dispute arises while utilizing water resources, the prescribed committee shall decide as to whether or not or in what manner such use could be made. Such decision must be made on the basis of priority order of water use, the beneficial use, i.e. rational uses of the water resources within the available means and resources and use of the water resources without

causing damage to others [Sec. (2)a and 4(3)] or misuse of water resources and also other necessary enquiries. [Sec. 7(2) and Sec.10].

All these three provisions give room to the implementors to consider the customary water use **rights** of the local people and respect them before they take a decision within their respective jurisdiction. But two things have to be considered. First, these provisions do not **make** it mandatory for the law implementors to **respect the customary** water user right. Second, to follow the intentions of the legislature [which **are** not directly mentioned] by the law implementors not only require knowledge of the law but also proper understanding of such legal provisions. These two things have made it doubtful that the law implementors would respect customary water use rights of the people or at least it can be concluded that it depends upon the bureaucrats which may vary from place to place.

RESOLUTION OF WATER RELATED CASES BY MEDIATION

The Village Panchayat Act 2018 (1961) gave judicial power to the village Panchayats (village councils). The judicial power of the village Panchayats included power to hear cases relating to encroachment of water outlet, embankment of water resources and irrigation water, etc. (Sec. 41). The village Panchayats were authorized to exercise the powers like a court while hearing cases. The village Panchayats were required to form a three member judicial committee headed by the village chairman or vice-chairman and two other members, i.e., the ward members from the wards of the disputing parties, **but maintaining** some of the basic judicial principles, e.g., a relative of the disputing parties could not be member of the judicial committee. The appeal against the decisions of the village Panchayat Judicial Committee was heard by the **concerned** District Court. After the successful popular movement of 1990 the place of the Village Panchayat Act has been taken by the Village Development Committee (VDC), as per the VDC Act of 1992.

However, the judicial power given to the Village Panchayats is not given to Village Development Committees under the VDC Act of 1992. The judicial power given to local village Panchayats was directly or indirectly justified in many ways. It was argued that local disputes would be solved locally without going out of the village and entering into a complex judicial process **thus** saving time and money of the disputing parties. It was also considered to help the social development process of the local communities. But surprisingly neither had the Village Panchayat Act, 1961 given any justification for giving such judicial power to Village Panchayats, nor did the Village Development Committee Act mention why such a judicial power is not given to the VDCs.

Under Section 44 of the Village Development Committee Act, 1992, the Village Development Committees **are** authorized to mediate in minor cases relating to encroachment of (water) outlets, use of bathing platforms in a water source and protection of public properties (those kinds of property which are not owned by individual persons) and water reservoirs (dams), irrigation canals or distribution of water. Under Sec. 45 of this Act the VDCs should summon both the parties and **try** to bring about a compromise after due discussions. If an agreement can not be reached then the parties should be told by the VDC that they may take their case to the **concerned court** of law within

three months from the date of registration of the first petition in the VDC. If agreement is reached the VDC is authorized to take fees from the parties as per the rate prescribed under the existing laws.

These provisions show that there are some basic differences between the judicial power of the village level unit under the Village Panchayat (VP) Act and the VDC Act. They are:

1. The village Panchayat had given authority to hear and decide on cases prescribed under the VP Act and the appeal was heard by the district court, including the authority to bring agreement between the disputing parties; but the VDC Act has not given power to decide over such cases, but just to try to bring about an agreement between the disputing parties.
2. The VDC Act has much more clearly mentioned that VDC should hear complaints about distribution of water and try to bring an agreement between disputing parties which was not clear under VP. Act. (Sec. 44 of VP Act and Sec. 44 of VDC Act.)
3. The VP. Act had authorized Village Panchayats to bring compromise (agreement) between disputing parties even in those cases which were not under their jurisdiction (as mentioned under Sec. 44). But, such a power is not given to VDCs under the VDC Act.

Thus we can notice that there are substantive as well as procedural differences between the VP Act and the VDC Act regarding to the judicial power of the concerned local bodies. The village Panchayats under the VP Act, 1961 were given much wider judicial power and power to bring compromise between the disputing parties than the power given to VDCs under the VDC Act of 1992. Why has such changes been brought? Is it the consequence of feed back from the concerned local bodies or agencies or is it because of the change in the political system? Perhaps the second one prevailed because such a change is not based on any study or study report. However, the report of the Royal Judicial Improvement Committee of 1983 mentioned, "though it is noticed that many people were not interested to comment on the effectiveness of the judicial power given to the Village Panchayats as per being for short expansion of time. However, in the opinion of the majority of the people it was appropriate to award such a judicial power to Village Panchayats. Further, evaluation of the benefits and experience of exercise of such a power is needed to wait up to a proper expansion of time." (p. 159)

The study of the Royal Judicial Improvement Commission 1983 reflects that on the spot observation revealed that many VP officials were neither aware of, nor exercised, their judicial powers. These officials, in accordance with their historical tradition, effected compromise between disputing parties even on such cases which were not under their jurisdiction under the VP Act. They also brokered compromise between disputing parties without preparing any document. Further, the same legal provision was used differently by different VP officials. At the same time, the Commission report also commented that this practice has helped the villagers find a practical solution of their disputes and only a negligible number of cases went to the courts (p. 160).

It may be argued that assigning too many judicial tasks to the village units might slow down local level developmental works. Nevertheless, termination of such a judicial power of village units in

the absence of a proper study into the question whether such a provision is justified in accordance with tradition, geographical situation, social and economic condition of the citizen, and the concept of decentralization, may be called a “blunt step”, and, accordingly, the impact of this is another issue for research.

CONCLUSIONS AND RECOMMENDATIONS

Water rights are available to the people in Nepal by the following four ways:

1. Natural rights for which license is not required. but only for limited purposes;
2. Rights acquired by licensing. Such rights are limited to the purpose for which the license is awarded. However, by acquiring the license, the licensee gets right over the use of water as property, which he can sell (license) to others, collect fees from the users of the water or product thereof, and terminate the service upon non-payment of the charge/fee.
3. Riparian rights have been recognized, under which the upper riparian has prior right to irrigate his land in comparison to the lower riparian.
4. Customary use right and prior appropriation rights have also been recognized in two senses. First no other irrigation canal can be constructed above the existing one if water supply to the existing canal is decreased. Second, the water share of a person who has been getting it traditionally should not be stopped and he should not be compelled to leave his land fallow.

All these rights can be adversely affected by government interventions. The government may acquire a water source to develop it as long as this does not cause substantial adverse effect to the existing users and benefits a larger population than the existing beneficiaries. Thus none of these water rights can prohibit the government to acquire or develop water resources and construction works. However, the government is liable to pay compensation for acquiring construction works in accordance with the law but the compensation does not include payment for the loss of possible income by selling the water services.

The elected VDC members are unaware of their judicial power due to their socio-economic and educational background. If power is given to the local bodies, we naturally expect them to utilize the power in a proper way. To help them carry out their responsibilities successfully, they have to be trained, provided with the necessary physical facilities, experts, and copies of laws. They have to be provided with guidelines and orientation which should be monitored and evaluated from time to time. Unfortunately these have not been provided to them.

We should make very simple and cost effective procedures which should be followed and flexibility should be adopted in the laws.

The spirit of WRA is to make legal arrangements for beneficial use of water resources and keep them free from environmental and other hazardous effects. The WRA must be regarded as legal provisions in the interest of the people but. if the spirit of the law is not properly understood by its implementors, then it can be used to terminate peoples' customary water use rights as well. The following recommendations may be put forward

1. It has been internationally accepted that natural resources can be managed best if the indigenous management systems and the customary rights of the people are accepted and protected under the formal laws of the country. Therefore, it is recommended that the WRA should clearly mention that the customary water use rights of the people are given legal recognition and the term "customary water use rights" be defined in accordance with international practices.
2. All the members in the District Water Resources Committee, except the representative from DDC, are bureaucrats. It is widely accepted that the elected representatives and representatives from the concerned sector should also be included in the decision making process for the purpose of involving people in the governance of the country. It is, therefore, recommended that the District Water Resources Committee should include one representative from the concerned VDC or municipality and one also from the water users association as prescribed by the DDC.
3. It is recommended to provide one legal expert in all District Administration Offices and give them necessary orientation and guidelines regarding implementation of the concerned laws, otherwise such law implementors even may not know that there exists a law called Water Resources Act !
4. The background mentioned above clearly shows that there is little input of the government in the efforts of the people in managing water resources. Law always affects, one way or the other, their management systems but the laws are never brought into public discussions before their adoption. Therefore, it is recommended that the laws and amendments thereon which affect the people at large must be brought into public discussion before they are passed by the parliament. And for the effective implementation of the laws people should be made aware of their water rights and necessary steps should be taken in this regard. ■
5. The WRA has made provision for registering water users associations under it. However, they are registered under the Society Registration Act, which may not be enough to provide proof of the rights of the concerned people to the use of certain water resources. So, necessary instructions should be given to all the District Administration Offices in this regard.
6. Necessary amendments should be made in the laws so as to avoid overlapping and contradictory law. †
7. Legal provisions should be made to establish coordination so as to avert duplication in planning and implementation of water related projects.

NOTES

- 1 This is the revised version of the paper presented at **the** workshop on “Water Rights, Conflict, and Policy” held in Kathmandu, Jan. 22-24, **1996**.
- 2 The author is associated with **FREEDeAL**.
- 3 It is expected that major river systems of Nepal bear a potential of about 83000 MW of electricity of which **42000-45000** MW is economically and technically feasible for commercial exploitation.
- 4 Center Bureau of Statistics **1994** **47**, 83 and **94**.
- 5 **DIO/IIMI** Nepal **1995**: **53**
- 6 Sharma **1975**: **62-112**.
- 7 Some writers have translated “Jagga Aabad Garneko Mahal” as “Land Reclamation”

REFERENCES

- Ahmad, Q.K., et al.. **1994**. *Converting Waferinfo Wealth*. Kathmandu.
- Central Bureau of Statistics. **1994**. *Statistical Pocket Books*. Kathmandu: HMG/ National Planning Commission.
- Department of Irrigation/ IIMI-Nepal. **1995**. *Improving Support Services to Farmer Managed Irrigation Systems in Nepal*. Kathmandu: DoI/IIMI-Nepal.
- Ministry of Law. **1964**. *Muliki Ain*. Kathmandu: Ministry of Law
- Ministry of Law. **1992**. *WaferResources Act, 1992*. Kathmandu: Ministry of Law.
- Poudel, Madhav. **1992**. “Review of Electricity Act ,**1992**.” Unpublished manuscript.
- Sharma. Balchandra. **1975**. *Nepalko AefihasikRooprekha (Historical Account of Nepal)*, Baranas
- Singh, Chhatrapati. **1991**. *Water Rights and Principles of WaferResources Management*. Bombay: ILI/NM and Tripathi Pvt. Lts.

ANNEX I

Chronology of Water Related Laws and Policies in Nepal

Prepared by Mr. Madhav Poudel, Joint Secretary, Ministry of Law and Justice

1. 1854 AD (1990 B.S.): Promulgation of the *Muluki Ain* (National Code). One section of the National Code deals with rules concerning irrigation in general and construction of canals and priority of: water distribution in particular.
2. 1952 AD (2009 B.S.): Amendments made to the *Muluki Ain* to provide further legal rules with regard to canal construction and protection of fishery resources.
3. 1955 (2012 B.S.): Enactment of the *Essential Commodities Protection Act, 2012* to regularize water resources as an essential commodity.
4. 1961 (2017 B.S.): *Aquatic Animals Conservation Act, 2017* was enacted and introduced with a view to conserve fisheries and other aquatic animals.
5. 1963 (2018 B.S.): Promulgation of the *Irrigation Act, 2018* to provide legal provisions concerning water use, construction and maintenance of canals, distribution of water, collection of water charges, sewerage etc.
6. 1963 (2018 B.S.): Enactment of the *Electricity Motor or Power Transfer Act, 2018* to provide legal provision concerning the transfer of private ownership of electricity.
7. 1963 (2019 B.S.): Enactment of the *Nepal Electricity Corporation Act, 2019* for the establishment of the Nepal Electricity Corporation, as a corporate body for production and distribution of electricity.
8. 1964 (2020 B.S.): Introduction of the *Nepal Electricity Act, 2020* to provide legal provisions concerning policy to be developed by the Government on hydro-power, distribution of licences, fixation of power tariffs, etc.
9. 1964 (2019 B.S.): Enactment of the *Village Panchayat Act, 2019* to empower the Village Panchayats in the field of irrigation, water supply and fisheries.

10. 1964(2019 B.S.): Enactment of the Town *Panchayat Act, 2019* to provide legal provisions for management and utilization of streams, wells, ponds and other water resources within the jurisdiction of the concerned Town Panchayat.
11. 1964 (2019 B.S.): Introduction of the District Panchayat Act, **2019** to provide legal provisions concerning water rights to be applied within the territory of the concerned district.
12. 1964 (2020 B.S.): Enactment of the new Muluki Ain; the existing **Muluki** Ain (with amendments) is repealed.
13. 1964 (2020 B.S.): Commencement of the new Muluki *Ain*
14. 1967 (2025 B.S.): Introduction of the *Irrigation, Electricity and Related Water Resources Act, 2024* to provide legal provisions related with irrigation, production of electricity and other matters concerning water resources.
15. 1968 (2026 B.S.): Commencement of the Irrigation, Electricity and Related Water Resources **Act, 2024**.
16. 1974 (2032 B.S.): Introduction of the Canal Operation *Regulation* to govern water use for irrigation.
17. 1982 (2039 B.S.): Introduction of the Soil and Watershed *Conservation Act, 2039* to protect soil and watershed.
18. 1984 (2041 B.S.): Enactment of the Nepal Electricity Authority Act, 2041 to merge two institutions existing at that time, namely, Electricity Department and the Nepal Electricity Corporation.
19. 1984 (2042 B.S.): Commencement of the Electricity Authority Act, 2041
20. 1982 (2039 B.S.): Enactment of the Decentralization Act, 2039.
21. 1984 (2041 B.S.): Implementation of the Decentralization Act, *2041*.
22. 1988 (2045 B.S.): Adoption of a new working policy on irrigation development by HMG.
23. 1988 (2045 B.S.): Enactment of *Irrigation Regulation, 2045* to provide legal provisions for formation of water users' groups, water distribution, realization of water charges, etc.
24. 1989 (2046 B.S.): Enactment of the Nepal Water Supply Corporation *Act, 2045* to constitute a public utility company to supply clean water in various regions of Nepal.

25. **1989 (2045 B.S.):** Commencement of the *Nepal Water Supply Corporation Act, 2046*.
26. **1990 (2046 B.S.):** Publication of the list of water resources and irrigation systems or projects to which the *Irrigation Regulation, 2045* is applicable.
27. **1990 (2047 B.S.):** Drafting and promulgation of the *Constitution of the Kingdom of Nepal, 2047*. The Constitution provides some leading provisions on water resources and their utilization.
28. **1990 (2047 B.S.):** Introduction of the *Village Development Committee Act, 2047* to replace the *Village Panchayat Act, 2019*.
29. **1990 (2047 B.S.):** The *Municipality Act, 2047* was introduced and the existing **Town Panchayat Act, 2019**.
30. **1990 (2047 B.S.):** The *District Development Committee Act, 2047* replaced the *District Panchayat Act, 2019*.
31. **1992 (2048 B.S.)** The *Village Development Committee Act, 2048* replaced the *Village Development Committee Act, 2047*.
32. **1992 (2048 B.S.):** The *Municipality Act, 2048* replaced the *Municipality Act, 2047*
33. **1992 (2048 B.S.):** The *District Development Committee Act, 2048* replaced the *District Development Act, 2047*.
34. **1992 (2049 B.S.):** *Hydro-power Development Policy, 2049* was adopted to invite private sector investors in the hydro-power development areas.
35. **1992 (2049 B.S.):** Adoption of the *Irrigation Policy, 2049* to clarify the government's policy in this field.
36. **1992 (2048 B.S.):** Enactment of the *Water Resources Act, 2049* as an umbrella Act on management of water resources.
37. **1992 (2049 B.S.):** Enactment of the *Electricity Act, 2049* to provide legal provisions concerning production and distribution of electricity, issuing of licences, incentives to be given to the private sector entrepreneurs, etc.
38. **1993 (2050 B.S.):** Commencement of the *Water Resources Act, 2049*.
39. **1993 (2050 B.S.):** Commencement of the *Electricity Act, 2049*
40. **1993 (2050 B.S.):** Introduction of the *Water Resources Regulation, 2050* to provide for the procedures of the *Water Resources Act, 2049*.

41. **1993 (2050 B.S.): Introduction of the *Electricity Regulation, 2050* to carry out the objectives of the *Electricity Act, 2049*.**
42. **1993 (2050 B.S.):*Electricity Tariffs Foreign Regulation, 2050* framed and introduced to provide a mechanism for fixation of electricity tariff.**

•

▪

The Court System in Nepal¹

*Ramchandra Bhattarai*²

INTRODUCTION

The main purpose of this paper is to give a general introductory information on the Nepalese court system. It highlights the changes in the tiers and jurisdiction of courts, basic court procedures and time limit as well as work load of the courts.

HISTORY OF THE JUDICIAL SYSTEM AND TIERS OF COURTS

The history of the judicial system in Nepal can be divided into three periods: 1) before the unification of Nepal (pre- 1768 A.D.), 2) post-unification and the Rana period (1768 to 1951), and 3) modern period (1951 to the present). In each period the tiers or levels of courts (court of first instance, appeal and apex courts) have undergone changes. These changes are described below and the Nepalese court structure over the past fifty years are presented in Table I. below.

Before the Unification of Nepal

They were the first historically documented ruling dynasty in Nepal. During their reign they administered according to the *Mundhum* (religious book of the *Kirats*)³. The Lichhavi royal dynasty in 464 A.D. and introduced judicial system based on Hindu scriptures. The Mallas (782-1768 A.D.) instituted separate central courts for civil and criminal cases known as *Kotilinga* and *Itachapali*, respectively. Justice was delivered according to customs and practices⁵. King Jayasthiti Malla, one of the rulers during

Table I: The Nepalese Court Structure **During** the Last Fifty Year

Duration	Tier of Courts	Court of First Instance	Appellate Court/s	Appex Court
1940-1945	Four	Amini/Adalat	a. Appeal Adda b. Bharadari Adalat	Pradhan Nayalaya
1945-1956	Three	Amini/Adalat	Appeal Adalat	Pradhan Nayalaya
1956-1959	Three	Amini/Adalat	Appeal Adalat	Supreme Court
1959-1961	Four	Ilaka Adalat	a. District Court, b. Uchha Adalat	Supreme Court
1961-1974	Three	District Court	Zonal Court	Supreme Court
1974-1990	Four	District Court	a. Zonal Court, b. Regional Court	Supreme Court
1990 to date.	Three	District Court	Court of Appeal	Supreme Court



was in the hill districts. Both Amini and Adalat are now known and function as district courts. There were two levels of Appellate Courts, known as *Appeal Adalat* and *Bharadari Adalat*. The Pradhan Nyayalaya was the apex court⁹. But in 1945 A.D., the *Bharadari Adalat* was repealed and only three tiers of courts were retained.

Modern Period

(i) *1951-1961 A. D.*: The Rana regime was overthrown in 1951 and a democratic government was installed. The Interim Government Act, 1951 A.D. for the first time recognised the judiciary as an independent institution¹⁰. The judiciary comprised of three tiers, i. e., the Amini or Adalat as court of first instance, the Appeal Adalat as the appellate court and the Pradhan Nyayalaya (Supreme Court) at the apex¹¹. The Pradhan Nyayalaya Act was enacted in 1952 A.D. under which the Pradhan Nyayalaya had jurisdiction to hear appeal and all five types of writ petitions, i. e., the writ of habeas corpus, mandamus, prohibition, quo-warranto and certiorary¹². In 1959 A. D. the Judicial Administration Act again changed the name and tier of the courts. Ilaka Adalat was established as the trial court, District Court as first appellate court, Uchha Adalat as the second appellate court and the Supreme Court as the apex court¹³. (During this period, the term 'Ilaka' covered areas, smaller or larger than the present district and the term 'district' covered an area which was larger than the present district, known as *zilla*).

(ii) *1961-1990 A. D.*: In 1961 A.D. the Judicial Administration Act repealed the provision of Uchha Adalat which left only three tiers of courts. Under this Act the District Court was the Court of first instance, the Zonal Court was an appellate court and the Supreme Court was the court of final appeal¹⁴. In 1974 the Judicial Administration Act, 1974 was enacted. One more tier, i. e., the Regional Court (second appellate court) was added in the court system. After this enactment there were two tiers for appeal according to the disputed matter or level of crime. Though some amendments were made in the jurisdiction of the appellate courts in 1986, the tier of the courts remained the same¹⁵.

(iii) *1990 to the Present*: After the popular movement of 1990 A.D., a new constitution, the Constitution of the Kingdom of Nepal, 1990 was promulgated. In the new constitution, provision was made only for three tiers of courts, namely, the District Court as the court of first instance, the Court of Appeal as the appellate court and the Supreme Court at the apex¹⁶. Thus at present there are 75 District Courts, one for each district, and 14 Courts of Appeal, one for each zone, and the Supreme Court.

Presently Nepal is divided into five development regions, 14 zones and 75 districts. Village Development Committee (VDC)/Municipality is the lowest local level administrative unit in each district. The number of VDCs and municipalities in the country amounts to 3995 and 36 respectively¹⁷.

There has not been any study as to why the tiers of courts have been changed so often. However, during each change, the government officials had given similar reason why the tiers had to be altered to save time and cost of the disputing parties. Further research is required to determine whether three or four tier system is more efficient and saves money and time.

JURISDICTION OF THE COURTS

Jurisdiction of Courts Prior to the Constitution of 1990

Prior to the Constitution of 1990, the District Court was the Court of First instance. It also had appellate jurisdiction in cases decided by the Village Judicial Committee (VJC), which was part of the Village Panchayat and was in existence from 1980 to 1989. The first appeal against the decision of the District Court was taken as a right of the disputing party. During the period of 1974-1986, cases were divided into two groups according to the value of disputed matter or the level of crime (possible year of imprisonment or penalty). Appeal on low valued (i. e., less than NRs. 5000) disputed matter or cases incurring punishment of less than 5 years of imprisonment were filed in the Zonal Court and cases other than these were filed in the Regional Court. In cases where there was error of law or error of the case law then there was also a provision of leave petition for appeal. The Judicial Administration Act was amended after 1986 and some changes were made in the jurisdiction of the Zonal and Regional Courts. After this amendment, the Zonal Court was taken as the first Appellate Court while the Regional Court was made the second appellate court. First appeal was taken as a matter of right of the party. There was a provision for second appeal but only when the decisions of two tiers of courts differed.

Under the fourth amendment of the Judicial Administration Act 1986, the appeal against the decision of either the district or the zonal level quasi-judicial bodies could be filed in the Zonal Court. Second appeal was also allowed to the regional court in case of difference in decision of the first appellate court to the initial decision.

The ordinary jurisdiction of the Supreme Court was almost the same in the previous constitution also. But the jurisdiction related to declare any law *ultravires* (law or act made/done going beyond constitutional provisions) was not directly stated in the previous constitution and there was no clear provision to revise its own judgement. There was a provision to issue order by the King to revise the judgement of the Supreme Court. The King was the last resort of judiciary.

The village judicial committee (VJC) was introduced in 1980. The original jurisdiction for the settlement of other disputes in addition to canal water was provided to the VJC by a notice published in the Nepal Gazette (in September 1980) as stipulated in the Village Panchayat Act. The village judicial committee would be formed by the concerned village Panchayat. There would be three members in the committee. The chairman of the committee would be chief or vice-chief of the Village Panchayat. There was also a provision for District Judicial Council (DJC) and the appeal against the decision of VJC could be filed in DJC. The provision of appeal in the DJC against the decision of the VJC changed in 1986 and appeal against the decision of the VJC could be filed in the District Court since 1986. These provisions of the VJC remained in effect up to 1989. The VJC was required to follow the same procedure as a court of law. As discussed in B. Khanal (this volume) 15 cases have been filed in the Supreme Court against the decisions of VJC and DJC.

In 1992 the new Village Development Committee (VDC) Act was adopted. The Act provides the VDC the power only to mediate all disputes, except criminal cases, arising within the village.

Jurisdiction Since 1991

District courts

The District Courts have exclusive jurisdiction as the court of first instance over all types of cases except as otherwise provided by the law¹⁸. For example, some cases have to be first registered with Land Revenue Office and the disputants can take the case to Appellate Court only to appeal.

Courts of Appeal

Courts of Appeal **are** at the second level of the court hierarchy. They have jurisdiction to hear appeals against the decisions of the District Courts and to ratify references made to them by such courts or against the order of the judicial or quasi judicial bodies within their jurisdiction¹⁹.

The Courts of Appeal have also been granted extraordinary jurisdiction to issue orders in the form of writ of habeas corpus, mandamus and injunction²⁰. In addition to this jurisdiction the Courts of Appeal have original jurisdiction over the cases prescribed by the law and over the cases ordered by the Supreme Court²¹.

Supreme Court

The Supreme Court has Ordinary **as** well **as** Extraordinary jurisdiction

Ordinary Jurisdiction

- (i) The Supreme **Court** has appellate jurisdiction in cases which are decided by the Courts of Appeal within their original jurisdiction, cases decided by the District Courts with more than ten year's imprisonment and cases where there are basic differences in decision of Appellate Courts to the decision of the District Courts or other quasi judicial **bodies**²². In addition to this, the Supreme Court may ratify references made **by** the lower courts²³.
- (ii) The Supreme Court may review its own judgments or final **orders**²⁴. The Supreme Court may provide opinion on any complicated legal question to His Majesty²⁵.

Extraordinary Jurisdiction

- (i) Any Nepali citizen may file a petition in the Supreme Court to have any law or any part thereof declared void on the ground of inconsistency with the constitution because it imposes **an** unreasonable restriction on the enjoyment of the fundamental rights conferred by the constitution or on other grounds and extraordinary power shall rest with the Supreme Court to declare that law as void **either** *ab initio* or from the date of its decision if it appears that **the** law in question is inconsistent with the constitution²⁶.

- (ii) The Supreme Court shall, for the enforcement of the fundamental rights conferred by the constitution, for the enforcement of any other legal right for which no other remedy has been provided or for which the remedy even though provided appears to be inadequate or ineffective, or for the settlement of any constitutional or legal question involved in any dispute of public interest or concern, have the extraordinary power to issue necessary and appropriate orders to enforce such rights or settle the dispute. The Supreme Court may issue appropriate orders and writs including the writs of habeas corpus, mandamus, certiorary, prohibition and quo warranto.²⁷

Public Interest Litigation

If there is a public interest or concern by its subject or nature, any person may file a case with the permission of the concerned court. The application seeking permission should also be filed along with the petition.²⁸ Thus before 1990 the provision of public interest litigation was only in national code (Muluki Ain) and it was conditional i.e. it was necessary to get permission from concerned court before filing the petition (Muluki Ain Nineth Amendment). After the Constitution of 1990 such provision was stipulated in the constitution without any condition.

BASIC PROCEDURES

Basic court procedures are different in criminal and civil cases. The major differences are in the matter of filing a case, process of summons, execution of judgements, etc. Details of the procedures are discussed under the following headings:.

Civil Cases

In civil cases when a person comes to the court to file the claim, defence statement or appeal, he should go to the Registrar/Shrestedar of the court. After due examination of the document the Registrar/Shrestedar decides to register the document if all basic procedures are fulfilled or he may reject to register the document stating the reason on the back of the document²⁹.

After the filing of a case by a plaintiff, the first action to be taken by the court is the delivery of the summons (*Italayanama*) to the defendant ordering him/her to present his/her defence within the time prescribed by law (35 days in general). A copy of the petition /claim should also be sent along with the summons³⁰.

After the submission of defence statement the court provides the same date for appearance in the court to both the parties. When both the parties appear in the court on the same day, the court will fix a hearing date. In the first hearing, the court may order to submit necessary documents and necessary witnesses stated in their claim and defence statement, and on the spot mapping in the presence of both parties and other villagers (if necessary)³¹.

Only after the execution of these orders the next hearing date will be fixed. In the hearing, a party may represent himself or he may present his lawyer to represent his case. The court should give a reasoned judgement. All the facts, claim, counter claim, pleadings of lawyers, reason of acceptance or rejection of the claim, defence statement as well as lawyers' pleadings should also be clearly stated in the decision of the court³². After hearing both the parties, the court gives its decision. One level appeal is a matter of right to the party.

After the final decision, again the decided case returns to the concerned District Court (court of first instance) for its execution and record. The concerned party should apply in the related District Court for the execution of the judgement within the time prescribed by law (in general within two years of the final decision).

Criminal Cases

Criminal cases (where one of the parties is the state) start after the registration of First Information Report (FIR) in a police office and that can be filed by any person. The police investigate the case and forward it to the District Public Prosecutor's Office with their opinion about the claim. The Public Prosecutor decides and prepares the claim and forwards the same to the District Court. The court records the statement of the accused. After analyzing the claim, defence, statement and other documents submitted by the claimant, the court makes first order whether the accused person should be kept into judicial custody or released in bail depending upon the possible punishment on the claim and whether the accused person is seen to be culprit on the grounds of proof available at that time³³.

The court also issues order to present the witness(es) and other necessary documents to both parties. After examining the witnesses and documents the court fixes the hearing date again. During the hearing, the Public Prosecutor represents from the claimant's side and the accused person may appoint his lawyer for his defence³⁴. If the accused person is poor and unable to appoint a lawyer, then a lawyer will be appointed by the court to defend him. If the person who filed the FIR wants to be represented by a lawyer he may also appoint his lawyer/s.

Time Limit for the Delivery of Judgement

There is also a legal provision of time limit to decide the cases. In case of the District Court, the judgment should be delivered within six months after the submission of defence statement or completion of time limit to submit defence statement³⁵. But in case of appeal it should be decided within three months after the receipt of the case file decided by the lower court³⁶. But very few cases are decided by the courts within the prescribed time limit. One of the studies conducted by FREEDeAL³⁷ shows that in the District Court it took one to two years to decide a case in the selected districts in 1993³⁸. But in case of the Courts of Appeal it varied from 7 months to 31 months during the same year in the selected courts³⁹. The Supreme Court took more time to dispose a case than the lower courts. In 1993, on an average it took 16 months to decide writ petition cases and 31 months for other types of cases⁴⁰. This may be either due to heavy work load of the Supreme Court or due to more time taken by the lawyers or may be due to more time required to study the case.

Types of Cases	Supreme Court				Courts of Appeal				District Courts			
	1991192		1992193		1991192		1992193		1991192		1992193	
Land	70	(1. 69)	369	(6.17)	5530	(28. 69)	6662	(27. 46)	19603	(21. 72)	21896	(19. 41)
Transactions	20	(0. 48)	63	(1. 05)	1637	(8. 49)	1965	(8. 10)	10920	(12. 09)	9888	(8. 77)
Family Dispute	525	(12. 69)	1052	(17. 59)	1638	(8. 51)	2547	(10. 50)	14498	(16. 07)	16088	(14. 26)
Forgery and Cheating	25	(0. 61)	33	(0. 56)	1046	(5. 43)	1361	(5. 62)	6842	(7. 58)	12343	(10. 94)
Looting	23	(0. 55)	37	(0. 62)	961	(4. 98)	957	(3. 95)	6478	(7. 17)	6013	(5. 33)
Defamation	1	(0. 02)	-	-	188	(0. 98)	222	(0. 92)	4651	(5. 15)	11139	(9. 87)
Election	2	(0. 05)	-	-	-	-	3	(0. 01)	249	(0. 28)	348	(0. 3)
Assault	4	(0. 09)	22	(0. 36)	427	(2. 22)	456	(1. 88)	5869	(6. 49)	5607	(4. 97)
Murder	298	(7. 21)	444	(7. 42)	700	(3. 64)	846	(3. 49)	2878	(3. 18)	2615	(2. 32)
Theft	22	(0. 53)	30	(0. 51)	972	(5. 04)	731	(3. 02)	2622	(2. 91)	2417	(2. 14)
Sexual Offence	-	-	6	(0. 11)	138	(0. 72)	104	(0. 43)	366	(0. 41)	347	(0. 31)
Corruption	80	(1. 94)	42	(0. 71)	263	(1. 37)	242	(0. 99)	81	(0. 08)	143	(0. 13)
Juvenile Delinquency	-	-	-	-	2	(0. 01)	-	-	27	(0. 02)	51	(0. 05)
Abortion	3	(0. 07)	4	(0. 06)	25	(0. 13)	30	(0. 12)	102	(0. 11)	53	(0. 05)
Miscellaneous	349	(8. 44)	284	(4. 74)	5008	(25. 99)	6307	(26)	15115	(16. 74)	23858	(21. 15)
Sub-Total	1422	(34. 37)	2386	(39. 90)	18535	(96. 20)	22433	(92. 49)	90301	(100)	112806	(100)
Habeas Corpus ⁴¹	158	(3. 81)	109	(1. 83)	27	(0. 14)	91	(0. 37)				
Mandamus ⁴²	85	(2. 05)	72	(1. 21)	50	(0. 25)	270	(1. 11)				
Prohibition ⁴³	27	(0. 65)	15	(0. 25)	-	-	-	-				
Quo-warranto ⁴⁴	3	(0. 07)	1	(0. 01)	-	-	-	-				
Injunction ⁴⁵					657	(3. 40)	1463	(6. 03)				
Certiorari ⁴⁶	2442	(59. 02)	3397	(56. 80)	-	-	-	-				
Sub-total	2715	(65. 63)	3594	(60. 1)	734	(3. 8)	1824	(7. 51)				
Total	4137	(100)	5980	(100)	19269	(100)	24257	(100)				

Source: Annual Reports of the Supreme Court 19916'2 and 19926'3

WORKLOAD OF COURTS BY TYPE OF CASES

This heading discusses mainly type of cases under different levels of courts and their percentage to the total cases during 1991/92 and 1992/93.

Table 2 shows that in the District and the Appellate Courts, the highest percentage of cases was about land disputes followed by family disputes: while in the Supreme Court the number of writ petitions was very high in comparison to the appeal cases. Writ petitions were almost two thirds of the total cases registered in the Supreme Court. Among the cases registered in the Supreme Court more than 50 percent were writs of Certiorary (59.02% in 1991/92 and 56.8% in 1992/93). The percentage of cases filed in the Courts of Appeal against the decisions of the District Courts was 21.33% and 21.5% in 1991/92 and 1992/93 respectively whereas in the Supreme Court it was almost five percent in both the years. If we exclude the Writ petitions from the Courts of Appeal and Supreme Court the percentage comes down to 21.8% (1991/92) and 18.86% (1992/93) in case of the Courts of Appeal and nearly two percent in case of the Supreme Court. The percentage of the cases registered in the Supreme Court against the decisions of the Courts of Appeal was 21.46% and 24.65% in 1991/92 and 1992/93 respectively. If we compare only the cases filed under the headings of appeal and ratification then the percentage of cases registered in the Supreme Court to that of the Courts of Appeal comes to 7.67 and 10.63 percent for the year 1991/92 and 1992/93 respectively. The classification of cases as published by the court does not reflect the cases relating to water management and water rights which may be a cumbersome task to study such cases. The workload of the Supreme Court seems to be very high. Cases per judge is about 295 in 1991/92 and 427 in 1992/93. It is even worse since a minimum of two judges are required to decide cases and sometimes three, five or more depending upon the gravity of the cases. This may be one of the reasons why more time is taken to dispose of cases in the Supreme Court than in lower level courts.

CONCLUSION

During the last 50 years there have been many changes in the court structure of the country. Why has there been such frequent changes? No systematic study has been done in this regard. However, whenever the tiers of courts were changed the authorities had given the explanation that the tiers were changed so as to save time and money of the disputing parties. Whether the three tier system or four tier system is more efficient to save time and money is a matter of further research in this area. When the three tier of courts was changed to four tier, it was assumed that the burden of the Supreme Court would be reduced. But this did not happen because every litigant wants to go up to the Supreme Court to satisfy himself.

In the process of changes and development, the present Constitution, the Constitution of the Kingdom of Nepal 1990, has brought some changes to the existing court structure. Some of them are as follows:

- a. The four tier system of courts has been changed into a three tier system which has helped save time and money of the disputing parties.
- b. The jurisdiction of the Supreme Court has been expanded to include the review of its own judgements under conditions stipulated under the existing laws. It was the prerogative of the King to issue an order to the Supreme Court in this regard under the constitution of 1962.
- c. Similarly, there are also provisions of public interest litigation in the National Code (Muluki Ain 9th. amendment 1986) as well as in the Constitution of 1990; before that such provisions were not made in the Nepalese laws.

The comparison of the workload of the courts for the last two years shows that less than 22 percent of the total decided cases were filed in the appellate courts. Though, according to the existing law, one level appeal is a matter of right for disputing parties. It indicates that nearly 80 percent of the disputing parties are either satisfied with the decision of the concerned courts or unable to file appeal due to financial or other social constraints. This may be an issue for further study.

NOTES

- 1 This paper is a revised version of the one presented at the IIMI, FREEDEAL-WAU-EUR-Workshop on Water Rights Conflict and Policy, Kathmandu, Jan. 22-24, 1996.
- 2 Associated with FREEDEAL
- 3 Royal Commission's Report, 1985: 3
- 4 Khanal. 1995: 48.
- 5 Royal Commission's Report, 1985: 3
- 6 B. Khanal, Op cit p. 49.
- 7 Ibid p. 49.
- 8 Ibid p. 50.
- 9 Shrestha, 1985: 128.
- 10 *The Interim Government Act* 1951, Chapt. 3, Sec. 32.
- 11 Shrestha. 1985: 168.
- 12 *Pradhan Nyayalaya Act*, 1952.
- 13 *Judicial Administration Act* 1959 (Sec. 4, 5, 6).
- 14 *Judicial Administration (Miscellaneous Arrangement) Act* 1961.
- 15 *Judicial Administration Act* 1974, Sec. 3 and 4.
- 16 Constitution 1990, Art. 85(1)
- 17 Central Bureau of Statistics, 1994: 2.
- 18 *Judicial Administration Act* 1991 Sec. 7.
- 19 *Judicial Administration Act* 1991 Sec. 8 (1).
- 20 Ibid Sec. 8(2).
- 21 Ibid Sec. 8(3).
- 22 Judicial Administration Act, 1991, Sec. 9 (1)
- 23 Ibid Sec. 9(2).
- 24 Constitution 1990, Art. 88 (4)
- 25 Ibid Art. 88 (5)
- 26 *Constitution* 1990, Art. 88(1).

- 27 Ibid **Art. 88(2)**.
- 28 **Sec. 10 of Courr Procedure, National Code (Muluki Ain), 9rh. Amendmenr 1986**
- 29 *District Court Rules* 1995, Sec. 7(Ka).
- 30 Ibid Sec. **22**.
- 31 *District Courr Rules 2052*, Sec. **24** and Sec. 184(Ka) of Court Procedure of the National Code.
- 32 *District Court Rules* 1995, Sec. **47** and Sec. 185 of Coun Procedure of the National Code.
- 33 Sec. 118 of Court Procedure of National Code.
- 34 Ibid Sec. **185**.
- 35 Sec. 14 of Court Procedure. National Code.
- 36 Ibid Sec. 198.
- 31 FREEDEAL, 1995.
- 38 Ibid P. **35**.
- 39 Ibid p. **40**.
- 40 Ibid p. **53**.
- 41 ‘Habeas Corpus’ =the writ, meaning “you have the body to testify”. This writ is used to bring a prisoner detained in a jail or prison to give evidence before the court [*Black’s Law Dictionary*]
- 42 ‘Mandamus’= ‘we command’. This is the name of a writ (formerly a high prerogative writ) which issues from a court of superior jurisdiction, and is directed to a private or municipal corporation, any of its officers, or to an executive, administrative or judicial officer, or to an inferior court, commanding the performance of a particular act therein specified, and belonging to his or their public, official, or ministerial duty. or directing the restoration of the complainant to rights or privileges of which he has been illegally deprived.
- 43 “Prohibition” is that process by which a superior court prevents an inferior court or tribunal possessing judicial or quasi-judicial powers from exceeding its jurisdiction in matters over which it has cognizance or usurping matters not within its jurisdiction to hear or determine.
- 44 “Quo-Warranto”=A common law writ designed to test whether a person exercising power is legally entitled to do so.
- 45 “Injunction”= A court order prohibiting someone from doing some specified act or commanding some one to undo some wrong or injury
- 46 “Certiorari”=Certiorari is a prerogative writ of superior court to call for the records of an inferior court or a body acting in judicial or quasi-judicial capacity. [Saha, 1994:131]

REFERENCE

- Black’s Law Dictionary (Sixth Edition). 1990. West Publishing Company.
- Central Bureau of Statistics. 1994. *Statistical* Pocket Book. Kathmandu: Central Bureau of Statistics.
- Khanal, Bishal. 1995. “Emerging Problem of Stability in Structural Setup of Judiciary in Nepal”. *Essays on Constitutional Law* Vol. 19.
- Legal Research and Development Forum (FREEDEAL). 1995. “Assesment of the Functioning of Court System in Nepal” Kathmandu: FREEDEAL.

- Muliki Ain* (National Code). 1986. Kathmandu: Law Books Management Committee.
- Report of the Royal Judicial Reform Commission*. 1985. Kathmandu: Law Books Management Committee.
- Saha, A.N. 1994. *Mitra's Legal and Commercial Dictionary*, (Fifth Edition). New Delhi: Eastern Law House.
- Shrestha, Gyaindra B. 1985. *Nepal Ko Kanuni Itihas Ko Ruprekha*. Kathmandu: Pairahi Prakashan.
- The Constitution of the Kingdom of Nepal*. 1990. Kathmandu: Law Books Management Committee.

Analysis of Supreme Court Cases and Decisions Related to Water Rights in Nepal'

*Bishal Khanal and Santosh K.C.*²

INTRODUCTION

Water is one of Nepal's most important natural resources and is available in almost all parts of the country. However, the availability of water varies according to season and location. In the past the demand for water was low as the population was low and the people were unaware about the multiple uses and benefits of water. Water was used for drinking, washing and irrigation. And since water was sufficient for these uses, there were hardly any disputes relating to consumption, distribution and other uses of water. Consequently, water related disputes were not regarded as significant and the state did not concern itself much with such disputes.

With the growth of the population and the development of the idea of multiple uses and benefits of water as well as the growth in demand, especially for irrigation, issues and disputes relating to water were raised from time to time in different parts of the country. The state then began to institute conflict resolution processes through preventive as well as judicial methods. As part of preventive method, the state appointed officials, many of who were revenue collectors, to look after water management (allocation, distribution, maintenance, etc.). These officials were known as Dhalpas, Birtawalas, Mukhiyas, Jimidars, and so on³. The state delegated power to these officials to hear and resolve conflicts within their (territorial) jurisdictions. Normally the Royal Court was not entitled to hear water related disputes. The legacy of King Ram Shaha's edict that the '*conflictraised due to the sharing of drinking water and canal water should not be heard by the royal court*' played dominant role until the modern history of Nepal⁴. However, some important cases relating canal water (forwarded by the local level authorities and advisers) had been resolved by the Prime Minister's court in the late Rana regime.

With the beginning of democratic exercise since 1951 the courts in Nepal were kept separate from executive and other form of influences. At first, the *Interim Government of Nepal Act* of 1951 and the *Pradhan Nyayalaya Act* (Apex Court Act) of 1953 constituted a separate appeal court. The process of separating subordinate courts was underway till the promulgation of the Constitution of the Kingdom of Nepal 1958 (and legislation relating to administration of justice thereunder). As a result, judicial responsibility vests upon the judiciary as constituted by some enactments. Hence disputes which need judicial settlement could be filed in the court of law. However due to various reasons people use non-formal adjudication (not the judicial process) in large number of cases. The Supreme Court (known as Pradham Nayayalaya from 1951 to 1956) was the apex in the judicial hierarchy.

As per the Nepalese legal system there was and is little scope for filing water rights related cases in the Supreme Court because water rights related cases as well as other cases were (are) first heard by the concerned local bodies (village level units) or District Courts or quasi-judicial bodies. And appeal against the decisions of these bodies are/were heard by the concerned District Panchayat (now known as District Development Committee [DDC]), District Court or Appellate level courts. The Nepalese legal system has adopted "one step appeal" system which allows little room for water related cases to reach to the Supreme Court. However, the Supreme Court can hear water related cases in two ways. First, it can hear such cases under the provision of special leave for appeal, i.e., with the prior approval of the Supreme Court an appeal against the decision of appellate courts can be filed in the Supreme Court. Second, under writ jurisdiction, if the citizens' fundamental rights are infringed and there does not exist proper and efficient legal remedy established under the existing laws, the Supreme Court can hear writ petitions even related to water rights.

This paper presents a preliminary analysis of cases decided by the Supreme Court between 1980 and 1990. The study team first went through all the cases, published and unpublished, for which the Supreme Court had given its judgements during the period mentioned above. The study team faced great difficulty in locating cases related to water rights because water rights is not category used to classify cases either in *Nepal Kanoon Patrika* (*Nepal Law Reporter*), the journal published by the Supreme Court, or in the court register. We were able to locate 91 cases which were somehow related to water rights issues and which were published in the above mentioned journal. In this paper we discuss these cases briefly under different headings. In the following section we will briefly discuss the classification of water related cases used in this paper, the title (category) under which the cases were registered, the origin of the dispute, the dispute resolution processes followed before the cases were filed in the Supreme Court and the composition (caste/ethnic group as well as individuals/ institutions) of the claimants and defendants. We will then briefly discuss 21 cases which we believe are directly related to water rights and in the last section we present our conclusion.

SUPREME COURT CASES ON DISPUTES RELATED TO WATER RIGHTS

Classification of Water Rights Case

From the view point of the subject matter of the cases filed and the verdict of the Supreme Court, cases have been classified into three categories (a) Directly related, (b) Indirectly related, and (c) Partially related cases. Directly related cases (23% of the total cases) include cases in which the petitions were put forth with claims or defenses relating to water rights and the Court's decisions also were limited to water rights issues. Indirectly related cases (55%) consist of cases which originated from of water rights issues or were somehow related to use or disposal of water but neither did the disputing parties ask the court to decide on water rights issue nor did the court do so; and also, those cases in which the disputing parties raised issues relating to water rights but the court did not speak on that issue or decided the cases on "procedural" and other 'technical' grounds. Partially related cases (22%) include those cases which are not related to water rights but were partially related to water resources or some how linked with water resources.

Registered Title and Origin of Supreme Court Cases

The analysis of Supreme Court cases (excluding partially related cases) shows that the majority of water related cases (more than 63 %) were registered as Writ of Certiorari. The other major headings under which the cases have been registered are Canal Water (5.6%), Land Encroachment (5.6%), Injunction (4.2%), and Murder (8.5%). (See Table-I).

Table I : Supreme Court Cases by Registered Title

REGISTERED TITLED	DIRECT	INDIRECT	TOTAL	
	Nos.	Nos.	Nos.	%
1. CANAL WATER	1	3	4	5.6%
2. CERTIORITY	15	30	45	60.4%
3. ENCROACHMENT	2	2	4	5.6%
4. INJUNCTION	3		3	4.2%
5. COMPENSATION		1	1	1.4%
6. DEFAMATION		1	1	1.4%
7. HOUSE DISPUTE		1	1	1.4%
8. LANDED PROPERTY		1	1	1.4%
9. MANDAMUS		1	1	1.4%
10. MURDER/ATTEMPTED MURDER		6	6	8.5%
11. PASTURELAND DISPUTE		1	1	1.4%
12. TERMINATION OF SURVEY		1	1	1.4%
13. TERMINATION OF TENANCY RIGHT		1	1	1.4%
14. TERMINATION OF DEED		1	1	1.4%
TOTAL:	21	50	71	100.0%

The study of the Supreme Court cases from the view point of origin of the cases reveals that about half of the cases registered (49.3 %) are related to canal water, followed by pond (21.1 %) and drain (15.5%) (See Table II). Among the canal related cases, the majority of the cases were related to sharing of canal water and construction of new/or branch canals in the system, which comprises 43% and 29% of the cases, respectively. The other major causes of conflicts were damage of canals and diversion of canals. Similarly in pond related cases, the notable issues of conflicts are encroachment of ponds and transfer of rights, which comprise 33% and 47% of the pond related cases respectively. Drain related cases are urban phenomena which occur from the problem of drain access, construction and encroachment of drain, roof water, etc. In addition, easement rights issue (drinking water for domestic animals) has also been found as one of the important causes of conflicts. Two other interesting causes of conflicts are conversion of *bari* (upland, usually unirrigated fields) to *khet* (Paddy fields), and sharing tap water.

Conflict Resolution Procedures Followed Before Registering Cases at the Supreme Court

Various formal and informal dispute resolution processes are generally followed before cases are registered in the Supreme Court. Out of the total 91 cases registered in the Supreme Court, 25 cases were registered directly in the Supreme Court and 66 cases after passing different stages of conflict resolution processes. Village Judicial Council (VJC), District Judicial Council (DJC) and quasi-judicial bodies are the prominent agencies which generally first attempt to resolve water related conflicts at the local level. The cases which they were not able to resolve and were taken to the Supreme Court constitute about 44 per cent of the total water rights related cases in the Supreme court.

Claimants and Defendants

Individuals, Groups and Institutions

The analysis of claimants and defendants of the Supreme Court cases reveals that the majority of cases were filed by individuals (82 %), whereas the majority of the defendants were institutions (54%). The cases filed by group of individuals or by institutions are very limited. They comprise of 12% and 7% of the total claimants respectively. Similarly, individual and group defendants comprises of 26 % and 21 % of the total defendants respectively.

Various institutions have been involved in mediating or hearing cases related to water rights. And, as mentioned above, the majority of the cases filed in the Supreme Court were against the decisions of these institutions. Of the 49 cases where the defendants were institutions, ten cases (20 per cent) were against District Judicial Councils (DJC). The other institutions which were defendants in the Supreme Court cases were Land Revenue Office (LRO), Town Panchayat (TP), His Majesty's Government (HMG), Village Judicial Council (VJC), and Chief District Officer (CDO). (See Table III).

Table II: Supreme Court Cases by **Origin** and Cause of Conflicts

REASONS	DIRECT	INDIRECT	TOTAL	PERCENT	
CANAL RELATED:	9	26	35	100.0%	49
Canal Construction	2	8	10	28.6%	
Canal Damage	2	1	3	8.6%	
Canal Water Sharing	2	13	15	42.9%	
Canal Diversion	2	2	4	11.4%	
Canal Flow Area Ownership		1	1	2.9%	
Canal Side Access/Path	1	1	2	5.7%	
DRAIN RELATED:	4	7	11	100.0%	15.5%
Drain Access	1	2	3	27.3%	
Drain Construction	1	1	2	18.2%	
Drain Encroachment	1	1	2	18.2%	
Drain Location		1	1	9.1%	
Drain for Roof Water	1	2	3	27.3%	
POND RELATED:	6	9	15	100.0%	21.1%
Pond Demolition		1	1	6.7%	
Pond Encroachment	2	3	5	33.3%	
Pond Right of Ownership	2		2	13.3%	
Pond Transfer of Right	2	5	7	46.7%	
OTHERS:	2	8	10	100.0%	14.1%
Breach of Contract	1		1	10.0%	
Change Bari to Paddy field		1	1	10.0%	
Easement Right		4	4	40.0%	
Public Tap Area		1	1	10.0%	
Public Well Encroachment	1		1	10.0%	
Ratification of Treaty on River		1	1	10.0%	
Tap Water flow Sharing		1	1	10.0%	
TOTAL:	21	50	71	100.0%	

Table 111: Different Institutions Involved in Supreme Court Cases

INSTITUTIONS	DIRECTLY RELATED	INDIRECTLY RELATED	PARTIALLY RELATED	TOTAL RELATED	
1 Chief District Office (CDO)	1	3			8.2%
2 District Judicial Council (DJC)	2	8			20.4%
3 Land Revenue Office(LRO)	1	1			
4 Town Panchayat (TP)	2	3			10.2%
5 His Majesty's Government (HMG)		6			14.3%
6 Village Judicial Council (VJC)	1	4	5		10.2%
7 Others	4	1	4	9	19.4%
- Village Panchayat (VP)			1	1	
- District Court (DC)			1	1	
- School		1		1	
- Power Office			1	1	
- Land Reform Office (LRFO)			1	1	
- District Panchayat (DP)	2			2	
- Regional Court	1			1	
- Zonal Court	1			1	
TOTAL	11 22.4%	26 53.1%	12 24.5%	49 100.0%	100.0%

Ethnicity/Castes of Claimants and Defendants

Analysis of the ethnicity\ castes of claimants and defendants shows that more than 50 percent of claimants and 44 percent of defendants were of Brahman and Chhetris, followed by the Newars who comprises 20 percent of claimants and 24 percent of the defendants. The reason why most of the claimants and defendants are Brahmans, Chhetris and Newars is that they more aware of their water rights then other communities because they are more privileged and have more exposure to the administrative and judicial areas than the other communities.

SUMMARY OF THE DIRECTLY RELATED CASES

A total of 21 cases fall under this category which are described briefly below under different sub-headings. It will be noted that the decisions of the Supreme Court are not always directly related

to water rights issues (which they were at the lower courts\ institutions). Many of the cases are about the jurisdiction of local bodies or lower courts to hear cases or make decisions: other cases are about (court) procedural issues: and a few cases are about property relations (ownership and use rights). In all these cases, the disputes were originally about water (pond, lake, canal, drainage and roof water) which were later transformed to other issues (jurisdiction, etc.) by the time they reached the Supreme Court. As a result, the Supreme Court has made very few decisions directly on water rights issues, at least during the period in review (1980 to **1990**).

Fishery Development in a Sacred Pond Does not Infringe Right to Religion

A writ petition was filed in the Supreme Court against the decision of Jhapa District Panchayat claiming that the use of the sacred lake known as Birat Pokhari for fishery and demolition of the temple located in the middle of the lake violated the fundamental right to religion of the petitioners. The petitioners urged the court to revoke the decision. The respondent, Jhapa District Panchayat, contended that under the prevailing law, **all** ponds and lakes located in the district and not owned by any individual are its property. **It** therefore has the authority to use them as it wished. The respondent requested the court for the dismissal of the claim on the above mentioned ground.

The Supreme Court, in its decision, stated that the right to religion of the people should be protected but fishery development in a sacred lake does not infringe on the right to religions

Jurisdiction of Local Bodies

(i) **A** writ petition was filed on the ground that the respondents encroached on their land of easement through which water flowed and converted it into a farm land. Prior to filing the writ petition in the Supreme Court, the Village Judicial Committee (VJC) had ruled the action of the respondents unlawful. Thereafter, an appeal was filed with the District Judicial Committee (DJC) which refused to hear the appeal on the ground of lack of jurisdiction **as** the issue in dispute also involved entitlement **of** landed property. The respondents approached the Supreme Court urging for the dismissal of the DJC's decision. The DJC denied the allegations stating that it had no jurisdiction to hear the case.

The Supreme Court however, held that DJC is the authorized body to hear appeals against the decisions of the VJC and quashed the DJC's decision⁶

(ii) In another case, a claim was filed with the VJC for the damage done to a canal and the VJC held the defendant's action unlawful. The defendant filed a writ petition with the Supreme Court claiming that the VJC lacked the jurisdiction to hear cases relating to public canal and water. The VJC, in its counterclaim, contended that it had decided the case in accordance with the provisions of the prevailing law.

The Supreme Court held that the VJC is the competent authority to hear cases relating to public canal and water, appeals against which lie with the concerned DJC under Section 41 of the Village Panchayat Act 1961. The petition was dismissed?

(iii) A dispute arose in Dang district because a canal was constructed upstream of an existing canal which disturbed the users of the old canal made for the use of farmers in a different Village Panchayat. A case was filed with Tari VJC but the Tari VJC forwarded the case to Tulsipur VJC. The latter VJC held that water should be provided to the Tulsipur Village Panchayat. An appeal against the decision was filed with the DJC which disagreed with the appellant's contention. Hence a petition for special leave for appeal was filed with the Supreme Court and the division bench, allowing the leave for petition, revoked the decision of the DJC.

Following the decision of the division bench, a writ was filed on the ground that it was an age-old canal. The respondent urged for the dismissal of the decision of the division bench. The Supreme Court held that since the source of water is located in Tulsipur Village Panchayat, it has the jurisdiction to ~~hear~~ the case and the decision rendered by the Tulsipur VJC was held valid⁸

(iv) In another case, the issue in dispute was the diversion of canal water. A case was filed with the VJC which granted the plaintiff the right to use the canal water. An appeal was filed with the DJC which restricted the use of the canal water. Hence, a writ petition was filed in the Supreme Court to dismiss the decision on the ground that the DJC's power to hear an appeal on such a case had already been transferred to the District Court. The DJC contended that its decision was made in accordance with the prevailing law of the country.

The Supreme Court held that the decision of the DJC restricting the use of the canal water was unlawful on the ground that it had no jurisdiction to hear the case?

(v) However, in another case of similar nature relating to sharing of canal water the court disagreed on the point that DJC had no power to hear an appeal. It was ruled that the DJC is empowered to hear an appeal under Section 13 of the Administration of Justice (Reforms) Act, 1974.¹⁰

(vi) In another case, dispute arose because of the construction of a new canal, tapping water from a stream which was already used by the petitioner. The new canal reduced the quantity of water flowing to the petitioner's land. The case was initially filed with the VJC which restricted construction of the new canal. An appeal was filed with the Gorkha District Court urging for the dismissal of the decision by the VJC. The District Court did not entertain the petitioner's claim. He then filed an appeal in the Regional Court, Pokhara, requesting that the District Court's order be dismissed. The Regional Court did not entertain the issue. Finally, a writ petition was filed in the Supreme Court urging the court to quash the order of the Regional Court. The respondent refuted the charge, arguing that the VJC had decided the case under its statutory authority.

The Supreme Court held that an appeal against the VJC's decision may only be filed with the DJC. The District Court and the Regional Court have no authority to hear such an appeal, and if heard, it is unlawful. The court quashed the orders given by the District and Regional courts on the ground that they had no jurisdiction to hear the case relating to sharing of canal water!¹

(vii) A writ petition was filed in the Supreme Court against Nepalgunj Municipality for refusing to grant permission to build a house on the ground that the construction site encroached a drain. The petitioner claimed that the municipality had no authority to resolve disputes relating to right

and entitlement of property. The respondent contended that no one should be allowed to construct a house by encroaching a public drain **so permission** was not granted in accordance with the Municipality Act **1962** and Rules framed thereunder.

The court, differing with the respondent's contention, held that the municipality did not have the power to resolve disputes relating to rights and entitlement of property and such cases should be resolved by the concerned court.¹²

Power of Local Bodies to Open a Drainage

(i) A writ petition was filed on the ground that Kathmandu Municipality had decided to shed waste water in a drain constructed through the petitioner's land. The petitioner claimed that the Municipality had no legal authority to decide issues relating to landed property. The Municipality contended that issues relating to drains should be resolved by the Municipality and it had performed its task in accordance with the law.

The Supreme Court held that the Municipality is empowered to resolve disputes relating to drainage and as the Municipality, in the present case, had decided only on the issue of the drainage, the action of the municipality was **valid**.¹³

(ii) Similar issues were raised when the respondent of a case started to construct a drain through the petitioner's private land to which the latter objected. The respondent filed a complaint with the CDO Office, Lalitpur which asked the petitioner to allow the construction work to continue. Hence, the petitioner, requesting the dismissal of the order, filed a writ petition stating that the CDO had no authority to decide such issues. The respondents contended that the dispute was not over the construction of a new drain but over the maintenance of the existing one.

The Supreme Court held that the CDO had no judicial authority to decide cases relating to drainage but only the Municipality could. The court held the action of the CDO **unlawful**.¹⁴

Consultation with the Disputing Parties is Compulsory

(i) A writ petition was filed in the Supreme Court on the ground that the defendant had diverted a canal to his land which made the petitioner's land dry. The case was at first filed with the local VJC but the VIC did not agree with the claim. An appeal against the decision was filed with the DJC which quashed the earlier decision and established the petitioner's claim. The defendant filed a writ in the Supreme Court contending that the DJC did not allow him the opportunity of explanation which was in violation of the principle of natural justice. The respondent contended that the decision made by the DJC under a statutory authority should be held valid.

The Supreme Court held that opportunity should be given to the disputing parties to present and defend their cases failure of which means the violation of the principles of natural justice under Section 202 of the chapter on Court Procedures of Muluki Ain (National Code). Hence the decision of the DJC was held **unlawful**.¹⁵

(ii) When a pond owned by a Village Panchayat (VP) was handed over to a school, some members

of the Village Panchayat challenged the transfer of ownership. The pond was returned to the VP but the Zonal Commissioner issued an order stating that the action of returning the pond was unlawful. The chairman of the Village Panchayats then filed writ petition in the Supreme Court urging for the invalidation of the Zonal Commissioner's order. The respondent contended that it was done to maintain security and also to make the school economically sustainable.

The Supreme Court held that the Zonal Commissioner had no judicial authority to quash the Village Panchayat's action without giving an opportunity for explanation hence it was declared as unlawful.¹⁶

Restriction on the Imposition of Levies by Local Bodies

An injunction writ petition was filed with the Koshi Zonal Court on the ground that the plaintiff had been asked by the District Panchayat to pay levies for the extraction of sand and stones from the Koshi river. The Zonal Court held that since the work was done under a bilateral agreement between Nepal and India, the District Panchayat had no authority to charge a levy. The chairman of District Panchayat filed an appeal in the Supreme Court against the decision. The respondent claimed that he did not have to pay any local levy or charge because he was supplying the stones and sand under an agreement reached between the two governments.

The Supreme Court held that the respondent is simply a contractor authorized to carry stones from the Koshi, the main parties being the Government of India and Nepal. Therefore, the District Panchayat cannot levy tax or fees under the District Panchayat Act.¹⁷

Individuals Cannot Prohibit Access to Public Drain Located in Private Land

A writ petition was filed on the ground that Kathmandu Municipality had not given permission to build a house on the ground that the proposed building site will encroach on a public drain. The person concerned disagreed with the Municipality's decision and filed a writ petition stating that the municipality did not have the authority to deny him the permission because the drain was constructed in his private land. The Municipality contended that no individual can claim ownership of the drain because it is a public property made for public use. Therefore, the petitioner should not be allowed to make a house on the drain site.

The Supreme Court held that although the drain was located in the petitioner's private property he cannot claim personal right over it and must give access to the public. Hence, the petition was dismissed.¹⁸

Right to Shed Roof Water in Other's Private Land Does not Create Ownership Right in the Land

On the northern side of a person's house there is three feet of open land. A case was filed on the ground that on the northern side of the plaintiff's house there was three feet open land where the roof water usually fell. On the basis mentioned the house owner encroached the land and claimed as his own.

The defendant contended that the plaintiff could not claim ownership on the land on the ground that the roof water from **his** house fell on the disputed land. The defendant claimed himself **as** the owner of the land.

The Supreme Court held that the legal right of the plaintiff could not be created only on the ground that roof water **from** his house fell on the disputed land.¹⁹

Ponds and Lakes Located Within the Territory of Local Bodies which Are not Owned by Anyone Are the Property of the Respective Local Body

(i) A writ petition was filed against a Municipality which claimed that the pond adjoining the petitioner's house **was** its property. **The petitioner claimed that** he should be regarded as the owner of the pond because he had **been** paying land tax for it. The Municipality contended that **as** per the Municipality Act, 1962, it is the owner of the pond and urged the court to dismiss the writ petition.

The Supreme Court, upholding the claim of the Municipality, ruled that the pond in dispute is the property of the municipality because ownership right of the pond was not claimed by **anyone**.²⁰

(ii) In another case, an injunction petition was filed on the ground that a pond constructed for religious purposes by the ancestors of the petitioner was claimed by the Village Panchayat **as** its property as per the provisions of the Village Panchayat Act. The defendant refuted the petitioner's claim and contended that the disputed pond was the Village Panchayat's property.

The Narayani Zonal Court dismissed the petition stating that an order for injunction could not be issued if it raised right and entitlement issues.

The Supreme Court upheld the Zonal Court's decision which ruled that the Village Panchayat had **no authority to claim ownership right over the private pond only** on a ground that it is located within the territory of the Village Panchayat?

(iii) A dispute arose when a lake, owned by Ram Janaki temple, was given to the plaintiff for use and exploitation of its products under an agreement reached between the plaintiff and the Ram Janaki Temple Management Committee. The Village Panchayat then claimed the pond as its property and restrained the plaintiff from using it. The plaintiff filed a petition for injunction on the ground that the Village Panchayat violated his civil rights. The defendant denied the charge and urged for the dismissal of the claim because the Village Panchayat Act clearly stated that Village Panchayats own ponds and lakes located within their territory.

The court held that the Village Panchayat can not interfere in the property of the temple because the pond has been its property since time immemorial. The court further stated that apart from having sacred and religious values, it was the property of the temple on the basis of custom and tradition. Therefore, the V P could not claim ownership of such properties falling within its jurisdiction merely on the basis of existing general legal provisions?

Customary Use of Water Sources Can Create Perpetual Use Rights

(i) A dispute arose when the petitioner constructed a boundary wall preventing access to others to the well in her land. The action resulted in shortage of drinking water for the people of that locality. On receiving a complaint, Kathmandu Municipality pulled down the newly constructed wall and made the well accessible to the local people. A writ petition was filed with the Supreme Court against the Municipality's action. The respondent, the Municipality, contended that it had pulled down the wall to make drinking water available to people of that locality.

The Supreme Court held the action of the municipality unlawful but ruled that the local people should be given access to the well because they had been dependent on it for a long time. The Supreme Court through this decision upheld use rights based on customary water use. Its decision allowed for the use of water located in someone's private property on the ground that they were long-term users.²³

(ii) In a dispute over land encroachment, a case was filed claiming that the defendant encroached upon the land and a pond located on the disputed land. The defendant denied the charge.

The Supreme Court held that the encroachment of the land by the defendant is unlawful but, at the same time, it allowed both the parties to use the water in the pond as per their convenience because they had been jointly using it for a long time. The Supreme Court upheld this principle on the basis of customary right to use of water by both the parties.²⁴

(iii) A petitioner filed a case in the Pyuthan District Court requesting that a) the defendant pay him compensation for damages to the wooden pipes he had installed to supply water to his canal and b) to establish his rights to use the canal water. The defendant denied the allegations.

The Pyuthan District Court ordered the defendant to pay compensation for the damage of the pipes. The Mid Western Regional Court held that if the new canal has disturbed the old one, no claim should be entertained. The Supreme Court held that all the farmers have equal right to use the disputed canal water. They can use the water as done traditionally and customarily, i.e., following the turn by turn rule which they themselves had made. They may face legal obligations if they violate this rule and deny some farmers access to water.²⁵

CONCLUSION

Laws relating to water resources in Nepal have a long history. However, due to sufficient availability and lack of multiple use of water, disputes relating to water resources had not been thought as a serious problem in the eye of the state. Besides, the disputes relating to water resources require quick disposal and, on the spot, if possible. Since long past most of the disputes relating to water resources in Nepal have been resolved by the local officials and influential persons like Thakali, Birtawala, Kipatia, Subbas, Jamindar, Chaudhari etc. In many occasions the state had delegated its power of resolving disputes to those personalities who played a role in maintaining

harmonious relations between the government and local people. With the beginning of democratic exercise in **1951** this method of settlement of disputes was gradually abandoned. However, even after **1951**, the **state left** these disputes to be resolved **by** local influential persons and to some committees at the village level. As a result, the chances to file cases in the state courts became minimal. However, from **1959 to 1981** the District (trial) Courts had the jurisdiction to hear water related disputes. In **1981** this jurisdiction was again transferred to approximately **4000** Village Panchayat Judicial Committees (VJC) and appellate jurisdiction was given to **75** District Judicial Committee (DJC). Hence, the scope for filing cases in the courts in general and the Supreme Court in particular become very limited.

The Supreme Court, therefore, has heard very few cases directly related with water rights issues. The percentage of cases relating to customary rights issues, especially, water rights related conflicts, is nominal in the Supreme Court in comparison to district and appellate courts.

From the review of these cases it **is** clear that the Supreme Court has explicitly recognized customary water use rights of the users, even going against the concept of private property and control over its use **by** the owner. The decisions of the Supreme Court also reveal that the members of local bodies (VDC, DDC, etc.) **are** confused about the jurisdiction **of** the local bodies. This fact clearly indicates the need for legal orientation programs **for** the district and village level quasi-judicials regarding exercise of their legal mandate and the basic judicial principles.

The water resources situated within the territory of a local body and not owned by any individual or institution and not used by the government is legally presumed to be the property of the concerned local body. The concerned local body is legally authorized to utilize such water resources and levy use-charge from its beneficiaries. The local body may even hand over such resources to others **by** concluding an agreement and levying some fees for their use. But HMG, by an agreement, may provide the right to use such resources to a foreign country or its citizens even without consulting the local body. Such an act of the government can suspend or terminate the legally awarded power of the concerned local body which may have financial implications for it.

If the decision of the Supreme Court regarding roof water falling on another person's private land is followed to its basic legal provision then we find a unique legal provision in this regard. Section 1 of the chapter on House Construction in the Muluki Ain (National Code) states that a house can be constructed in such a way that the roof water can fall on another person's private land. The owner of the land cannot prohibit such an act but if he constructs a house on such a land then he can cut the overlapping part of the neighbour's house. This legal provision restricts ownership rights of the land owner. However, the Supreme Court, further explaining this legal provision, states that the customary practice to let the roof water fall on other's land cannot create ownership right of the house owner from whose house the roof water falls.

On the whole, the Supreme Court has been more realistic than legalistic in resolving disputes. In some cases the court has held that though the lakes and ponds of within the territory of any Village Panchayat belong to the that VP but it cannot intervene if they are **used**, occupied or land owned by religious endowment for sacred or development purposes. The court has held that

encroachment of any individual's land for the construction of public canal to benefit the wider public is not unlawful. Similarly, in the case of construction of winter canal through a person's land the court compelled the land owner to give access to the canal every winter on the ground that this facility had been secured for a long time.

Likewise, in some instances the court has ignored the right to property of the defendant and upheld the customary rights to the people by supporting the decision to provide access to a drain in the respondent's land. Moreover, in other cases, the court held that the land owner should not deny access to drinking water from the well in his land.

However, in a few cases the Supreme Court has taken an escapist stance by not giving clear cut verdicts. In many cases it has refused to hear cases on the basis of jurisdictional error. The courts took this stance because during the earlier (Panchayat) regime, the courts had to face many difficulties in protecting civil liberties of the people.

NOTES

- 1 This is a revised version of the paper delivered at the workshop on Water Rights, Conflicts and Policy, held in Kathmandu, January 22-24, 1996.
- 2 Bishal Khanal is deputy Registrar in the Supreme Court Registrar's office and Santosh K.C. is Economist; both are also affiliated with FREEDEAL.
- 3 Khanal et al., 1991: 60-61; see also Bhattarai, this volume, for explanation of these terms.
- 4 Ibid. P. 132
- 5 NKP 2042. P. 100, Code No. 013.
- 6 Yogeshwor Rajure Vs. DJC Dang and others. NLR 2045, P. 509 Code No. 068.
- 7 Damber Bahadur Gurung Vs. Juddha Bahadur Gurung & others, NLR 2045 P. 670 Code No. 070
- 8 Indra Bahadur Shaha Vs. VJC Tulsipur, Dang and others, NLR 2045 P. 926- Code No, 072
- 9 Narayan Subedi Vs. Meen Bahadur Karki and others, NLR 2046 P. 188-Code No. 076
- 10 Yam Bahadur Khatri Vs. DJC Tanahu and others, NLR 2045 P. 667-Code 069
- 11 Bal Krishna Pandey Vs. Western Regional Court, Pokhara & others, NLR, 2046 P. 767-Code No-078.
- 12 Kedar Nath Tandon Vs. Nepalgunj Town Panchayat and others, NLR 2044 P. 1032-Code No-61
- 13 Dharma Ratna Sinurkar Vs. Suryamuni Sakya & others, NLR 2044, P. 636 Code No- 009.
- 14 Laxmi Shakya V CDO Lalitpur and others, NLR 2043, P. 151 Code No. 028.
- 15 Lalit Bahadur Rimal Vs. Nara Bahadur Rimal and others, NLR 2043, P. 517- Code No 035.
- 16 Mahendra Ray Yadav Vs. Zonal Commissioner, Janakpur & others. NLR ,2045, P. 824-Code No. 071- see also Baldev Shahu Vs. LRO, Bara & others, NLR 26, No. 4- code No. 003.
- 17 Ramesh Shrestha Vs. Dhananjaya Prasad Acharya. NLR 2044 P. 593 Code No. 053.
- 18 NLR 2044 P. 768.
- 19 Ram Maya Shrestha Vs. Madhav Prasad Pradhan & other NLR 2046 P. 822-Code No-079.
- 20 Saukhat Ansari & others Vs. Jaleswor Nagar Panchayat and others, NLR 2046-P. 987-Code No-081.
- 21 Ram Babu Prasad Yadav & other Vs. Babulal Shaha Teli and other NLR 2047 P. 698-Code No. 087.
- 22 Kansi Thakur Bhumihar Vs. Hiya Shani Malaha & others, NLR, 2043 P. 941- Code 044.
- 23 Shanta Devi Shrestha Vs. Kathmandu Town Panchayat, NLR 2043 P. 636-Code No-039.
- 24 Ram Bahadur Tamang & other Vs. Krishna Raj Lama, NLR 2043. P. 465-Code No-034.
- 25 Ak Bahadur Maskey and others Vs. Punarnam Dhami, NLR, 2039- Code No. 096.

REFERENCES

Khanal, Bishal and Ram Prasad Badri, 1991.*Sawal Sanak Ra Kehi Rukkahara* (Collection of legislative documents of Nepal). Kathmandu:Janak Bhandari.

Nepal Kanoon Parrika (Nepal Law Reporter). Various years. Kathmandu: The Supreme Court.

Judicial Trends in Water Law

A Case Study'

Veera Kaul Singh and Bharath Jairaj²

INTRODUCTION

Water is being used and abused indiscriminately in India. Conflicts and disputes, therefore, continue to arise over issues of water sharing, water allocation, liability, sanctions, usages, water markets and water pricing. Disputes are resolved either in the formal **or** the informal sectors. At the informal, local level, there are the Panchayats and ~~the~~ Naya Panchayats which help in solving some of the water related disputes. Other disputes **are** brought to the courts.

This paper presents an analysis of the water related cases brought to the High Courts and the Supreme Courts between 1887 AD and 1966AD. **The** earliest case dealt by the court was that of *Emperor Vs. Halodhur Piroe* and the last case included in our study is that of *Indian Enviro-legal Council Vs. UOI*, which was decided in April 1996. Water related cases spanning over a century have been collected, documented and analysed to understand and get a better and holistic perspective on the existing and emerging water related issues and trends.

The role of ~~the~~ judiciary in the laying down of **rules** in ~~the~~ adjudication of these cases is vital for a holistic understanding **of** the entire problem and for tracing the evolution of ~~the~~ concept of development of water rights vis-a-vis different laws. As we trace the history of water law cases, we can clearly discern how, on the one hand, the judgements delivered by the courts have altered the ambit of the law and how, on the other hand, changes in the laws have affected the judgements in cases relating to water. The cases also reveal how rights vis-a-vis water law have emerged, enlarged and **are** still growing strong; how Public Interest Litigation (PIL) has been used to widen the ambit of the court as well as law so that all citizens and individuals whether they are affected

or not can move the court and get grievances redressed. Our analysis revealed that the earlier judgements were based solely on the facts of the case and that only recently have the judges looked into the larger issues of equity, economics of source and environment. Further, environmental concerns and issues have emerged strongly in the **80s** of this century. During decade there were some important development which led to significant changes in the way water rights cases were filed and decisions delivered. Some very important cases were decided, public interest litigation (PIL) as a source and means of getting environmental rights justified as well as pro-active stand of the judiciary (judiciary activism) emerged, the concept of locus standi was liberalized and the scope of environmental rights and justice emerged.

In this paper we will first discuss cases which were filed and judgements delivered under Criminal Law, followed by cases filed under law of Torts, and Administrative Law. We will then discuss the developments in water related laws, followed by development in Constitutional Law and of water rights. The major category of laws which are relevant for the cases reviewed are Criminal Law (especially Indian Penal Code, **1860**, the Criminal Procedure Code, **1878** and the Criminal Procedure Code, **1972**), the law of Torts, Constitutional Law (especially Articles 21, 32, 226, 297), Easements Act, **1882**, and laws specific to water (such as the North Indian Canal and Drainage Act, **1873**, the Ferries Act, **1897**, and the Water Act, **1974**). In some cases, the existing laws were re-interpreted or interpreted differently by the courts, leading to development of law in favour of the public and better environment. These cases deal mainly with the responsibilities of the state and municipal bodies in providing services, such as potable drinking water, and environmental issues.

THE LEGAL FRAMEWORK

Criminal Law

Until the Water Act was enacted in **1974**, disputes relating to water, including pollution, were booked under the Indian Penal Code (IPC), **1860** and the Criminal Procedure Code (CrPC), **1878** (and later the amended Act, i.e., the Criminal Procedure Code, **1972**). The British had enacted the IPC **1860** and the CrPC **1878** for better administration of their colony and to help them (the British) to better exploit the natural resources of India. These laws were applicable uniformly all over the country. The types of cases that were booked under these laws related to public nuisance, mischief, theft, and so on.

The law relating to “mischief” in the IPC has been used in litigation related to drainage. In the case of *Aluru Srinivaulu Vs. Somiah Chetty*, 1967, the accused blocked the drain and obstructed the flow of sewage from the complainant’s house. The Hon’ble Court held that a drain was ‘property’ and that the act of blocking it amounted to “causing a change... so as to destroy its utility...”, thus amounting to “mischief” under Section **425** of the IPC.

Almost all the cases discussed in the category of surface water /tanks relate to the *actus reus* involved in forcibly opening canals, erecting dams, and cutting bunds or channels. The issues dealt with in this category are mostly rights based issues like riparian rights, natural rights and easements

rights which are discussed to understand and ascertain the extent and the nature of the dispute. The cases are generally filed under Section 430 of the IPC, i.e., "... mischief by doing any act which causes...a diminution of the supply of water..." .

Issues concerning encroachments on navigable rivers are filed under Section 290, of the IPC. In the case of *King Emperor Vs. Fateh Din, 1909*, the court held that encroachment on a tidal navigable river did not amount to a public nuisance so as to attract Section 290. In the IPC, the need to produce evidence to show that such an encroachment satisfied the ingredients of "public nuisance" as enumerated in Section 268 of the IPC was stressed. In an equally striking case of *Emperor Vs. Mahadeo Prasad, 1923*, it was held that running water which was not reduced into possession could not form the subject matter of theft. In these cases the courts lay stress on the proof of the actual diminution of water supply. In addition, since these are criminal law cases, the "intention" of the offender has also to be proved. This has made litigation rather technical and, in many cases, rather cumbersome.

In other instances, the courts have directed the parties to approach alternative forums and statutes for effective redressal of their disputes, therein conceding the inadequacy of criminal law to deal with issues of this nature. For example, in the case of *Ashutosh Vs. Emperor, 1930*, where a canal distributary was forcibly opened, the learned Judge stated that the section applicable to the case in question was Section 70 of the Northern India Canal And Drainage Act, 1873 and not the IPC provisions. In another case (*Emperor Vs. Halodhur Piroe*), the court observed that disputes concerning the right to use water should be rightly placed before a Civil Court and not before a Criminal Court..

There are also some cases dealing with irrigation matters and criminal law. The earliest of these cases is the case of *King-Emperor Vs. Fateh Din, 1909*, in which the respondents were charged under Section 430, IPC as they had prevented others from irrigation to the extent to which they were entitled. The Court held that the condition precedent to conviction under Section 430 is that mischief (as under Section 425 of the IPC) must be done. Any act resulting in the diminishing of the value of the property needs to be proved.

Water can also be the subject matter of theft or mischief. In the earlier mentioned case of *Emperor Vs. Mahadeo Prasad, 1923*, the court ruled that in India, as in England, water, when conveyed in pipes and thereby reduced into possession, can be the subject of theft. Similarly, in the case of *Ashutosh Ghose Vs. Emperor, 1930*, the Calcutta High Court held that before a person can be convicted under Section 430 of the IPC for interfering with water supply, the intention to inflict loss must be proved.

The penal consequences of fishing were initially rather ambiguous. In the earlier discussed case of *Emperor Vs. Halodhur Piroe*, the accused was let off even though he voluntarily corrupted a river by strewing branches for fishing, because Section 227 talked only about 'public springs and reservoirs' and not 'rivers'. But this was altered by subsequent cases and the position is rather clear now. Fish in open and unenclosed waters are *fares naturae*. They are not capable of possession and hence cannot form the subject matter of theft. Even in private waters, if the fish are able to move in and out, fishing does not amount to theft. But where the sluice of a private enclosed tank is closed and the fish are unable to escape, then they are capable of being objects of theft.

Despite a special legislation which deals with water pollution most of the litigations has been filed either under the general criminal law or under Article 32 and 226 of the Constitution of India. Many cases have been filed under Section 133 of the IPC, which deals with "public nuisance". The issues in these cases dealt essentially with the question: "what amounts to a public nuisance?" In *Venkata Reddy Vs. State*, 1953, the Madras High Court ruled that raising the level of a bund, thus making it prone to mosquito breeding, would constitute the offence. On the other hand, in *Emperor Vs. Halodhur Piroe*, the court held that corrupting a river by strewing branches for the purpose of fishing did not constitute the offence. However, the most striking of these decisions was given in *Emperor Vs. Nama Rama 1904*, where the court stated that strewing plants in a continuous stream with a view to extract fibre amounted to "fouling of water", as envisaged under Section 290 of the IPC.

The question of environment was not totally ignored in the earlier court decisions. A landmark judgement was given by the Court in 1926 in the *Desi Sugar Mills Vs. Tupsu Kahar* case in which the question that came up for decision was whether Section 133 (1) of the CrPC was applicable to a case dealing with pollution of a river by effluents from a factory. It was held that the section was applicable to cases where rivers were polluted. The Court looked into the larger question of environment and said that everyone must recognize that it is of utmost importance to keep the sources of public water supply pure and free from pollution by industrial factories.

Law of Torts

The British introduced the law of Torts and the defence of sovereign immunity. The law of Torts based on various principles that had been formulated by the British Courts was transplanted to the Indian legal system. These principles were applied to conflicts on issues of negligence and nuisance. The law of torts is based on the principle that where there is a right, there is a remedy. Thus, the principles of strict liability as evolved in the famous *Rylands Vs. Fletcher* case and the defences available came to be applied to the Indian situation.

The earliest application of the *Rylands Vs. Fletcher* rule in India was made in the case of *Secretary of State Vs. Ramtahal Ram*, 1925. This was a case dealing with negligence in torts, and the concepts of duty and liability of the government vis-a-vis the irrigation canals. The Court held that the defendant had a duty of care to protect others from damage caused by the overflow of water from the canal. Because the duty was not fulfilled or no adequate precautions were undertaken, the defendant was liable for the damage caused and the plaintiffs were entitled to compensation.

The growth of the law of Torts as another important judicial trend can be discerned from the various cases that we have collected, documented and analysed. After the famous *Rylands Vs. Fletcher* case, some defences became available vis-a-vis liability. One defence among them was 'Act of God'. In the case of *Puroshathama Rajaliar Vs. Kannaya*, 1928 the court defined 'Act of God' as the occurrence of an act, exceeding the ordinary contemplation, and one which no reasonable man would anticipate. The main issue in contemplation was whether the breach of a river bank and consequent floods diminished the petitioners crop and whether this amounted to an 'Act of God' or not. The court held that an extraordinary flood is one which no reasonable man would anticipate, hence it is an 'Act of God'.

A question that came up for decision in the *M & S M Railway Co. Vs. Maharaja of Pithapuram, 1937* case was whether a railway company official was justified in cutting open a dam in order to protect a railway bridge from being washed away by floods, when this act resulted in the flooding and damaging of the plaintiff's land. Does the fact that the act took place on the petitioner's own land and that it was done with a good motive make a difference in this claim for damages? The Hon'ble Court held that a riparian owner who commits an act in order to save his property from being flooded and this act diverts the flood to, and damages, a neighbour's land, will be liable for the damage. The fact that he had a good motive and that the act was carried on his own land does not change the liability. Since the railway official changed the flood channel, thus damaging the plaintiff's land, the railway company is liable for damages. The rule that the Hon'ble Court applied in this decision was that a riparian owner may make defences against flood anywhere on his land provided he does not interfere with a recognised flood channel which results in damaging a neighbour's property.

On issues pertaining to the burden of proof in water supply cases, the courts seem to agree that the plaintiff that alleges negligence on the part of the Municipality has to prove the negligence. In *Ramdas Tapandas Vs. Sukkur Municipality, 1940*, and in *Partab Daldas Vs. Hyderabad Municipality, 1932* the Court held that there could not be a presumption that the leakage was due to the negligence of the respective defendant; the burden was on the plaintiffs to prove that their buildings were damaged by leakage from a Municipal pipe. However, earlier, in another case (*Kasia Pillai Vs. G.K. Pillai, 1929*) the Court ruled that it is the duty of the government to take all necessary precautionary steps to prevent overflowing of an irrigation canal and it shall be liable to compensate, if someone's property is damaged.

An important rule was applied and upheld by the Madras High Court in the case of *Shanmugavel Goundan Vs. Venkataswami Asari, 1936*, where the court held that storing of water for agricultural purposes is a natural and lawful use and is not actionable for damages unless negligence is proved. This rule was deemed necessary in order to protect customary usages of water. In another case, the Court stated that the owner of the upper lands or the upper riparians can discharge the surplus of naturally brought water from his land on to the lower lands, provided there is no damage.

In *N. Arivudai Nambi Vs. State of Tamil Nadu*, the court held that in case of diversion of water from a river by forming a channel manually, the landlords had the right to take water from lands situated on the banks of the river, provided there is no complaint by the lower riparian owners that their share of water was affected by this act.

In another case (*Sarju Prasad Vs. Mahadeo Prasad, 1932*), the question that came up before the court was whether a compensation suit was maintainable in case of deficiency of water resulting from the reduction of the dimension of a sluice. The court held that if the reduction of the size of the sluice results in the decrease of the water supply to which the plaintiff is entitled, then the mere fact of the sluice being part of the canal works cannot be relied on as justification for interference with the plaintiff's rights. The court reversed the decree of the lower court and sent it back for re-admission and to determine whether the plaintiff's have, inter-alia, an easement to receive water in excess of the quantity which they receive through the reduced sluice, and whether they have suffered any damage.

There are other cases dealing with surface water which have been filed under the law of Torts — under negligence and nuisance. In the case of *Stare of Gujarat Vs. Patel Mohanbhai Mathurbhai, 1974*, of nuisance, the defendants had dug a trench on their own land in which rain water had accumulated. The water then precolated to, and damaged, the foundation of the plaintiffs house. The Court refused to apply the distinction between natural and unnatural use of land as laid down in the *Rylands Vs. Fletcher* case and instead applied the doctrine of *sic utere tuo ut alienum non laedas*, i.e., that where the defendant was negligent and could have prevented the damage from being caused, he would be liable for all such damages caused to the plaintiff. In a similar case the government was held liable for the construction of a canal which resulted in the percolation of water in the respondent's well, thereby submerging his water pump and ultimately drying his crops.

Development of Administration Law/Duty of Municipality and Municipal Corporations

On analysing water related cases we see another important aspect of the development of law, namely, the development of the duties and liabilities of the administration and the municipal corporations and the **use** of other laws in addition to Criminal Law and the law of Torts for the settlement of disputes. This has assumed great importance because of the alarming growth of urbanisation which has resulted in problems relating to sanitation and drainage. The Courts have been approached very often to compel municipal authorities to provide adequate sanitation. This *is* normally done by filing a writ of mandamus against the appropriate authority'

In the case of *Kali Krishana Narain Vs. Municipal Board, 1943*, Lucknow, the Court ruled that the Municipal Board had the duty to get drains periodically checked **by** competent persons so as to ensure that they remain in a proper working condition. In this case, the Board was held liable because the appellant's house collapsed due to its negligence in carrying out its duty of getting the drains checked. But in some other cases, especially before Independence (i.e., before 1947), the Municipalities have been given the benefit of doubt. In *Partab Dialdas Vs. Hyderabad Municipality, 1932*, a pipe maintained **by** the defendants leaked and the water damaged to the appellant's building. In this case, the Court ruled that the burden of proof of the negligence of the defendant was on the plaintiff-failing which the action would fail. A statutory body is not liable for damages unless the power conferred upon it **is** negligently exercised. In the Lahore Municipality case (pre-Independence), titled *Syed Muzzafar Hussain Vs. Administration of Lahore Municipality, 1942*, the court was of the view that the drainage arrangements should be rearranged only if the system was found to be dangerous to public health or interfered with the ordinary comforts of individuals. This would, however, depend on the facts and circumstances of a case.

In *Kashi Nath Vs. Municipal Board, Agra, 1939*, the plaintiff brought a suit against the Municipal Board of Agra for damage caused due to the non-supply of water to the second storey of the plaintiff's house. He prayed for a mandatory injunction to the Board, to supply water to him during prescribed hours. The Allahabad High Court, while dismissing a second appeal, ruled that in the circumstances, the court will not grant the injunction because it is incapable of enforcing it.

Cases relating to the various aspects of water supply, rural as well as urban, have decreased in the post- Independence period, i.e., after 1941. The underlying basis that the courts have worked on

is that the Municipal Authorities and other local bodies are under an obligation to make arrangements for water supply.

The Courts, on more than one occasion, have had to deal with the plea of the state, that there is a paucity of funds. But repeatedly the courts have held, as for example, in *Janki Nathubhai Vs. Sardar Nagar Municipality, 1986*, and also in the famous Ratlam Municipality case, that this excuse will not attract the sympathy of the court. In the case of *Ratlam Municipal Corporation Vs. Vardichand, 1980*, local residents filed a criminal case under Section 133 of the Criminal Procedure Code, 1973 against the Municipality. On appeal, the Supreme Court came down harshly on the Municipality and directed it to “clean up “ the area. This has come to be considered a *landmark* case, for this very reason. Subsequent to this famous, landmark case, the other public interest litigation cases which are of great importance are the *M. C. Mehta* case and the *Ganga* Pollution case in which the Municipalities were directed to perform their statutory duty of ensuring that sewage from the towns would not be emptied into the Ganga without first treating it.

The cases discussed above show that the judiciary has exhibited dynamism in evolving new ways of dispensation to combat the ever increasing problem of drainage and sanitation. These cases also establish the fact that statutory bodies or administration cannot take the defence of paucity of funds or staff to forgo their primary duties .

Statutes on Water Law

The British enacted and applied their own laws in India without bothering about the prevailing and existing local dispute resolution mechanisms. As a result of these new enactments the local forums had to take a back seat since these laws were applicable all over the country. The Northern India Canal and Drainage Act, 1873, the Northern India Ferries Act, 1878, and the Fisheries Act, 1897 were enacted by the British. The other Acts were enacted by the Indian Government after Independence. We will briefly review the major laws relating to water. with reference to their application in court cases.

(i) The Northern India Canal And Drainage Act, 1873

The Northern India Canal And Drainage Act, 1873 deals extensively with irrigation matters. In the case of *Gajjan Singh Vs. State of Punjab, 1967*, the superintending Engineer sought to alter a water course that he himself had approved earlier. The court held this review to be invalid. The Rule that the court applied was that no one can review his own orders or orders of a subordinate authority.

(ii) The Northern India Ferries Act, 1878

To ferry is to convey passengers and goods, essentially by boat, across water. This makes the ferry a property and capable of being possessed. This point was discussed in a criminal case (*Dhanajoy Dhara Vs. Provat Chandra Biswas, 1934*) where the accused had forcibly occupied a ferry. It was held to be an act of trespass, thus reiterating that a ferry was a “property” .

In India, the principal statute dealing with the ferries is the Northern India Ferries Act, 1878. This statute draws a distinction between public ferries and private ferries, and different provisions apply to each.

The right to a ferry franchise has always been granted by the presumed owner of water resources: the state. Initially, this right was determined solely by the evidence of a direct grant by the Crown. Even prescription did not constitute a valid franchise. But this has long been subject to change and the position now is that a valid license has to be obtained in order to ply a ferry in a river.

The law relating to ferries is therefore quite settled. The rights to a ferry can be exercised irrespective of any rights in land. This right is wholly unconnected with the ownership or occupation of land and it is not necessary that a ferry owner should have any property in the soil of the river over which he has a right of ferry. Even though it seems an exercise in administrative law, ferries continue to be an integral part of the law relating to water.

(iii) ***The Fisheries Act, 1897***

The right to fish in tidal navigable waters was earlier determined by the proof of a grant by the crown or by prescription, failing which the right was deemed to be non-existent. And the prescriptive right to catch fish stood proved merely by the fact that the defendants did not deny such an act. But if the river changed its course, the status of this "right to fish" was unclear. In the case of *Ishwar Chandra Das Vs. Upendra Nath Ghosh* it was held that the right would cease since the property now became the property of the adjacent owner. However, in a subsequent case, *Srinath Roy Vs. Dinabandhu Sen*, the privy council ruled that the grantee of such a right could follow the shifting river for the enjoyment of his right so long as the waters of the river system are within the upstream and downstream limits of his grant.

Before the Indian Constitution came into force, the right of fishing in territorial waters was vested in the local zamindar. Article 297 changed this position. It vested "all land, minerals and other things of value underlying the ocean within territorial waters,..." in the Union (i.e., the Indian State). However, even before it came into force the courts had anticipated this transfer of right to the state.

In an important case, *AMSSVM and Co Vs. State*, the court held that "Whatever theory might ultimately find acceptance with the family of nations as to the true basis of the right which a state possesses over territorial waters, there cannot be any doubt that with reference to the rights of fishery, the marginal belt must be regarded as part of the territory of the littoral state."

Under the Fisheries Act, 1897, the Government could settle the fishery rights in favour of a particular cooperative society for a fixed period and this period could be further extended. In instances where the Government chooses to cancel this extension, it has to hear the party — irrespective of whether the party has complied with the directions of the extension or not. The principles of natural justice and all necessary procedures have to be adhered to mandatorily.

The courts have not normally concerned themselves with the socio-economic aspects of the fishermen and have confined themselves to technical determination of the cases. But there has been a gradual and welcome change. In *State of Kerala Vs. Joseph Anthony*, the Supreme Court

upheld a Government ban on fishing by mechanised boats because it affected the rights of the traditional local fishermen. Similarly, the court ruled that a Government circular that sought to eliminate middlemen and settled fishery rights directly with genuine co-operative societies and local fishermen did not amount to “creating a monopoly”. It was, on the contrary, attempting to involve the fishermen directly.

(iv) *Water (Prevention and Control) of Pollution Act, 1974*

The Parliament recognizing the importance of water free from pollution enacted the Water (Prevention and Control) of Pollution Act in **1974** (Water Act, **1974**). This Act was enacted to ensure the wholesomeness of water and to ensure that with industrialization and growth of cities domestic and industrial effluents and waste waters are not thrown into the streams and rivers without being treated first. For these purposes the act also envisages the creation of a Central Pollution Control Board and the State Pollution Control Boards in the States.

Although the main legislation dealing with water pollution is the Water Act, **1974**, most of the litigations have been filed under the general criminal law or under Articles 32 and 226 of Constitution of India. In the period between **1980** to **1990**, there has been a massive increase in pollution related litigations. In fact, just from **1990** to **1993**, upto thirteen judgements have been delivered by different courts on this issue.

And a number of prosecutions against polluting industries have been launched under Section **33** of the Water Act. In the *Pondicherry Paper Mills* case, the Madras High Court ruled that the remedy under Section **33** was independent of the rights of the Pollution Control Board.

Regarding the nature of evidence in water pollution cases, the Delhi High Court stated in the *M/S Delhi Bottling Co. Put. Ltd. Vs. CPCB, 1986* that samples not taken in strict compliance with Section 21 of the Act are inadmissible as evidence. The court made it clear that the sample of water must be lifted from stream or well only in accordance with the provision of the Water Act. Such technical requirements of the court only obstruct and dilute the essence of the Act, which is to prevent water pollution. Taking note of this, the Supreme Court, in the cases of *Satish Sabharwal Vs. State of Maharashtra, 1986*, *UP PCB Vs. M/s Modi Distillery* and *Mahmud Ali Vs. State*, repeatedly ruled that technical obstacles in the interpretation of the environmental law will not be allowed to come in the way of prevention of water pollution. But implementation of this rule to its full potential has yet to be done.

An added feature of the present water pollution problem is the utter disregard shown by the Central and State Pollution Control Boards (PCB's) in launching prosecutions against polluters. In the *Francis Barreto* case of **1983** this lackadaisical approach of the Central PCB was highlighted. Again, in *Rajiv Ranjan Singh Vs. State of Bihar*, the Patna High Court hauled up the Central PCB for its absolute inaction and for dereliction of duties. In another case, *Travancore Cochin Chemicals Ltd. Vs. Kerala PCB*, the Kerala High Court criticised the Central and State PCBs for issuing conflicting orders.

The constitutionality of Sections **19** and **24** of the Water Act have been challenged before the Rajasthan and Gujarat High Courts in *M/s Aggarwal Textiles Vs. State of Rajasthan, 1981* and

M/s Abhilash Textiles Vs. Rajkot Municipal Corporation, respectively. However, both courts upheld the validity of the provisions, stating that the power granted by these provisions was not unbridled and did not violate Articles 14 and 19 of the Constitution of India.

In most cases, the response of the courts has been to provide injunctive reliefs. In addition, the courts have also repeatedly asked and ordered the polluters to conform to the requirements of the law, failing which they would face strict, deterrent actions.

Regarding liability for pollution caused by erring industries, the courts have normally ruled in favour of individual liability. In *K.K.Nandi Vs. Amitabh Bannerjee, 1983* the Calcutta High Court categorically stated that liability is to be fixed on every person who is in charge of, and was responsible for, the conduct of business of the company. Similar ratios were laid down in *M/s TransAsia Carpets Ltd. Vs. State of U.P., 1992* and *J.S.Huja Vs. State*.

The law relating to water pollution has normally failed to take into account the nature and uniqueness of the water as a resource. But over the last decade, the courts have begun addressing larger questions of the environment and, as a result, the right to potable water was recognised, for example, by the Kerala High Court in *F.K.Hussain Vs. Union of India, 1990*.

(v) *The Haryana Canal and Drainage Act, 1974*

The Haryana Government formulated a 'rice shoot' policy which sanctioned various new rice shoots. This was challenged by the petitioners in the case of *Darayo Singh Vs. State, 1992*, under Section 17 of the Haryana Canal and Drainage Act under which a new outlet can only be provided by preparing a draft scheme and in this case no such draft had been made.

The issue which the court looked into was whether the procedure under Section 17 and 18 of the act has been followed in the formulation of this policy. Can the procedural requirements be dispensed with? The court held that 'rice shoot' does not come within the definition of "outlet" as per the Act, hence the policy was valid. The court also looked into the purpose of the policy which was framed in the interest of the nation so that more rice was grown in areas more suitable for rice cultivation. The court also laid down guidelines for the sanctioning of 'rice shoots' to be implemented by the competent authority.

(vi) *Water Cess (Prevention and Control of Pollution Act, 1977)*

After the implementation of the Water Cess Act, 1977 many industries have challenged the imposition of the cess. These challenges required the courts to go into various issues, namely, interpretation of the Act, nature of industry, nature of end product, and so on.

What is a water cess? The Patna High Court in the famous *TISCO* case titled, *TISCO Vs. State of Bihar, 1991*, held that a cess imposed under the Water Cess Act is by way of compulsory exaction of money by a public authority for a public purpose. The court further stated that a cess is to be imposed for the purpose of treating the effluent of the factory and other sewage so that the common public may not have to use contaminated water or polluted water. The issue of interpreting the Water Cess Act also came up before the Kerala High Court in the *Kerala SPCB*

Vs. Gwalior Rayon Silk Manufacturing (Weaving) Co., 1986, case. The Hon'ble Court stated that rules that sought to ensure regulation of the release of effluents into rivers are in the interest of the public and are therefore valid. In addition they stated that mere installation of a treatment plant does not entitle one to a rebate. In other words the court ruled that the Cess Act should be construed liberally. However the Supreme Court, in the *A. P. Rayons Ltd.* case, ruled otherwise. Viewing the statute as a fiscal one, the court held that it must be construed strictly. This was reiterated by the Supreme Court in *Rajasthan State Electricity Board Vs. Cess Appellate Committee, 1991*.

Regarding the imposition of cess, it is quite settled that this would depend on the nature of the industry. In *Tata Engineering and Locomotive Company Ltd. Vs. State*, the Patna High Court stated that while identifying the nature of an industry, the totality of its activities and its dominant primary purpose should be the guiding factor and not the mere presence of some incidental processes. This test of "dominant purpose" is now the test that is followed to ascertain whether the industry attracts the provisions of the Water Cess Act.

Constitutional Development

The Constitution guarantees to all citizens the right to life and enjoins upon the state to safeguard the environment for the citizens. It imposes a duty on the state to protect the environment. The citizens have the right to a clean environment under the directive principles of the State Policy which, however, are not enforceable. The ambit of Article 21 has been increasing as judicial activism has been taking root as has been proved in various cases.

Most of the constitutional litigations have been converted to PIL in order to bring about social justice within the reach of the common man. PIL and judicial activism go hand in hand because PIL itself is the result of judicial activism. Judicial Activism is the term used for the unconventional role played by the court when it gives value judgement and grants relief to the aggrieved person or persons according to its moral and social sense of justice in a situation where statutory law is silent or even contrary.

The courts recently discussed a very vital issue — whether the larger question of the maintenance of health falls within the purview of Article 21 of the Constitution. After a long debate, finally in the recent judgement given by Chief Justice Ahmadi and Justice K. Ramaswamy and M.M. Punchi, dated February 1995, the right to health has been included in Article 21. Even though this case essentially deals with labour law, the ratio of this case has unlimited potential in the law relating to drainage and sanitation.

Article 21 of the Constitution guarantees to all persons the right to life and personal liberty. The scope of this Article has been widening through various judgements in cases such as the *Attakoya Thangal* case, the *CERS* case, and the *Subhas Kumars* case. The Andhra Pradesh High Court in its judgement gave a new "jurisprudential approach" to the question of environmental pollution. It observed that "The enjoyment of life and its entitlement and fulfilment guaranteed by Article 21 of the Constitution embraces the protection and preservation of nature's gifts without which life cannot be enjoyed...The slow poisoning by polluted atmosphere caused by environmental pollution and spoilation should be regarded as amounting to violation of Article 21 of the

Constitution “ . In the Subshas Kumar case the Supreme Court declared , “the right to life in Article 21 includes the right of enjoyment of pollution free water and air for full enjoyment of life”.

Two other important judgements reported in 1990 are the cases of Attakoya Thangal and F.K.Hussain which dealt with the groundwater usage as water supply to the citizens being a fundamental right of the citizens. Short supply of potable water in the Lakshadweep Islands had led to large scale withdrawal of water which had resulted in salination of water and had upset the fresh water equilibrium. The court held that the right to potable, sweet drinking water is an attribute of ~~the right to life and the administration cannot be allowed~~ to withdraw groundwater on a large scale. This will upset the fresh water equilibrium. The court also held that there should be a proper scheme evolved by the administration and reiterated that withdrawal of water at all levels should be effectively monitored. The Hon'ble court applied the rule that the right to life envisaged in Article 21 of the Constitution includes the right to potable water. The administration cannot be permitted to make inroads into this fundamental right. Similarly, in the case of Attakoya Thangal, every citizen's right to sweet drinking water was held to be a fundamental right and an extension of right to live which thereby included the right to sweet drinking water.

Thus over the years the scope and ambit of Article 21 of the Constitution which guarantees the right to life to all persons has included the right to sweet drinking potable water as a fundamental right. Right to health, and right to water free from industrial pollution has also been included in this fundamental right.

The Supreme Court in a recent case has held that the preservation of the environment and keeping the ecological balance unaffected is a task which not only the Government but also every citizen must undertake. It is a social obligation and every Indian citizen is to be reminded that it is his fundamental duty as enshrined in Article 51 A (g) of the Constitution.

DEVELOPMENT OF RIGHTS

Various aspects and issues of rights such as riparian rights, easement rights, property rights, natural rights, prescriptive rights, fundamental rights have evolved, emerged and developed from the water law cases. The Easements Act, 1882 has been applied in many cases dealing with water law in order to come **up** with rights of individuals, riparian owners, etc. The various rights dealt in the cases also ascertain the extent and nature of the dispute. In most cases the larger questions of the socio- economic status of the parties, equity and environment have not been considered.

There are cases that do not pertain to water law directly and yet have been discussed as water law cases. This is because the facts show that indirectly, the cases are due **to** the operation of certain inherent notions of water use and management. In certain instances, we find riots and even murder caused due to animosity generated by diversion of water. These cases are **of** utmost significance since they reflect the socio-economic status of water in the society.

Having regard to the use of water by riparian owners, the law states that the upper riparian owner could direct the water by any method provided that he did not materially injure the right of the lower riparian owner. The rights of the riparians are discussed here separately because the development of these rights is an important aspect of the development of water rights. These observations are based on the cases discussed earlier in the paper. These rights are based on the observation of the courts, the judgements given by the court, the principles that court took into account while arriving at decisions, and so on.

The rights of the riparian owner were given paramount importance and it was held that a riparian owner may **take precautions against flood anywhere on his land provided he does not** interfere with a recognized flood channel thereby damaging a neighbour's property.

The scope of the right of the riparians were further expanded when it was held by the Hon'ble courts **that a natural right vested in the owner of higher land to drain excess water to a lower land.** However, in cases where there is a drain or a channel that separates the two fields, this natural right will not arise. On the other hand, it was held that this right of the upper land owner to drain excess water by artificial means did not amount to "normal use of land" and the owner of such land was liable in damages to the owner of the lower land.

The irrigation cases deal with: (I) the right of the Government to regulate the collection, retention and distribution of water for irrigation, (ii) **the contravening rights of the riparian owners,** and (iii) the duty of the government to compensate, in the event of damage.

The earliest reported case (under the category of irrigation), *Fischer Vs. Secretary of State*, was filed under the provisions of the Easements Act, 1882. This is an important case because it discussed the rights of the Government over natural sources of water as against those of the riparian owners. The court ruled that the Government had the power to regulate, in public interest, the collection, retention and distribution of water of rivers and streams flowing in natural channels or in manually constructed works, provided that they do not thereby inflict sensible injury on any other riparian owners and diminish the supply that they have traditionally utilised.

In the case of *Gangaram Vs. Secretary of State*, the question that came up before the court was whether a compensation suit was maintainable in case of deficiency of water resulting from the reduction of the dimension of the sluice. The court held that if the reduction of the size of the sluice results in the decrease of the water supply to which the plaintiff is entitled, then the mere fact of the sluice being part of the canal works cannot be relied on as justification for interference with the plaintiff's rights. The court reversed the decree of the lower court and sent it back for re-admission and to determine whether the plaintiffs have, inter-alia, an easement to receive water in excess of the quantity which they receive through the reduced sluice, and whether they have suffered any damage.

In the case of *M and S.M. Railway Company Vs. Maharaja of Pithapuram (1937)*, discussed earlier, the Hon'ble Court held that a riparian owner, who commits an act in order to save his property from being flooded and this in effect diverts the flood to a neighbour's land and damages such land, he will be liable for the damage. The fact that he had a good motive and that the act was carried on his own land does not change the liability. Since the railway official changed the flood

channel which damaged the plaintiff's land, the railway company is liable for damages. The rule that the Hon'ble court applied while coming to this decision was that a riparian owner may make defences against flood anywhere on his land provided he does not interfere with a recognised flood channel, which results in damaging a neighbour's property

In one case the court established that the owner of upper lands can discharge the surplus of naturally brought water from his land on to the lower lands, provided no damage is caused .

The court upheld in a case that diversion of flow of water from a river by forming a channel manually, the landlords had the right to take water for lands situated on the banks of the river, provided that there is no complaint by the lower riparian owners that their share of water was effected by this act.

CONCLUSION

The present paper has tried to analyse cases relating to water law and come up with a judicial trend which reflects the role of the judiciary, the scope of judicial activism, the growing concern of the citizens, the development of PIL, the development of various laws, the growth of fundamental right, and so on. The trend that emerges from this study is that cases in the beginning of this century were mainly dealing with criminal law and related to issues of theft, mischief and nuisance. Over time law developed and the concepts widened. We see the scope of law of Torts widening, though most of the torts cases were confined to certain specialised categories of water like irrigation and pollution. The trend also sees the development of riparian rights and principles. With the increase in urbanisation and industrialisation the problems relating to sanitation and drainage also increased. This also led to the development of municipal and administrative law and the attendant duties and liabilities of the Municipal Corporations. Increased levels of pollution of the rivers and streams led to the enactment of water specific legislations to ensure water as a source for drinking water, for supporting fish life, for use in irrigation and to ensure water free from pollution.

The ambit of Constitutional law widened in the 80's as also the scope of Article 21 to include right to potable drinking water, right to environment and health, and right to water free from pollution. There was another development more or less concurrent to this constitutional development and that was the growth of public interest litigation filed by concerned citizen groups to redress their grievances whether of water pollution or improper sanitation and drainage. With the growth of the concept of PIL, water pollution cases came to be filed under the larger ambit of Articles 32 and 226 of the Constitution. Most of the constitutional litigations have been converted to PIL in order to bring about social justice within the reach of common man.

The courts have over the years held that it is the duty of Municipal Corporations to properly maintain sanitation and drainage and that paucity of funds and staff is no defence. This trend was started in the judgement of the Supreme Court in *Ratlam Municipal Corporation* case and was later reiterated in the *Ganga Pollution* case, wherein the court laid down that sanitation and drainage was to be maintained by the Municipal Corporations and that untreated sewage and effluents could

not be thrown into the river untreated. Thus, the underlying basis that the courts have worked upon is that the Municipal Authorities and other local bodies are under an obligation to make arrangements for water supply and drainage. The two cases mentioned above are landmark cases and marked the development of laws and the positive attitude of the judiciary and the activist role that it played

An analytical overview shows the general disconcert of the judges to go into issues involving social justice barring a few exceptions. They have, on the contrary, stuck by the letter of the law and have sparingly, if at all, applied the principals of judicial activism. But the Supreme Court seems to be taking the lead in moving away from this practice. In two instances, they set up expert committees to go into technical questions, which they thought themselves unqualified to comment upon. This step, though small, shows the judiciary's willingness to enlarge its own jurisdiction in order to deal with the socio economic realities of the society.

The modern judiciary cannot afford to hide behind notions of legal justice and plead incapacity when social justice issues are addressed to it. This challenge is an important one, not just because judges owe a duty to do justice with a view to creating and moulding a just society, but also because a modern judiciary can no longer obtain social and political legitimacy without making a substantial contribution to issues of social justice.

This paper thus attempts to analyse the cases relating to water filed in the High Courts and the Supreme Court since 1900 and present the judicial trends based on the that analysis. However, there are some shortcomings in the present study as we have been unable to collect and document unreported cases. Secondly, in our classification and categorisation of water law cases, hill irrigation has not been included but this was due to the lack of any case on this topic. The cases that we have collected and analysed have not helped us in discerning a trend of customary water practises. Further, not many cases are reported on big dams. We have not analysed the Narmada Dam issue because it is sub-judice. The Tehri Dam case showed the lack of judicial activism in a different light. The court while dismissing the writ petition held that in view of the material on the record the court did not find any good reason to issue a direction restraining the respondents from proceeding ahead with the implementation of the project.

Thus water law has developed from criminal to torts to Constitution as also specific water related statutes besides the growth of administrative law. Judicial activism has been very much the hallmark of a number of cases and the concept of rights has changed from mere riparian rights to easement rights, natural rights and fundamental rights. However, the courts have not normally concerned themselves with socio-economic aspects but have confined themselves to technical determination of the cases. Nevertheless, there is a gradual but welcome change as enumerated in some of the cases discussed in the paper. This judicial activism is perhaps the beginning of what we would call the growth of the concept of Indian environmental justice vis-a-vis water law.

NOTES

- 1 This is a revised version of the paper presented at the workshop on Water Rights, Conflict and Policy, Kathmandu, January 22-24.
- 2 Both of the authors are lawyers and work in the Center of Environmental Law, attached to the World Wildlife Fund-India.
- 3 A writ of mandamus may be defined as a command issued from the High Court or the Supreme Court, directed against the state or the authority mentioned in Article 32 as well as under Article 226 of the Constitution requiring the performance of a particular duty therein specified, which duty results from the official duty or by operation of law. In other words, prerogative writ of mandamus is imposed for securing judicial enforcement of public duties, performance of which has been wrongfully refused. Mandamus is a public law remedy and will not, therefore, be available in respect of duties of private nature.

ANNEXURE I

LIST OF CASES DISCUSSED IN THE PAPER

1. **Aluru Srinivaulu vs. T.P.Somiah Chetty**, (1967) CrLJ 1227 AP
2. **King Emperor vs. Fateh Din**, (1909) CrI No. 4 Punj. Ruling
3. **Emperor vs. Mahedeo Prasad** , (1923) ILR 45 All. Series 680
4. **Ashutosh vs Emperor**, AIR (1930) Cal. 318
5. **Emperor vs Halodhur Piroe**
6. **A.Venkata Reddy v. State**, (1953) CrLJ 520 Mad.
7. **Emperor vs Nama Rama** , (1904) VI Bom.LR 52
8. **Desi Sugar Mills vs Tupsi Kahar** , AIR (1926) Patna507
9. **Puroshattrarna Rajaliar vs. Kannayya**, AIR (1928) Mad. 139
10. **M&S.M. Railway Co. vs. Maharaja of Pithapuram**, AIR (1937) Mad. 703
11. **Rarndas Topandas vs. Sukkur Municipality**, AIR (1940) Sind 254
12. **Partab Dialdas vs. Hyderabad Municipality**, AIR (1932) Sind 131
13. **Secretary of State Vs. Ramtahal Ram** , (1925) 86 IC 928
14. **Kasia Pillai vs. G.K. Pillai**, AIR (1929) Mad.337
15. **Shanmugavel Goundan vs. Venkitaswarni Asari**, AIR (1936) Mad. 202
16. **Arivudai Nambi vs. State**
17. **Sarju Prasad vs. Mahadeo Prasad**, AIR (1932) All. 573
18. **State of Gujarat vs. Patel Mohanbhai-Mathurhhai**, (1974) 15 Guj. LR 259
19. **Kali Krishana Narain vs. Municipal Board; Lucknow**, AIR (1943) Oudh 140
20. **Syed Muzzarrar Hussain vs. Administration of Lahore Municipality**, (1942) 198 IC 773
21. **Kashi Nath vs. Municipal Board, Agra**, AIR (1939) All.375
22. **Janki Nath Bhaichara vs. Sardar Nagar Municipality**, AIR (1986) Guj.49
23. **Ratlam Municipal Corporation vs. Vardichand** , AIR (1980) SC 1622
- 24.a **M. C. Mehta vs. UOI** , 1990 (2) Scale 609
- 24.h **M.C. Mehta vs. State of Orissa**, AIR (1992) Orissa 225
25. **Gajjan Singh vs. State of Punjab**, (1967) 69 Punj.LR 395
26. **Darayo Singh vs. State**, AIR (1992) P&H 169
27. **Dhanajoy Dhara vs. Provat Chndra Biswas** , (1934) 38 CWN 665
28. **Hori Das Mal vs. Mahomed** , (1885) 11 ILR (Cal Series) 434

29. Ishwar Chandra Das Vs. Upendra Nath Ghosh
30. Srinath Roy vs. Dinabandhu Sen
31. A.M.S.S.V.M. & Co.Vs. State
32. **State** of Kerala vs. Hoseph Anthony
33. M/S Delhi Bottling Co. Pvt. Ltd. vs. C P C B, AIR (1986)Delhi 152
34. Satish Sabharwal vs. **State** of Maharashtra, 1986(2)SCALE 1231
35. U P P C B vs. M/S Modidistillery
36. Francscso Barreto vs. C P C B , District Court of Goa , Civil Suit No. 39/1983
37. Rajiv Ranjan Singh vs. State of Bihar
38. Travancore Cochin Chemicals Ltd. vs. Kerala P C B
39. M/S Aggarwal Textiles vs. State of Rajasthan , (1981) S B C , W.P. No. 1375/ 80
40. MIS Abhilash Textiles vs. Rajkot Municipal Corporation
41. K.K. Nandi vs. Amitabh Bannerjee, (1983) CrLJ 1479(Cal.)
42. Transasia Carpets Ltd. vs. state of U.P., (1992)CrLJ 673 All.
43. F.K. Hussain vs. State of Kerala, AIR (1990) KER.321
44. Attakoya Thangal vs. U O I , AIR (1990) SC
45. Tisco vs. State of Bihar, Air (1991)Patna 13
46. Kerala S P C B vs. Gwalior Rayon Silk MFG (Weaving) Co., AIR (1986) KER.256
47. Rajasthan **State** Electricity Board vs. CESS Appellate Committee, AIR (1991) SC 597
48. CERS vs. U O I , AIR (1995) SC
49. Subhash **Kumar** vs. State of Bihar, 1991(1) Scale 8

Delhi's Groundwater: Rights and Policy'

*Bharath Jairaj*²

INTRODUCTION

Demands on water resources in India, and particularly in Delhi, are increasing and the distribution of available supplies has long stopped satisfying the demand. These demands have had substantial costs. Groundwater resources have been exhibiting definite signs of overutilisation. The existing legal framework is inadequate to solve this. In fact, it often encourages the indiscriminate use and exploitation of groundwater.

Attempts have been made, both at the Centre and at the State levels, at resolving this problem. However, they have not met with the expected or desired success.

This paper seeks to describe the water situation existing in Delhi and it highlights the inequities of the system. It also seeks to lay out the legal scenario in terms of rights and policies, and briefly elucidate the various legislative attempts made.

THE WATER SITUATION IN DELHI

The natural resources in Delhi, especially water, have been vulnerable to exploitation because it has remained a capital through centuries. Modern developing trends have attracted people to settle here: for jobs, opportunities, and urban life. The increase in population, "development" and industrialisation has had a consequent effect on water resources. The old wells have coughed *dry*, and the river Yamuna forcibly diverted from its original course. After Independence the focus has remained on surface water. From 1941 to 1991, Delhi's population has increased by over 3.8% per year causing a drain on all natural resources, especially the water resources.

In the existing situation, the scenario is one of acute crisis. Water resources are being depleted and what is available is most often contaminated with pollutants. In such a situation, we have a

responsibility to protect the quality of water and question the existing legal and administrative regimes; and to evolve a system wherein water is used and conserved sustainably.

Supply and Demand of Water

The Delhi Water Supply and Sewerage Disposal Undertaking (DWSSDU) estimates that of the 575 MGD supply in Delhi today, 210 MGD is from the river Yamuna, 200 MGD is from the river Beas, 100 MGD is from the river Ganga and the remaining 65 MGD is from government tubewells and the Ranney wells. They concede that to meet the drinking as well as other requirements it is necessary to produce about 700 MGD of potable water.

The consumption profile of water in Delhi, as illustrated by Tables I and II, shows that absolute reliance on surface water supplies alone has never been adequate. The growth process and expansion of economic activities made it imperative to find and make use of a supplement source of water supply. The obvious choice was and is groundwater.

Table I: Demand and Supply of Water in Delhi (MLD)

Demand	22131	2840	5121
Supply	1150	2347	4189*
		493	932

Table II: Total and Per Capacity Water Supply

Year	Population (Million)	Average Supply (MLD)	Per Capital availability (Litres/Day)
1971	4.1	785	190
1981	6.2	1150	185
1990	8.8	2160	245
1991	9.04	2143	231
1993	10.00	2347	235
1995'	10.5	2860	272
2001'	12.8	3520	215

Source: DWSSDU, 1994

* Projected Values

The Significance of Groundwater

Groundwater has always been in use. In fact, it accounts for about **50%** of the total irrigated area and **80%** of drinking and domestic requirements in India³. Groundwater is easily accessible. It is “attached” to the land in many respects and its supply is normally controlled by the private individual herself. All that it requires is a Water Extraction Mechanism (WEM)⁴, for example, a dugwell or more likely a motor-operated tubewell, and a minimum maintenance cost.

Legally, there is an inherent “right” one has over the groundwater as it lies directly below one’s land. While the general law seems to state that all water and rights therein vest with the State (Entry 17, List II, Seventh Schedule, Constitution of India), groundwater is one area that has always remained in the “private domain”. Groundwater rights belong to the land owner since it forms part of the dominant heritage, and land ownership is governed by the tenancy laws of the State. A person with a dominant heritage who transfers her land also transfers the water under it. The relevant provisions of the law on this point are reproduced in **Annexure I**.

The Problems with Groundwater

The **1989** Report of the Central **Groundwater Board (CGWB)**⁵ reveals that since their **1984** study, the water table in all parts of Delhi has gone down substantially, indicating thereby that groundwater recharge is much less than its withdrawal from the aquifers. The nationwide drought of **1987** is a clear indication that the sustainable limit of groundwater exploitation is very low. The groundwater situation has turned acute since the percentage of rainwater falling directly (vertically) is minimal and most of it is lost through run-off and evaporation and does not go down to the recharge zone depth. It was suggested that private individuals should stop willful exploitation of groundwater and regulate or at least register private tube wells⁶.

In a more recent state of the environment report of Delhi, it is stated that “the water table of Delhi, in general, is low. Though much of the water is brackish, about **237** million cubic metres is withdrawn annually... (as reported by the Central Ground Water Board)”⁷. In addition, **Mr. V.M. Sikka**, scientist, CGWB, notes “rapid urbanisation of Delhi has (had an) adverse impact on the groundwater resources of the State where (the) water table has declined in most parts by **2** metres to **8** metres during the last decade”⁸.

The management of Delhi’s water is rather unique. The Municipal Corporation of Delhi (MCD), the New Delhi Municipal Corporation (NDMC) and the Delhi Cantonment Board (DCB) all have their respective areas of water supply. Of the total of **1484.46 sq.km** that make up Delhi, **1399.26 sq.km** is under the MCD, **42.40 sq.km** under the NDMC and **42.80 sq.km** under the DCB. Apart from the overlap of jurisdictions, the price for water supplied by these agencies Delhi is particularly low. The level of subsidy is extremely high. The cost of production of 1 kilolitre of potable water is **Rs.2.13** and the domestic tariff is **Rs.0.35** till **20** kilolitres and **Rs.0.7** above **20** kilolitres (plus a surcharge of **30%**). In other words, the level of subsidy is as high as **79%** for the lower slab⁹.

Almost half of the consumption is not metered. Charges for unmetered consumption are either calculated on an underestimated flat rate or on an underestimated average¹⁰. And there remains

the question of equity: because only landowners can 'own' groundwater, landless individuals and slum-dwellers are left out.

Had there been an equitable and sustainable use of groundwater, perhaps there would have been no problem. Now, to resolve the water scarcity problem, the Delhi State Government seeks to depend on water from mega-hydroelectric dams to be constructed in the Himalayas. This is both ecologically and seismologically undesirable.

CEL, WWF-India's Research on the Problems of Delhi's Groundwater

The special status of groundwater has always ensured that it is kept away from the regulatory clutches of the State. In fact, there has hardly been any research on groundwater. This, *inter alia*, prompted CEL, WWF-India to collect information pertaining to Delhi's water, and in specific the groundwater. The methodology used in obtaining the information was essentially through a questionnaire.

For the purpose of data collection, Delhi was divided into five sections: north, south, east, west and central. A cross section of the residents were interviewed based on their socio-economic status. While the final analysis of the information is yet to be done, the data collected suggests that gross inequities in the distribution of water exists. In order to highlight the inequity, the residents have been classified on the basis of their socio-economic status as: (a) lower class; (b) middle class; (c) elite; (d) VIP areas; and (e) hotels.

The NDMC has adopted the figure of 225 litres per capita per day as the city's water load¹¹. While most residents of the lower socio-economic groups face water crises throughout the year, they turn acute in the summer months (April, May, June and July). On an average they get as low as 15 litres per capita per day and very often have no dependable water supply. Many have resorted to groundwater extraction, but usually do not use it for cooking, drinking or bathing purposes, as they find its quality very poor. However, very often, they do not have a choice.

The 50-odd embassies and other VIP areas require about 45 kilo litres per day¹² and in the event of a water shortage, private and government agencies rush in tankers with capacities between 450 litres and 15,000 litres for price ranges between Rs. 400 and Rs. 2000 respectively.

Over and above the water supplied to them by the agencies, the five-star luxury hotels in Delhi used to rely on groundwater. They have since stopped making use of this source as it was found to be of sub-standard quality. They now largely resort to buying water from private tanker agencies. Even this water is treated, in order to conform to international standards, before the foreign clientele uses it. On an average they require 20 tankers of 12 kilolitre capacity per month in the non-summer months and at least 10 more during the summer months.

Gross inequities are the rule, which is rather shameful for the capital of the world's largest democracy.

The problems therefore are:

- (i) There is an inadequacy in the supply of water in Delhi. In order to satisfy their wants and needs, private individuals and agencies **are** resorting to extraction of groundwater.
- (ii) There is no legal regime within which this extraction takes place. As a result, there are no limits or safeguards to the groundwater extraction. Since this right is available only to the landed, there are serious equity and equality questions that arise. The additional costs of the WEM and maintenance contribute to this inequality.
- (iii) The administrative practices of the various Government agencies in the supply of water, in terms of their respective scopes and jurisdictions, have added to the confusion.

Confronted with similar situations, the Central Government and the various State Governments responded with Bills and Acts hoping that these would solve the problems.

EXISTING LEGAL FRAMEWORK

Entry 17, List II of the Seventh Schedule to the Constitution of India, 1950 makes it clear that the state governments have the legislative competence to legislate on “water, that is to say, water supplies, irrigation and canals, drainage and embankment, water storage and water power subject to the provisions of Entry **56** of List I”. Entry 56 of List I deals with inter-state rivers and river valleys.

Groundwater is not mentioned in this Schedule. Nevertheless, the major initiatives have been at the national level. The National Water Policy of 1987 was formulated which recognises the importance of prudent groundwater resource management and conservation as well **as** equitable distribution on the basis of common policies and strategies. Another initiative was the setting up of the national level Central Ground Water Board (CGWB) to conduct necessary surveys and investigations.

The Groundwater (Control and Regulation) Act, 1970

This Model Bill was prepared by the Central Government to be adopted by any State Government to regulate and control the development of groundwater and the matters connected therewith, as the title suggests.

The Bill comprises a total of 23 sections. The salient features of this Bill are as follows:

- (i) Section 3 prescribes the format for the formation of a State Groundwater Authority which is **to** be established by the State Government. This Groundwater Authority is to consist of a Chairman and several other representatives concerned with the development of groundwater to be appointed by the State Government, as specified in the Section.

- (ii) The State Government is empowered to regulate the extraction or use or both of groundwater in any area if it is in the interest of the public.
- (iii) It is mandatory for any person to apply for a permit or licence to sink a well in the notified area for any other purpose other than domestic use.
- (iv) This Bill has granted/sanctioned the State Groundwater Authority with certain powers:
 - a. The power to grant or cancel the permit/licence.
 - b. The power to grant the certificate of Registration to existing users of groundwater in the notified areas and the power to alter, amend or vary the terms of the permit.
 - c. The power to enter any property with a right to search, inspect, investigate or seize any mechanical equipment utilized for illegal sinking, if it has reason to believe that an offence under this Act has been or is being committed.
 - d. The prosecution of an offence under this Act can only be instituted with the written consent of the Groundwater Authority.
- (v) The offences under this Bill are to be tried as under the Criminal Procedure Code, 1898.
- (vi) Section 19 specifies the penalties for the commission of an offence under this Bill:
 - a. For the first offence: fine which may extend to five hundred rupees.
 - b. For second and subsequent offences: imprisonment for a term extending to six months and/or with a fine upto one thousand rupees.
- (vii) This Bill imposes a bar on the civil courts to try any matter on which the State Government or the Groundwater Authority has been empowered to act.

The Bombay Irrigation (Gujrat Amendment) Act, 1976

The Amendment made to the Bombay Irrigation Act, 1879 as applicable to the State of Gujarat came into force only in 1988. It sought to regulate the construction of any tubewell, artesian well or borewell, exceeding forty five metres in depth. The land owner was required to apply for a licence in order to extract groundwater from lower depths.

The authority under this statute was the Regional Canal Officer. to whom the application for license was to be submitted. The RCO was vested with the sole power of granting or denying a license.

The penal consequences for violations of the Act included the closing/sealing of the well, and/or imprisonment which may extend to six months and/or fine which may extend to five hundred rupees.

The Karnataka Groundwater (Regulation and Control) Bill, 1985

This Bill draws both letter and spirit from the 1970 Model Bill. However, it departs from the Model Bill in that Section 2(1) of the Karnataka Bill defines “domestic use” of groundwater as follows: “use of groundwater in reasonable quantity for drinking, cooking, washing, livestock preservation and contrary requirements by an individual or a group of individuals depending on one or more sources for abstraction of groundwater but shall exclude all wells which are used primarily for irrigation”. In addition, it categorically states “all the groundwater that exists below the surface of the ground at any one location or center in or near locations shall be the property of the State and belong to the State” [S. 3(1)].

Violations by individuals will result in a fine of a maximum of one thousand rupees for first offenders and up to two thousand rupees and/or imprisonment for one year for second and subsequent offenders. Violations by companies will result in the prosecution of the person in charge of, and responsible for, the affairs of the company.

The Maharashtra Groundwater (Regulation for Drinking Water Purposes) Act, 1993

This Act was enacted to regulate the exploitation of groundwater for the protection of public drinking water sources, thereby reiterating the fundamental premise of the 1987 National Water Policy. It prohibits the sinking of any well within five hundred metres of a public drinking water source. In addition, it prohibits the sinking of a well within the area of “an over-exploited watershed” [S.7(1)]. The appropriate Authority is the body vested with the powers in this regard.

The Act also provides for the Authority to prohibit extraction of water from an existing well for certain periods in a year based on the quantum and pattern of rainfall.

The penal provisions for violation of the Act include the closing/sealing of the well and disconnecting power supply.

Control and Regulation of Groundwater Exploitation in Pondicherry and Karaikal, 1988

This notification was issued by the Lt. Governor, Pondicherry, in order to protect the rapidly declining water tables in the Union Territory. It prohibits the construction of a tubewell, the grant of new power connections for energising any tubewell, and the setting up of industries requiring more than 10,000 litres of potable water, within six kilometres of the coastline.

Tubewells outside the six kilometres limit can be constructed only with the clearance of the State Groundwater Unit and even then at a minimum of 150 to 200 metres apart from each other.

The Madhya Pradesh Peya Jal Parirakshan Adhiniyam, 1986

This legislation came into force on 9th January, 1987. The salient features of the Act are:

- (i) This Act is to provide for the preservation of water and for the regulation of digging of tubewells in order to maintain the water supply to the public for domestic purposes.
- (ii) As in the Karnataka Groundwater Bill, this Act also defines “domestic purposes”.
- (iii) The Collector has the power and authority under this Act to grant or refuse permission for the digging of a tubewell.
- (iv) The punitive measures provided under this Act are imprisonment extendible to two years and/or a fine upto two thousand rupees.

The Tamil Nadu Groundwater (Control and Regulation) Bill, 1977

This Bill regulates and controls the development of groundwater in the whole of the State of Tamil Nadu. It is a verbatim replication of the Groundwater Model Bill of 1970 with certain specific differences:

- (i) Before making any alteration, amendment or variation in the terms of the permit and the Certificate of Registration, the Groundwater Authority has to ensure that:
 - a. The standing crops in the area are not damaged; and
 - b. The existing interests of the industries using the groundwater also are not affected.
- (ii) This Bill has an overriding effect over all the other existing Acts in case of inconsistency.

Model Bill to Regulate and Control the Development of Groundwater, 1992

Based on the comments received from different State Governments, the Central Government revised the Groundwater Model Bill of 1970. This Bill is now being re-circulated as the Model Bill of 1992. The salient additions are:

- (i) It exempts “small farmers” and “marginal farmers” from obtaining a permit for extraction of groundwater.
- (ii) A limit of six months has been laid down for obtaining the licence.
- (iii) It allows the Groundwater Authority to cancel a permit or licence if it feels that a situation has arisen warranting such an action.

ANALYSIS OF THE EXISTING LEGAL FRAMEWORK

The Central and State responses to the groundwater problem have created a new situation. The general law seemed to have clearly laid down the absolute right of the private individual over the water beneath her land. Now, the new Bills and legislations are based on the right of the State to regulate the private individual right.

While the Model Bill of 1970 and the revised Model Bill of 1992 remain “models”, almost all the legislations draw inspiration from these Bills in both letter and spirit. The underlying basis of the Bills and Acts is that the State has granted itself the right to regulate and control the development of groundwater. The adoption of criminal procedure and prosecution for violations of the provisions of the Bill/Act only emphasises the seriousness of the intentions of the State.

The Bombay Irrigation Act, 1879 as amended in the State of Gujarat in 1976 came into force only in 1988. It is based purely on the depth of the digging of the WEM. The drawbacks with this Act is that it is restricted in its application to a few districts in Gujarat. In addition, all supervision was to be done by the Regional Canal Officer (RCO). This was found to be highly impracticable as the RCO could not monitor the WEM's and their depths in all the districts mentioned. Further, it was felt that the punishments did not deter the commission of the offences under the Act¹³.

The Karnataka and the Tamil Nadu Bills are almost replicas of the Model bill of 1970. The Karnataka Bill defines “domestic use” and excludes it from the license requirement. The Tamil Nadu Bill departs from the Model Bill in allowing for industrial interests to be protected during the determination of altering or amending the terms of the license or permit.

The Madhya Pradesh Act grants the power to grant permits and licenses to the Collector. As in the Karnataka Bill, this Act also defines and excludes “domestic purpose” from the license requirement. The notification issued by the Lt. Governor of Pondicherry is based on the need to protect fresh water supplies from contamination by the sea water. The notification was an immediate reaction to the depleting water tables in the Union territory and preceded legislative discussions on this topic.

The Maharashtra Act of 1993 is probably the most comprehensive of the legislative attempts made. While it concentrates on drinking water - the focus of the National Water Policy of 1987, it bases its approach on the distance and spacing between the new well and another public water supply. In addition, it allows the Appropriate Authority to prohibit (a) the sinking of a well within an area of “over-exploited watershed” as determined by the Appropriate Authority and; (b) extraction of water from an existing well for certain water-shortage periods (summer months). Further, it allows the Appropriate Authority to shut off electricity supply to contravenors of the Act.

On the whole, the legislative attempts have been unsatisfactory. They have merely tried to regulate the extraction of groundwater. The Bills and Acts have not taken into account the variances in socio-economic status and remain ambiguous on the extent of the water rights, if any. Even the implementation of these laws leave much to be desired and so they have not achieved even the meagre objectives they were set out to achieve. Given this fact and the uniqueness of Delhi's water situation, attempting to apply any of these laws to Delhi will prove infructuous.

CONCLUSION

Groundwater was not specifically mentioned in any of the Lists in the Seventh Schedule of the Constitution of India. This could be because the framers, in their infinite wisdom, did not envisage a water crisis as we are faced with today. On the other hand, it could be because they felt that groundwater was too “private” to be given to the regulatory State.

The fact remains that we are faced with a water crisis. And the attempts made by the Union and the State agencies have only tried to regulate extraction. The direction of all government action has been at augmenting supply, never at demand management. None of the Bills or Acts have sought to deal with the inequity and inequality inherent in the very conceptualisation of groundwater - it being only available to the landed. Can a legislation that fails to take into account social and economic realities ever achieve its objectives ?

The enormous subsidy afforded to Delhi, by virtue of it being the capital, is really not required. Even the preliminary data collected by CEL. WWF-India suggests that the residents of Delhi are ready to pay more for their water *provided there is an improvement* in water quality and quantity. The leakages, even those admitted by the NDMC amount to a phenomenal 25-30% of the water supplied¹⁴. The agencies blame this on the inadequacy of revenue from faulty water meters and the low rates for water. Can not the money spent on providing the subsidy be spent on reducing leakages, improving the water pipe connections, installing efficient water meters and other infrastructural arrangements?

The gross inequities can not be emphasized enough. The MCD, NDMC and DCB send kilolitres of treated water to industries for their use. What equitable use can this treated potable drinking water be put to in a complex industrial process, when millions of poverty stricken families have no access to any kind of water?

For an efficient regulatory regime, perhaps we require ecological and more specifically aquifer-based divisions of the State. The question of rights - those of the landed and those of the landless needs to be addressed within this framework. All attempts that ignore this reality remain inadequate. And perhaps, we need to look at water and water management more holistically: understanding surface water, groundwater and rain water as a common pool of resource, giving equal importance to augmenting supply and managing demand.

NOTES

- 1 This is a revised version of the paper presented at the Workshop on “Water Rights, Conflict and Policy”, Kathmandu, January 22-24, 1996.
- 2 The author is attached to the Center for Environmental Law, World Wild Life Fund-India.
- 3 Sharma 1995
- 4 Shah 1993

- 5 Central Ground Water Board, 1989
- 6 Mookherjee, 1994
- 7 WWF-India. 1995: 8
- 8 Sikka 1995:31
- 9 Zerah 1996
- 10 Ibid.
- 11 WWF-India 1995:140
- 12 Ibid.:139
- 13 Devi 1991:614
- 14 WWF-India 1995:135

REFERENCES

Central Ground Water Board. 1989. Report of the Central Ground Water Board. New Delhi: Central Ground Water Board.

Devi, Rema. 1991. "Groundwater Development and Legal Regulation". In, *Journal of the Indian Law Institute*. Vol.33, (4).

Mookherjee, P. 1994. Times of India. March 16, New Delhi

Sharma, S. C. 1995. "Regulation of Groundwater Development in India: Existing Provisions and Future Options". In, M. Moench (ed.), *Groundwater Law: The Growing Debate*. Gujrat: VIKSAT.

Sikka, V.M. 1995 "Ground Water Resources of Delhi State: An Overview". In, Spatio-economic Development Record, Vol.2 (6).

Tushaar Shah. 1993. Groundwater Markets and Irrigation Development. Bombay:, Oxford University Press.

World Wild Life Fund- India. 1995. Can The *Clock Be Turned Back?* Environmental Status Report. Delhi: WWF-India, New

Zerah, Marie-Helene Zerah. 1996. "Towards a more efficient management of water supply in Delhi: Issues of water pricing and cost benefit analysis", paper presented at seminar organised by INTACH, "Delhi's Water: Problems and Alternatives", July 8, 1996, New Delhi

ANNEXURE-I

LAW RELATING TO GROUNDWATER

1. Section 3(a) of the Land Acquisition Act, 1894
 - (a) [T]he expression “land” includes benefits to arise out of the land and things attached to the earth or permanently fastened to anything attached to the earth; ..

2. Section 3 of the Transfer of Property Act, 1882:

[A]ttached to the earth” means-

 - (a) x x x;
 - (b) x x x;
 - (c) attached to what is so imbedded for the permanent beneficial enjoyment of that to which it is so attached;

3. Section 17 of the Indian Easements Act, 1882: Easements acquired under section 15 are said to be acquired by prescription, and are called prescriptive rights. None of the following rights can be *so* acquired:—
 - (a) x x x;
 - (b) x x x;
 - (c) x x x;
 - (d) a right to underground water not passing in a defined channel.

(Thereby clarifying that groundwater is linked to the dominant heritage)

Farmer Managed Irrigation Systems in Nepal: Some Issues and Trends'

Gehendra L. Malla and Shantam S. Khadka²

INTRODUCTION

Nepal is a poor country but is rich in water resources. Unfortunately the utilization of water resources is extremely limited. Nepal is an agrarian country but it has been able to irrigate merely 38% of its total cultivable land. Given the limited capacity of both the private and the public sectors to take new initiatives and the scarcity of resources, and despite the efforts being made to develop water resources, one can rightly assume that it will be difficult to narrow the gap between the growing demand and available supply of water, especially for irrigation. Due to the gap between growing demand and the available supply, disputes are inevitable over water rights, especially over the use of water for irrigation and other domestic purposes. As such, it has been deemed necessary to make an initial study of the issues and problems relating to the overall development of irrigation systems in Nepal.

This paper reports the findings of the survey on the water rights situation of the Nepalese farmers and the nature of conflicts over the use of water as well as the prevailing conflict resolution practices. The study team surveyed 40 farmer managed irrigation systems in seven districts and also visited judicial and quasi-judicial bodies in these districts. The basic objectives of the survey were to obtain a general impression about the legal status of irrigation management systems and the prevailing practices regarding conflict resolution as well as possible future research issues in this regard. The study team attempted to get general information of the 40 irrigation systems without going into much detail. Some of the important questions addressed in the field were as follows: Have these irrigation systems acquired legal status? Are the water use rights of the people curtailed or disturbed during expansion of the irrigation systems? Do the irrigation canal construction initiators get priority in the water use as per the existing legal provision? What is the process of acquiring land for canal construction? What are the problems of the farmers in the operation and maintenance of the irrigation systems?

GENERAL INFORMATION OF THE IRRIGATION SYSTEMS STUDIED

With the aforesaid objective the study team conducted a general survey of 40 irrigation systems of 7 districts representing both the inner valley and mid hill districts of Nepal³. They are: 1. Gorkha, 2. Parbat, 3. Palpa, 4. Dang, 5. Chitwan, 6. Tanahun and 7. Sindupalchowk. (See Annex-1 for the list of names of all irrigation systems studied). A check list of topics and questions was used to conduct the survey.

History of the Settlements

To begin with the overall analysis of the irrigation system, it is worth looking at the history of settlements of the areas undertaken for study. The settlements in the study areas are either old, new or mixed (settlement comprising of old and new settlers). For this reason, the settlements as a whole are classified into three different categories: (a) Old settlements, (b) New settlements and (c) Mixed settlements.

- (i) **Old Settlements:** This category includes those areas where settlers began to live for at least 100 years or more. The settlers of 23 (58%) irrigation systems fall under this category.
- (ii) **New Settlements:** In this category the settlements are occupied by new settlers. This category includes settlements where the settlers started living than a hundred years ago. A total of 10 (25%) settlements are in this category, one of which, Dhanmashe Kumaltari in Gorkha District, is just over 8 years old.
- (iii) **Mixed Settlements:** This category of settlement consists of both old and new settlers. Altogether there are 7 (17%) settlements in this category. In 6 settlements under this category Tharus are the traditional settlers whereas the new settlers belong to different ethnic communities. In the seventh settlement, people from different communities are living together who represent themselves as both old and new settlers.

Religious Composition

The overwhelming majority of the population (97.5%) in these settlements are Hindus, the others are Buddhists and Muslims. An isolated case of a settlement with Hindus and Buddhists living together in the Arjung Khola Irrigation Project area in Dang District is also recorded

Political Organization

For administrative purposes Nepal is divided into five development regions, 75 districts, 36 Municipalities and 3995 Village Development Committees. All local bodies, viz., District Development Committees (DDC) and Municipalities or Village Development Committees (VDCs) have their own elected bodies to carry out day to day work and developmental activities. The DDCs are sub-divided into sub-districts known as *ilaka*, which vary in number between 9 to 17, depending on the area and population size. Similarly, Municipalities are divided into nine or

more wards whereas the VDCs are divided into nine wards. The wards are headed by elected representatives.

These local bodies have the legal mandate to initiate water related projects, utilize and protect water resources and dispense justice to the extent permitted under the existing laws. However, in practice, the majority of the irrigation projects are constructed and managed by the beneficiaries themselves without, or with minimum support and intervention of, the concerned local level bodies. The canals are in general extended beyond one ward or VDC.

Land Cultivators and Landowners

In all the systems surveyed, land is cultivated both by the landowners as well as by tenants. Land cultivated by the owners themselves vary from system to system: between 4% to 100% of the land in different systems. More than 50% of the land are cultivated by the owners in 31 systems. Tenants cultivate less land than owners in most systems. There are three types of tenancy:

(i) Tenants do the farming and take most of the harvest. This system of land tenure is practiced in 21 systems and between 10 to 30% of the cultivated land is farmed in this manner.

(ii) Tenants do all the farming but share the produce equally with the owners of the land. This type of land tenure covers between 20 to 50% of all cultivated land in 28 systems.

(iii) Tenants do the farming and share the produce with the landowner, based on agreement. This system was recorded in only 2 systems: in one 5% of the cultivated land was cultivated according to this land tenure system and in another less than one hectare.

Most of the land are owned by the high caste Brahmans and Chhetris. They own on an average 43% and 31% respectively of the land in the irrigation systems studied. Brahmans are the major landowners in 21 systems and Chhetris in 8 systems. Tharus own about 30% of the land in the systems they are predominant whereas Newars own 13% and the low caste Damais, Kamis and Sarkis jointly own 12% of the land. In other words, the highest and the lowest castes own most and least portion of land.

Ownership of Land on Which There is a Source of Water

Land on which there is a source of water may belong to (be owned by) the government, the public or private individuals, depending upon the nature of the water source. The term 'public' has been used to refer to land owned by local bodies. It is to be noted that none of the sectors may monopolize the use of water resources only on the basis of ownership of the land. There are altogether 21 irrigation systems (67%) which have exploited water sources originating on government lands. The origin of the source of water of one system, the Arjung Khola Irrigation Project in Dang District, is a jungle, a government property. The sources of water of other systems originate simultaneously in both public (of VDCs) and private lands. One of the systems in this category is Anjana canal in Chitwan District which was initially owned by the Government but was later handed over to private owners.

Land Acquisition Methods

Canals pass through government, public or private land. Land on which the canal is to be constructed has to be acquired by the canal users either by paying compensation or by agreement without paying compensation. Compensation is usually not paid for government or public land and for the land of those who benefit from the canal. In the irrigation systems studied, lands for constructing canals were acquired by adopting a few not effective methods. Only two cases were detected in which compensation was paid in the form of cash or land for the acquisition of the land. In the first case, the construction of Ganga Irrigation canal in Gorkha District was initiated in 1959 by local farmers, under the leadership of Mr. Ghanshyam Aryal and his brothers. The problem faced in this project was that there was a small plot of land (about 684 Sq. ft.) owned by Mr. Abdul Miya near the source of water and unfortunately the canal had to occupy all of his land but he would not benefit from the project. The local farmers decided to raise a fund from the beneficiaries of the project to purchase a plot of land (10952 sq. ft.) for Mr. Miya which could be irrigated by the canal. This plan was accepted by Mr. Miya and canal construction was completed as per the agreement. However, some farmers gave their land without taking any compensation on the ground that they were to benefit from the project.

In another case, namely, the Chauwa Khola Irrigation System, the original canal was constructed by local the Tharu community in 1839 and it was improved and enlarged in 1993 with partial loan assistance from the World Bank and the Agriculture Development Bank, Nepal. The Village Development Committee decided to provide compensation to the land owners whose land had been acquired by the project but did not benefit from it. The total amount of compensation was about two hundred thousand rupees.

Compensation has not been paid in any form in 29 (94%) of the systems because the affected parties also benefitted from the irrigation canals constructed on their land. The affected parties of 10 systems out of the 29 were also convinced by the advice and suggestions received from the local leaders.

Similarly, extension of canals were done by acquiring lands of the users. Compensation was not necessary in such cases because they benefitted from the extended command area. It was observed that in 25 systems the required lands have been acquired from the users without paying any compensation. It is interesting to note that in 5 out of the above mentioned 25 systems lands were acquired by mutual understanding from individual or families who did not benefit by the extension of the canals. In another 10 systems land was acquired from the public or government agency. There is an isolated case of compensation being paid to 15 affected families. The Kumroj Paschim Third Irrigation Project, Chitwan District, paid a sum of a little over Rs. eight million as compensation to the concerned landowners. The amount of compensation indicates that the construction of the project must have been initiated (and financed) by the government.

HISTORY OF THE IRRIGATION SYSTEMS

The Water Sources of the Systems

The sources of water for most of the irrigation systems (**93%**) are streams. Only **5%** (2 out of **40** systems) tap rivers (Narayani in Chitwan District and Rapti in Dang District). And one system, Anjana canal in Chitwan District, depends on a water fall and a lake.

When Were They Built ?

Of the 40 irrigation systems surveyed, 17 systems (**43%**) were constructed between 100 to **450 years ago** and **22 systems (55%)** were constructed within the past 100 years. The Raj Kulo in Palpa District was constructed by King Mani Mukund Sen, about four centuries ago. King Mukund Sen was the king of a petty kingdom ruled by the Sen dynasty. One system, the Narayani Irrigation System in Chitwan District, constructed by the government, could not be completed. The system operates only in some part of the command area.

Who Initiated Construction of the Canals ?

From the very beginning, local landlords have initiated the construction of canals; but other farmers and institutions have also contributed. Individuals who had 'good influence', i.e., who were respected in their communities, initiated construction work of **18** systems. In some cases they were local leaders and in two instances (both in Palpa District) it was King Mani Mukunda Sen and Shree **3** Maharaja Juddha Shamsher (i.e. the Rana Prime Minister then) who were involved in initiating construction of the canals. Local farmers (the users) initiated construction of **11** canals (**31%**). Although some influential individuals floated the initial idea of construction of canals, the ordinary farmers initiated the actual construction work. They were the major contributors for the construction works.

Governmental or non-governmental agencies initiated construction of canals where the necessity for such a construction was realized by either the government or the local farmers but the latter lacked the required resources. The survey reveals that some governmental and non-governmental organizations **are** involved in the construction of several irrigation projects. Such construction works were carried in **7** systems (**19%**). Governmental and non-governmental organizations undertaking construction of such canals are: the Department of Irrigation, the Department of Soil Conservation and Meteorology, Small Irrigation Project, Agriculture Development Bank, District Development Committees, Village Development Committees, Ward Committees, and projects such as Irrigation Line of Credit (ILC).

Sources of Expenditure

The leading persons (local elites) in all the systems have mobilized various resources for the construction of their respective canals. Such resources include individual contributions, HMG's grant, DDC and VDC development funds, loans (even from international agencies like the ADB and World Bank), Food-for-Work Program, people's participation in the form of cash and labor,

etc. However, it needs to be noted that the contribution of the users in terms of cash is not as important as their participation for the sustainability of the system.

Loans were sometimes taken by farmers from the Agriculture Development Bank (ADB/N) for the construction or rehabilitation/enlargement of irrigation systems with the intention of repaying the amount through the increased grain production. Large loans taken from international agencies such as the Asian Development Bank and the World Bank are to be repaid by the government per the agreement. Seven irrigation systems had to take loan from the Agriculture Development Bank. In most cases, the farmers took loan to fulfil their financial commitment (i.e., from 5% to 10% of the total budget) in the projects in which substantial portion of the cost for the construction of irrigation systems was either donated or given as loan by HMG, the World Bank, SINKALAMA Project, ILC project, etc. for the construction of the irrigation projects. Loans were taken for the construction of four irrigation systems, for the rehabilitation and improvement of two systems and for the construction as well as repair of one system.

The farmers have to mortgage their land to the bank when they loan from it. Usually, the concerned water users association decide how much individual farmers have to contribute to repay the loan and this is normally based on the size of the land to be irrigated. If the loan is not repaid as per the agreement with the bank, it can auction off the mortgaged lands to recover the loan. Of the systems studied, notice for the auction of mortgaged lands has been served to the farmers of only one system. When questioned about this issue, the farmers informed the study team that they were unable to repay the loan because agriculture production was not sufficient to save money and they lacked alternative source of income.

This may lead one to wonder how a bank, established for the welfare of the farmers and to increase their standard of living, can render the farmers "landless." There may be other issues to be examined in this regard such as the problems faced by the farmers and the bank in this direction. Why are the farmers unable to repay the loan? What could be other alternatives if loans are not repaid? What are the ultimate result in majority of cases?

In twenty-three out of the twenty-four systems for which data is available, the basis of resource contribution for construction of canals is either size of landholding or the number of user households. The users with larger landholding contribute more than those with smaller lands. In some cases all households contribute equally irrespective of the size of land they own. The Sishne Dovan Irrigation Project in Palpa District is an isolated case of "will and financial capacity" of the donors as a basis for contribution of resources. This means that affluent households are asked to contribute more than others, irrespective of the size of their lands.

Expansion of the System

It has become necessary to expand irrigation systems to meet the increase in demand for irrigation. For this reason, the irrigation capacity and command areas of 30 systems (about 83%) have been increased. Although all the demand for irrigation cannot be met, the enlargement of these systems means that they are capable to benefiting new irrigators to some extent. However, the irrigation capacity and command areas of about 17% of the systems could be increased.

The expansion of the systems were mainly done through the decisions and understanding of the Water Users' Associations (WUAs) and the Department of Irrigation (DOI). The WUAs normally call a meeting of the users and the issues are decided by the users present. The number of the decisions taken by both the actors are almost similar, i.e., 14 and 13 respectively. Whereas, the decision regarding expansion of the irrigation facilities of the remaining 3 systems were taken by their respective water user's committees.

In 27 of the irrigation systems not a single existing beneficiary household has been left out from the extended command areas. In three systems existing user households have been left out of the expanded command area.

LOCAL LEADERSHIP AND ORGANIZATION

Organization/Water Users Associations

Registration of WUA

The data of the survey indicates that 38 WUAs have been formed by the respective users. Among them only 21 WUAs (a little over 55%) have registered their organizations with the concerned governmental agency, i.e., the CDO office. The WUAs have to submit their constitution while filing application for registration. The informally formed or unregistered WUAs are not considered as legal entities and have to face many legal complications such as they are not entitled to receive loans, they can not operate bank account in their own names, etc.

Formation Process

The records of the survey provides information of the formation process of only 36 systems. The formation process of committees and associations of water users includes consent, nomination and election. In 26 systems committee members were selected by common consent of the users. In four systems both nomination and election are used to select their committee members. This has happened in systems where nomination alone was not effective and some of the candidates had to be selected by means of elections. There are two more systems which use both consent and election as the basis for the formation of their organizations. One of the systems has adopted election as the process of forming the main body and consent as the basis for the formation of sub-committee established for the operation of branch units. In the other system election is used to select members of its executive body.

Basis of Membership of the Executive Committees

The systems have several criterias for providing membership to the executive committees (management committees) of the WUAs. The foremost criteria to be a member of the executive committee of WUA is to be a user of the system. But this criterion has not been mandatorily applied in all the 33 systems which responded to this question. It seems that much attention has been paid, while selecting the committee officials, to geographical representation and to personalities who

are active, trustworthy and have leadership quality; and also those who can spare time to work for the committee. The responses received reveal that they tried to select their members, as far as possible with all the qualities mentioned above. For some systems only one quality was enough while selecting the committee members.

Tenure of Officials

The tenure of the officials of the **WUAs** is between one to three years. The tenure in most of the systems is two years. The Kalapani Praganda Kulo in Dang District has a unspecified period of tenure, but the project may if it feels necessary restructure the committee and may make required changes among the officials especially during the month of Magh (15 Jan. to 14 Feb.).

Fund and its Operation

The funds of **WUAs** are generated through cash and labor contribution, grain donation, water fees, fines, etc. Only 15 **WUAs** generate funds from these sources but they have very little cash funds, which range between Rs. 200 to Rs. 35,000. Only a few systems have been able to save money. The maximum amount saved by the **WUAs** was by the Katuwa Khola Irrigation Project in Dang District which, after accounting all the expenses incurred, saved only Rs. five to six thousand. In one-fourth of the total systems studied, resources are raised whenever it is felt necessary (and not regularly as in other systems). The farmers currently contribute both cash and labor as required for their systems.

The funds of the **WUAs** are operated by officials who vary from one system to another. The chairmen of 10 **WUAs** operated the funds of their associations. Amongst them, in some cases, the secretaries and, in others, treasurers co-operate with the chairmen in the operation of the funds. The treasurers operate the funds of their **WUAs** solely by themselves in six systems and the treasurers in three. In two **WUAs** the watchmen have been made responsible for the operation of the funds.

In two cases, the operation of the **WUA** funds have been entrusted to the VDC chairman and an individual of the respective communities. In the Dhanmashe Kumaltari Irrigation System in Gorkha District, the Village Development Committee chairman and a villager, who possess the largest area of land in the system, operate the **WUA** fund. The users of the Pakariya Irrigation Project in Dang District have selected an individual, Mr. Durga Bahadur K.C., as their leader and also entrusted him with the responsibility of operating the fund.

Bank accounts have been opened by 13 **WUAs** (out of 32 systems) to operate their funds whereas others have yet go do so, for unknown reasons. The users of Shirkatty Kulo, Dang District, revealed that they had not opened a bank account as they were lending money to local individuals levying interest which in turn helped them make extra money for the system.

The survey did not discover any financial irregularities in the funds of the **WUAs**. However, it was noticed that the account keeping system practiced is not very "scientific". The reason being that the local people lack proper knowledge about keeping accounts 'scientifically'.

Decision Making Process

The meetings of the executive body of WUAs are held in different months in different systems as per the will and necessity felt by the respective WUAs. The Sishnedovan Irrigation Project in Palpa District seems to be the only WUA which holds its meeting every month. In fourteen WUAs meetings of the executive committee are held twice a year, especially during the months of *Jestha* and *Magh* (mid-May to mid-June and mid-January to mid-February), i.e., right before plantation seasons of summer and winter crops. Meetings are held annually in five systems and in the remaining systems they are held whenever necessary. In general the meetings are called during *Jestha*, *Kartik* and *Magh* (between mid-May to mid-June; mid-October to mid-November; and mid-January to mid-February). Meetings are necessary during these months because the canals have to be cleaned and arrangements made for water distribution in preparation for irrigation of the monsoon and winter crops.

The meetings of WUAs are generally held in public meeting areas such as open fields, VDC buildings, schools, etc. However, there are four WUAs which hold meetings in the courtyards of some individuals. The meetings of the Budhi Kulo in Gorkha District, are held near the source of water because the committee members make on the spot inspection and monitor the situation from time to time.

All the WUAs have made it mandatory for all the committee members to attend the meetings. Those who are absent from meetings are liable to be punished. In some associations, membership may be revoked if a person does not attend three consecutive committee meetings, while in two WUAs, committee members are not punished for not attending meetings. The study team recorded one instance of a committee member being fined Rs. 50 for being absent from a meeting.

In 28 WUAs decisions are made jointly by the committee officials and the ordinary members of the associations during meetings. The procedure usually followed is that the committee members first extensively discuss the agenda and then all the members unanimously pass the resolutions. However, in two WUAs, decisions are passed during meetings by majority vote and not by unanimous consent of all present. In the majority of the irrigation systems (36), the WUA meetings are attended by both the committee members as well as ordinary members and although all the present may not vote, they do sign the minutes of the meetings. This allows for transparency as well as broad participation in the decision-making process.

Relation with Local Bodies

Of the irrigation systems studied, 27 WUAs stated that their relations with their respective local bodies, namely, VDCs and DDCs was good and only one recorded dissatisfaction with the role of their local bodies, but the reason thereof is not known. And nine WUAs have not involved the local bodies in their activities.

Functioning of the Systems

Operation and Maintenance

In most of the irrigation systems surveyed, maintenance and operational works such as cleaning, repairing, acquisition and delivery of water, etc., are carried out as per traditional practices or the needs of the area. Maintenance and operation activities may be carried out by the users themselves or by operators employed by the users. However, an operator is basically a watchman called by different names in different localities and irrigation systems, such as Pale, Katkandar, Chaukidar, Dhalpa, Sardaruwa, Thekedar, Sipahi, Peon, etc. The responsibilities of the operators (watchmen), whatever they may be called, are to guard and operate the canal and look after the smooth distribution of water for irrigation purpose. Watchmen have been appointed, usually by the chairmen of the WUAs, in 45% of the irrigation systems on an annual basis while in a few systems, they are appointed only for the monsoon season, when the demand for water as well as conflicts increase. A few WUAs do not plan to employ watchmen while they will be appointed in other systems when they (the irrigation systems currently 'managed' by the government) are handed over (turned over) to the users's associations by the government.

The users of the canals have to contribute labor, cash or kind (grains, construction materials, etc.) for the operation and maintenance of their irrigation systems. In 31 systems, the users are compelled to contribute resources on a regular basis for repair and maintenance. Amongst them, the chairmen of 23 WUAs (74%) call the farmers to work to repair and maintain their canals. In some of the cases the chairmen direct the contractors/watchmen to call the users for their participation in the maintenance works. The survey also recorded three systems where maintenance work is done on the basis of information given by individuals or the users. In two systems the users are called by the Sardaruwas (the watchmen) to contribute their labour for maintenance works.

Emergency maintenance work had been carried out in 36 (90%) of the 40 systems; the other systems did not require emergency maintenance work because they were newly built.

Water Distribution

Altogether 33 systems were recorded to have given some sort of priority to the process of water distribution. Amongst them almost all the systems have given priority for the irrigation of different kinds of crops. However, the Chepetar Irrigation Project in Gorkha District has given water use priority to brick making for the construction of the house of a user. Similarly, the Kharkhola Khahare and Armadi and Pahare Khanda Irrigation Projects in Gorkha and Parbat districts have given priority to drinking and irrigation purposes respectively.

In general, turn by turn method of water distribution is practiced. Altogether 36 irrigation systems (90%) follow this method, of which 34 systems have adopted the head-to-tail end or vice versa method of water distribution. The widespread use of this method shows that most associations use systematic method of water distribution for irrigation.

The timing of water distribution for irrigation is an important factor especially during the plantation period. However, water cannot be delivered to the fields as demanded because of the

high demand and the limited capacity of the systems. The users of 20 systems (50%) are satisfied the timing of water delivery to their fields whereas the users of 17 systems expressed dissatisfaction for not receiving water at an appropriate time. In some systems, for example, the Anjana Irrigation System in Chitwan District, water is inadequate for the extended command area especially during the winter period.. This sort of problems is faced especially by the tailend users due to insufficient flow of water in the canal.

The role of water distributor is performed by different individuals in different systems. In 13 systems the chairman of water users committee are responsible for taking decisions on distribution of water to the users whereas this task is performed by the users themselves in nine systems. This task is carried out by watchmen in eight systems and by committee members themselves in six systems. For Khageri Irrigation Project in Chitwan District, it was observed that the officials of the project and the committee jointly play the role of water distributor but, in case of extreme dry season, the elderly persons of the Katuwal family are also engaged in the distribution of water. The Shirkatty Kulo in Dang District presents an isolated case of a Sardaruwa (watchman) being fully in charge of decision making regarding water distribution.

In most systems the water distributors are responsible only for distribution of water whereas in other systems additional duties have been entrusted to them. However, additional responsibilities relating to water distribution depends on the position occupied by the water distributor. Such additional responsibilities are necessary in 24 systems for the smooth and effective operation of the irrigation systems. The water distributors are required to undertake activities as suggested by their respective committees. Some of the important additional duties entrusted are as follows:

- To collect fines;
- To work as directed by the committee or project chief;
- To report to the committee on the status of the canal;
- To arrange for the outlet of the canal;
- To supply water to all the users within the command area on turn basis by giving priority to those plots where seeds are drying for lack of water;
- To mobilize resources and labor for the operation, repair and maintenance of the canal;
- To implement the rules regarding the operation and maintenance of the systems;
- To facilitate dispute resolution process.

During the process of water distribution the water distributor has to face varied problems and the systems under survey were no exception. The problems noted are more or less the same as mentioned **below**, under the **sub-** heading of “operational problems”.

PROBLEMS, CONFLICTS, DISPUTES

Operational Problems

It is rare to find irrigation systems without any operational problems. The survey also reveals that the majority of the systems are plagued with operational problems. In many cases the problems have disrupted the smooth functioning of the systems. The following are the common problems prevalent in the systems studied:

- (i) Lack of leadership and passiveness of water users' associations have led to problems of regular operation of the canals and mobilization of resources, especially cash;
- (ii) Lack of definite rules for the operation of the canals;
- (iii) Problems of water stealing;
- (iv) Controversy over labour contribution and sharing of water between old and new users;
- (v) The conversion of *bari or bhit* (unirrigated, upland) to *kket* (irrigated land) by head and middle users decreases water flow to tail end users;
- (vi) The volume of water in the canals are reduced during the dry season due to the fact that the canals are not lined/ cemented;
- (vii) Government projects are handed over to the users even before they are completed;
- (viii) The watchman appointed by the government has no contact with the users, leading to lack of coordination;
- (ix) Lack of persons to work as watchmen

Disputes

During the survey, water related disputes were recorded in 37 of the 40 irrigation systems studied. The average number of disputes annually per system was five (190 cases of disputes in 37 systems). The number of disputes varies from system to system: 2 conflicts each in 2 systems, 4 in 20 systems, 6 in 8 systems, 7 in 4 systems and 10 in 3 systems. Surprisingly no conflicts were recorded in three systems.

Reasons for Disputes

The data of the survey on the general reasons for the disputes over water related issues are available for only 33 systems. The reasons for the disputes between the users are very similar. Most of the disputes (67%) occurred when farmers diverted water to their fields out of turn, that is over deviation from the water schedule as arranged by the Water Users Associations. Disputes also occur over sharing of inadequate supply of water, (21% of the cases), especially during the dry season (mid-February to mid-June). Only 12% of the disputes were over the sources of water of the irrigation systems.

Nature of Conflicts

The users of the irrigation systems express their conflicts over water issues in several ways, such as by merely voicing dissatisfaction, quarrelling, physical altercation, and filing cases in local administration offices or the court. During the survey, 35 cases of the following nature were recorded which we have classified in three separate categories, namely, (i) conflicts which were limited to verbal quarrelling only and which did not escalate (71%); (ii) conflicts which were limited to expression of dissatisfaction because the parties, for whatever reason, were not willing to or unable to quarrell (6%); and (iii) conflicts which were taken to the local administration offices or court (23%).

Inter-system Disputes and Their Reasons

The field survey recorded not only intra-system but also inter-system conflicts. Of the 40 irrigation systems studied, 15 have conflict with outsiders, of which 14 systems have conflict with users of other irrigation systems and one with a water mill and another irrigation system. Thus in almost all cases conflict is with users of other systems which undoubtedly indicates the lack of proper policy and law on the sharing of water among users of different irrigation systems having the same water source.

The reasons for four conflicts are similar: disputes over rights to water sources. The reasons for the other 11 inter-systems conflicts are divergent. They are:

- (i) Construction of new canals in an old system.
- (ii) Damaging of canals.
- (iii) Diversion of water for drinking purposes
- (iv) Disputes over water allocation between old and new irrigation systems, from the same source.
- (v) Insufficient water during winter season.
- (vi) Insufficiency of water due to extension of command area.

Six irrigation systems brought their inter system conflicts to formal judicial and quasi judicial bodies. Whereas other nine systems tried to resolve their conflicts themselves regarding use and sharing of the water source through mediation but all of them proved to be temporary and the conflict arose time and again. These conflicts are still on going.

Resolution of Disputes

- (i) ***Where do the disputing parties go at first and who settles the disputes ?***

Several actors are involved in resolving conflicts in the systems studied. Conflicts were resolved in 64 (89%) of the cases by the concerned WUAs with assistance from ward committees, VDCs and local elites. This is because they are more accessible to the users in many respects than other

agencies such as judicial and quasi-judicial bodies in the district headquarters. Local elites have very often been sought for the purpose of dispute resolution. Of these 64 dispute cases, the highest number of cases (**66%**) were resolved by the help of local elites. From this fact, it may be submitted that the users have more faith in the local elites than other agencies in this regard. The role of **VDCs** in assisting the **WUA** in resolving disputes figured in 17 (**26%**) cases whereas ward committees were involved in helping resolve only **5** (8%) of the cases. A note worthy fact is that not even a single case has been handled by the Water Resource Committee formed under the Water Resources Act in each district of Nepal. This may be because the local farmers are not aware of the existence of such a committee in their district headquarter. The local District Administration Offices (CDO) resolved 3 (4%) of the cases and the district courts **8** (11%) cases. The low percentage of cases filed with and resolved by the CDO office or the court reflects the fact that the **users** do not want to get involved in cumbersome legal suits which for them is troublesome and an unnecessary waste of time and money.

(ii) *Whether the decisions were implemented or not*

During the survey, the fieldworkers were able to record only **29** decisions, which were made by **WUAs**, local people, **VDCs** and district courts. The decisions of 16 cases (55%) were already implemented and the rest of the decisions (45%) were in the process of implementation. The records do not indicate the non-execution of any decision which proves that the disputing parties more or less respect, and to a large extent, accept the dispute resolution decisions made locally.

While assessing the implementation of the decisions on the basis of who made the decisions, **10** decisions of **WUAs** were already implemented whereas **12** were in the process of implementation. Three decisions taken by the **WUAs** with the help of the local people had already been implemented and two were in the process of implementation. One decision each of a **VDC** and a district court were also already implemented. This in totality reflects that many water related cases are being resolved by **WUAs** and the implementation of their decisions is also very high. However, the role of the local people, who have no authority to hear water related cases but nevertheless do **so**, is vital in resolving disputes. They resolve disputes by themselves or help **WUAs** or **VDCs** in this process.

(iii) *Acceptance of the decisions and writ and appeals*

On the issue of whether writ petitions or appeals were filed against the decisions of the **WUAs**, only **37** responses were recorded during the survey. In only four (11%) of the cases have the parties, unhappy or dissatisfied with the decisions made by the **WUAs** or those who felt their interests were affected or injustice had been done to them, filed petition in the concerned district courts. In most of the cases (**89%**) the parties accepted the decisions as an effective mechanism for the resolution of such disputes. It is submitted that the users tend to accept the decisions of the respective **WUAs** as final and they do not try to follow the cumbersome legal procedures for the settlement of their disputes.

CONCLUSION

The charm and dynamism of successfully running irrigation systems depend on many factors, all of which are found in Nepalese farmer managed irrigation systems. To cite a few factors: inexpensive rehabilitation and expansion projects; accommodation of new users by extending command areas while not excluding old users; equal respect and equal treatment to all the users; priority in water distribution according to need, i.e., need of crops and not of persons; better understanding among the users; voluntary and active participation of the users in the management as well as maintenance of their systems; involvement of users in the decision making process, i.e., decision making is not monopolized by the users' committee: capabilities to use the available resources properly; and their capability to resolve conflicts in their systems, etc. Another vital dimension is flexibility in running irrigation systems. For example, watchmen are entrusted with judicial authority, an user who is not a WUA committee member can operate the bank account of the association, etc. The issues mentioned above may seem to be problematic in some instances but they are not so critical as to cease the operation of the whole system.

A substantial number of irrigation systems (45%) were initiated by individuals which in turn has resulted in the emergence of informal leadership and has contributed a lot in the establishment of irrigation systems. Though the people who initiated and completed the construction of canals can legally claim prior water use rights, the fieldstaff did not discover such practices which means that everyone is treated on equal footing within the system.

The farmers in all the systems, except two, made available land for the construction of canals without any compensation or creating any dispute or legal complication. This fact has certainly made the projects less expensive and viable as well as less problematic.

In general people try to evade conflicts by being absent from the spot where the other party is reacting in anger. If conflicts arise, they are usually solved locally through mediation process. The majority of the cases which were filed with judicial or quasi-judicial bodies were registered without first trying to resolve them through locally available process of mediation. The number of such cases may be decreased if the people are made aware of the advantages and disadvantages of both methods of conflict resolution.

Disputes between different irrigation systems and competitive users such as water mill or other industries or drinking water projects are on the increase due to limited water supply and high demand, in specific areas, and also the ever growing population pressure. In such a situation, there is an urgent need to protect water rights of the people through legal mechanisms and to make the users aware of their (legal) water rights and the measures to be followed to protect their rights. The level of legal awareness of the local farmers is very poor. In many instances, others have exploited their poor legal awareness to adversely affect them but they lack the knowledge to deal with such situations. The users of irrigation systems experience other problems and conflicts due to their lack of scientific account keeping, knowledge about registration of their association, and good management practices. It is therefore recommended that programmes be launched to make the farmers aware of their legal rights, teach them the process of registering their association and how to effectively manage it. Conducting seminars, workshop, training sessions, legal counselling and

publishing bulletins in simple Nepali are some of the means of making the farmers aware of their rights and helping them manage their associations more effectively.

NOTES

- 1 This is a revised version of the paper presented at the workshop on Water Rights, Conflict and Policy. Kathmandu, January 22-24, 1996.
- 2 Both authors are associated with **FREEDeAL**.
- 3 Due to various reasons, data for all the 40 irrigation systems were not available for all the topics. The number of systems for which data were available vary from topic to topic. Hence while presenting data in different places, the percentages have been calculated on the basis of the number of systems for which data were available for that specific topic.

ANNEX-1
LIST OF THE IRRIGATION SYSTEMS STUDIED

#	Name of Irrigation Project	Location	Management Type	Remarks
GORKHA DISTRICT				
1.	Nebale Phant Irrigation Project	Masele VDC	Government Managed Irrigation System (GMIS)	
2.	Gangete Kulo	Taple VDC Ward No.1	FMIS	
3.	Dhanmase Kamaltari, Irrigation Canal	Ashrang VDC Ward No. 3	"	
4.	Budi Kulo	Bunkot VDC Ward No. 2	GMIS	Constructed by HMG and handed over to users.*
5.	Chepetar Irrigation Project	Taranagar VDC	"	
6.	Kharkhola Khahare Irrigation Project	Mirkot VDC	"	
PARBAT DISTRICT				
7.	Armadi and Pahare Khenda Irrigation Project	Shivalaya VDC Ward No 9	"	
8.	Ratochauka Irrigation Project	Shanker Pokhari VDC Ward No. 9	GMIS	Constructed by HMG and handed over to users.*
9.	Gyandi Irrigation project	Katuwa Chaupari, VDC ward No 3	"	
PALPA DISTRICT				
10.	Rajkulo (jide) Irrigation Project	Aurgali VDC Aurgali Khulba	FMIS	
11.	Shahili Kulo Irrigation Project	Aurgali VDC Purana Gaon	"	
12.	Cherlung Thulo Kulo Irrigation Project	Budha VDC Ward No. 1	"	
13.	Cherlung Tallo Kulo Irrigation	Budha Gumha VDC Ward No 3	"	
14.	Sishne Dovan Irrigation Project	Dovan VDC Ward No4	"	
15.	Kachal Phant Irrigation Project	Dovan VDC Kyal Phant	Joint Management System	
DANG DISTRICT				
16.	Gowar Khola Irrigation Project (Teliya Kulo)	Bijuri VDC (Bijuri Dang)	Joint Management	
17.	Manikulo WUC	Bijuri VDC Hemanta Pur	FMIS	
18.	Chauwa Khola Irrigation Project	Manpur VDC Nimuwa	ILC Project Running FMIS	
19.	Pakariya Irrigation Project	Bijuri VDC Pakare	FMIS	
20.	Arjung Khola Irrigation Project	Lamahi Deukhuri		
21.	Katuwa Khola Irrigation Project	Tribhuvan Nagar Municipality Gorahi Masina	FMIS	Irrigation Line of Credit Project (ILC)
22.	Kalapani Praganda Kulo Deukhuri	Mauri Ghat Deukhuri	FMIS	Survey being conducted
23.	Ambapur Irrigation Project	Tribhuvan Nagar Municipality Ghorahi Amberpur	FMIS	Cooperated by Municipality. No detail study yet
24.	Halwar Malwar Kulo	Doruwa VDC Malwar Mauja	FMIS	"
25.	Shirkatty Kulo	Pawan Nagar VDC	FMIS	"

ANNEX 1 (Contd.)

#	Name of Irrigation System	Location	Management Type	Remarks
CHITWAN DISTRICT				
26.	Anjana WUC	Divyanagar Chitwan	FMIS	"
27.	Kumroj Paschim Third Irrigation Project	Divyanagar Parchauli VDC Khairani Kumroj	FMIS	
28.	Kumroj WUC Irrigation Project	Beluwa Gaida Dhaitya Kumroj	FMIS	Rehabilitated by the help of Agriculture Bank
29.	Beluwa Gaidadhap WUC	Kumroj Chitwan	FMIS	DOI
30.	Panchkanya Irrigation Project	Panchkanya VDC Ward No 8	FMIS	
31.	Khagari Irrigation Project	Panchkanya VDC Tikauali	Management by Irrigation Office	Farmers Participation in Maintinace and Repairing by the formation of WUG
32.	Narayani Irrigation Project	Office of Irrigation Project Bharatpur Chitwan	GMIS	
33.	Rapti Irrigation Project	Bharatpur, Chitwan	Project Manager, DOI	
TANAHU DISTRICT				
34.	Satrasaya Phant Kulo (Aandhi Mul Irrigation Project)	Bandipur VDC Yampa Phant	FMIS	DOI
35.	Yampa Phant Gaisi Kulo	Bandipur VDC		Hill Food Programme
SINDHUPALCHOK DISTRICT				
36.	Kamune Muhan Majhkulo	Shikharpur Baguwa 5	FMIS	
37.	Arubote Irrigation Project	Shikharpur Baguwa 4	FMIS	
38.	Sirankulo	Shikharpur Baguwa Ward No 6	FMIS	
39.	Tallo Chapleti Kulo	Shikharpur Baguwa 9 Bangaon	FMIS	
40.	Gaire Kulo/Muhane Kulo	Bande Gaon VDC Ward 8, Daunde Gaon	FMIS	

Law, Rights and Equity: Implications of State Intervention in Farmer Managed Irrigation Systems'

Rajendra Pradhan, K. Azharul Haq, Ujjwal Pradhan²

INTRODUCTION

Over the past two decades the state has intervened heavily, directly or indirectly, in farmer managed irrigation systems (FMIS) to increase agriculture production by expanding irrigated agriculture'. Along with these interventions many studies have been conducted and workshops held to seek ways to reduce the cost of rehabilitation, expansion and maintenance of FMIS. For example, since 1986, IIMN Nepal, which has worked closely with the Water and Energy Commission Secretariat (WECS) and the Department of Irrigation, has published at least four books based on workshops or seminars on public interventions in FMIS⁴. These studies have shown that farmer participation in rehabilitation and improved water management capabilities of the water users are two ways of achieving these objectives.

In many ways research on the consequences of interventions do not seem to have progressed much, at least concerning water rights issues, since the first conference on public intervention in farmer managed irrigation systems held in 1986 in Kathmandu'. Coward and Levine (1987) suggested in their keynote paper in that conference that the issue of water rights was very important in public intervention. They argued that state intervention often leads to "eroding or eradicating the legitimate rights of existing water users" (ibid.: 19) but secure water rights are important for incentives to individuals and groups to develop and maintain their systems. They suggest that the State can play an important role in allocating and enforcing water rights. In the Nepalese context, Coward and Levine mentioned Martin's (1986) and U. Pradhan's (1984) studies. Martin showed that secure water rights are important for successful operation and continuity of FMIS and U. Pradhan demonstrated (1984) that one of the (unintended) consequences of state intervention

in FMIS is to “disrupt the security of water rights held by traditional users” (Coward and Levine 1987:19). Some of the participants of the conference were also concerned with water rights issues, especially of local water rights. One of the questions raised during the discussion in that workshop was, “As government authority penetrates more into rural areas, what happens when local customary water rights conflict with national laws?” (Martin and Yoder 1987:vi).

The issues raised in the conference have not been pursued seriously in Nepal, even by IIMI. In the workshops, seminars and publications which followed, most of the papers discussed either implications of state interventions for the cost of system rehabilitation, increase in command area and agriculture production and productivity, or management **issues** such as farmer participation, strengthening local farmers capability to maintain and operate their systems⁶. Issues concerning law, water rights and equity were rarely addressed’.

It is of course perfectly reasonable to have other concerns than water rights. However, the neglect of this issue in intervention and research may lead, among other things, to disinclination by the existing irrigators to continue developing and maintaining their irrigation systems, to the targeted beneficiaries of system expansion projects not having access to irrigation, or to conflicts between farmers of the same or different irrigation systems. As the studies in this volume show, in some cases, the enlarged irrigation system benefits new users at the cost of existing users who had invested in creating and maintaining the system. In other cases, the targeted beneficiaries receive less water than proposed or do not receive any water at all. Further, the construction of a permanent headwork to replace the temporary brushwood structure of one system benefits the users of that system but reduces water supply to downstream irrigation systems. **All** these raise questions concerning rights, law and equity.

In this paper we discuss how state interventions in FMIS affect existing water rights relationships between stakeholders (old as well as new rights holders and non-rights holders) and how such interventions, often legitimized by state law, frequently question local law as well as notions of rights and equity based on or justified by such law⁸. Three case studies of state interventions to rehabilitate and enlarge existing **FMIS** will be discussed. It will be argued that state intervention often provide opportunities for some stakeholders to contest and possibly change property relations and rights (as well as obligations), and the basis of these relations and rights, by negotiation, disputing, or resorting to administrative and political connections. Social relations, especially power relations, the resources they are able to employ, the type of involvement of the state (or donor agencies), organizational skills and location of land in the command area all determine how property relations and water rights are restructured. Law, whether state or local, is but one of the resources used to legitimize their claims (cf. R. Pradhan and U. Pradhan 1996). The paper will also raise the question of how equity is to be defined and who is to define what is equitable.

STATE INTERVENTION AND DISPUTES IN FARMER MANAGED IRRIGATION SYSTEMS

We will now present case studies of disputes between farmers over water rights issues in several farmer managed irrigation systems which were initially constructed by the users of the canals and

later rehabilitated and enlarged with grants from the state. All of these are small, hill irrigation systems, **service** command areas ranging from 16.5 ha to 51.9 ha and benefit between 64 to 110 households. The volume of water in these streams, fed by springs, increases during monsoon and decreases considerably during the pre-monsoon months.

The cropping pattern in all these systems are similar, and vary according to season and type of land. During monsoon, rice is grown in *khet* (low land, irrigated rice fields) and maize (one in one case millet) in *bari/pakho* fields (upland fields): this is followed by wheat (and in one case mustard) in *khet* and mustard in *bari* fields; finally during the dry, pre-monsoon season, early rice or maize are cultivated in *khet* and *bari* fields are either left fallow or maize or *ghaiya* dhan (a paddy crop which is broadcast and not transplanted and which does not require irrigation) are cultivated.

In all these systems more land could be irrigated and bari land converted to khet if the existing rights holders agreed to allocate water to these fields or practiced a different system of water distribution. The existing rights holders, however, were (and are) extremely reluctant to enlarge the area of irrigated fields (*whether khet or bari*), except when they themselves benefit and because they are usually local elites, they are able to effectively control water use. The farmers who did not have access or rights to water waited for the right opportunity to stake claims to rights or somehow acquire water. The intervention by the state, directly or indirectly, as well as active leadership provided by a few local leaders initiated the process of staking claims to water rights from sources (irrigation system or stream) they were previously denied.

The three case studies describe the consequences of state intervention for existing irrigators and newcomers within irrigation systems: in one case (Aarubote Kulo), the targeted beneficiaries did not receive irrigation water while another case (Jaisi Kulo), state intervention helped the targeted beneficiaries actualise their water rights. These case studies complement the case study of Satrasaya Phant described elsewhere in this volume (Durga K.C. and R. Pradhan) The third case study describes the consequences of intervention for irrigators of other irrigation systems tapping water from the same source (Tallo Chapleti). State intervention and active leadership helped one system acquire water at the cost of another system. This case study complements the case study of Telia **Kulo**, described elsewhere in this volume (M. Pradhan and R. Pradhan), where intervention by the state helped downstream canal farmers protect their water rights.

These case studies also illustrate the importance social relations, especially power relations, between stakeholders in acquiring, rearranging and protecting water rights.

Aarubote Kulo in Sindhupalchowk

Aarubote Kulo is located in Sikharpur VDC of Sindhupalchowk District and is the most downstream of the three irrigation systems which tap water from Sahara Khola, a spring fed stream. The canal was first constructed in 1977 by three farmers using their own resources. A few years later other farmers, including Majhis (fishermen/ ferry men), contributed labour to extend the canal. The canal irrigated about 1.7 ha of *khet* during monsoon and benefited 12 households.

The irrigation system was rehabilitated and enlarged between 1986 and 1987 with grants by the SINKALAMA project totalling Rs. 500,000. The beneficiary households contributed a total

of Rs. 200,000 worth of labour and Rs. **25,642** cash as security deposit, two conditions laid down by the project. The canal is now **3 km** long, irrigates **9.33** ha of khet during monsoon and **16.55** ha of khet and bari during winter, and benefits (or was targetted to benefit) 74 households.

One of the main objectives of the extension project was to provide irrigation facilities to the fields in Aarubote gaon (also known as Majhi gaon), a hamlet settled by Majhis (low caste fishermen/ferrymen), at the **tail** end of the present day command area. The 28 Majhi households of Aarubote gaon also contributed labour and cash for the canal rehabilitation and enlargement project and the canal was extended **upto** their hamlet. However, as in many canal extension projects, the main beneficiaries are head and middle sector fanners. Many of them were able to take advantage of the improved water supply to convert their *bari* (upland fields) to *kher*. Many Majhis too converted their *bari* to *khet* with the expectation that they would receive irrigation for the monsoon rice crop. However, five Majhis households have reconverted and other households are planning to reconvert their new khet to bari because they have not been able to acquire water for their monsoon rice crop. Though they are able to acquire water for the winter crops they do not receive sufficient water even for crops such as maize which require less water than rice because the upcanal farmers use up all the water or frequently divert water to their fields out of turn. Or they receive water only after fanners at the headreach have finished irrigating their fields but by then **the** seeding time is almost over.

~~The tail end farmers could have irrigated their fields~~ had there been an effective water management organization and officials such as water monitors and had the farmers who diverted water out of turn been penalized (cf. Durga **K.C.** and Pradhan, this volume). But the users of Aarubote Kulo do not have such an organization or official and the upcanal farmers are not penalized for diverting water out of turn. The upcanal fanners, or rather the leading families, are not keen to form a water users' association or have a formal canal management committee and water guards, all of which exist in Majh Kulo, a few hundred meters above Aarubote Kulo, because they benefit from a lack of such organization. All the decisions regarding water management activities are taken by a few leading families.

The upcanal fanners claim that they allocate water to the tail end sector and that had they really wanted, they could irrigate their fields but they (the Majhis) are not interested in irrigation or agriculture. They further claim that the Majhis are lazy or scared to convey their fields to khet because of the danger of landslides and that they are more interested in fishing which they find more lucrative than fanning. The Majhis claim that they are keen to cultivate their fields and grow rice but even if they are allocated water, they are unable to acquire water for monsoon irrigation.

Two local rules make it possible, at least theoretically, for the tail end farmers to irrigate their fields. First, the Majhis are allowed to irrigate their fields at night. Second, whoever reaches the intake first has priority in delivering water to his field. However, it is usually the case that the upcanal fanners are present at the intake as early as 2 a.m. so that in effect the Majhis hardly ever get the opportunity to irrigate their fields. And even if they manage to get their first, the upcanal fanners divert water to their fields out of turn.

In **1993**, as in other years, the Majhis were unable to irrigate their monsoon maize crop but that year, unlike earlier, they organized themselves and threatened the upcanal fanners with *khukuris*

(Nepalese knife). This threat persuaded the upcanal fanners to allot water to the Majhis for two days during the monsoon season. However, the following year the upcanal fanners again deprived the Majhis of their water rights. The Majhis retaliated by not contributing labour for maintenance of the system, which they had done regularly earlier. The next year, as a result of further threat and negotiation, the Majhis were allowed to irrigate their winter crops in time and undisturbed but they are yet to acquire water to irrigate their monsoon rice crops.

State intervention changed existing property relations and structure of rights. The upcanal farmers, the old rights holders in the canal, accept, at least in principle, that the tail end fanners have rights to water from the canal. The Majhis have rights to water from the canal because they contributed labour for its rehabilitation and extension and also because the project was sanctioned, and grants given, primarily to irrigate their fields. The upcanal fanners, however, grant them junior rights, reserving for themselves senior rights to water from the canal. Their claim to senior rights is supported by two rules, both of which are in accordance with state (National Code) as well as local law. First, as the original investors in the canal (by contributing labour for construction and maintenance), they have senior rights. As in many communities, in this locality too, newcomers have junior rights to the existing rights holders. Second, upcanal fanners have priority over downcanal farmers in water acquisition.

The question is how much water can the upcanal fanners, the old rights holders, use? The National Code states that the prior appropriators (the old investors) and the upcanal irrigators can use as much water as they require to irrigate their fields and that existing irrigated fields, wherever they are located, should not be deprived of irrigation. Local rule also assigns priority in water distribution to existing rights holders and upcanal fields. This may mean that the newcomers, particularly if their fields are located at the tail end of the command area, may receive very little or no irrigation water, as long as the upcanal fanners do not waste water.

However, and this is an important point, local rules, in this case, water distribution rules, are subject to negotiation between the rights holders. And the outcome of the negotiation (agreement or lack of agreement, disputes, etc.) is influenced a great deal by social relations, especially power relations, between the stakeholders. In this case, the tailenders, because of their location and weak social position, were at first unable to irrigate their fields even though they had rights to water from the canal. Later, they were able to irrigate their fields for limited time and that too only for some crops (not the important rice crop) only because they threatened physical violence and refused to contribute labour to repair the system.

Jaisi Kulo and Baraha Kulo in Tanahu

The village known as Yampa Phant lies on a hill slope. The upper part of the village is called Jaisi Phant and the lower section Baraha Phant. Jaisi Phant is irrigated by Jaisi Kulo and Baraha Phant by Baraha Kulo. It is not known for certain when these irrigation systems were constructed and which system is older but both systems tap water from Sano Andhi Khola, a tributary of Andhi Khola. The intake points of Baraha and Jaisi canals were located less than 100 meters apart so that increased water supply to one canal was reduced if the other took more than the share agreed upon. The fanners of these two irrigation systems had negotiated and renegotiated water allocation from the stream and finally agreed to share water equally even though Baraha Kulo irrigates eight times

more land than Jaisi Kulo. One of the main reasons for the equal allotment of water is that the fanners of Jaisi Kulo had an advantage over the fanners of Baraha Kulo because their canal is upstream to the latter canal. (See Map I). According to local law, upstream systems, especially if they are constructed earlier than downstream ones, can divert as much water as they want. The users of Baraha Kulo were not really satisfied with this agreement and continued to demand more share of water. The disputes between the users of the two systems **are** still continuing.

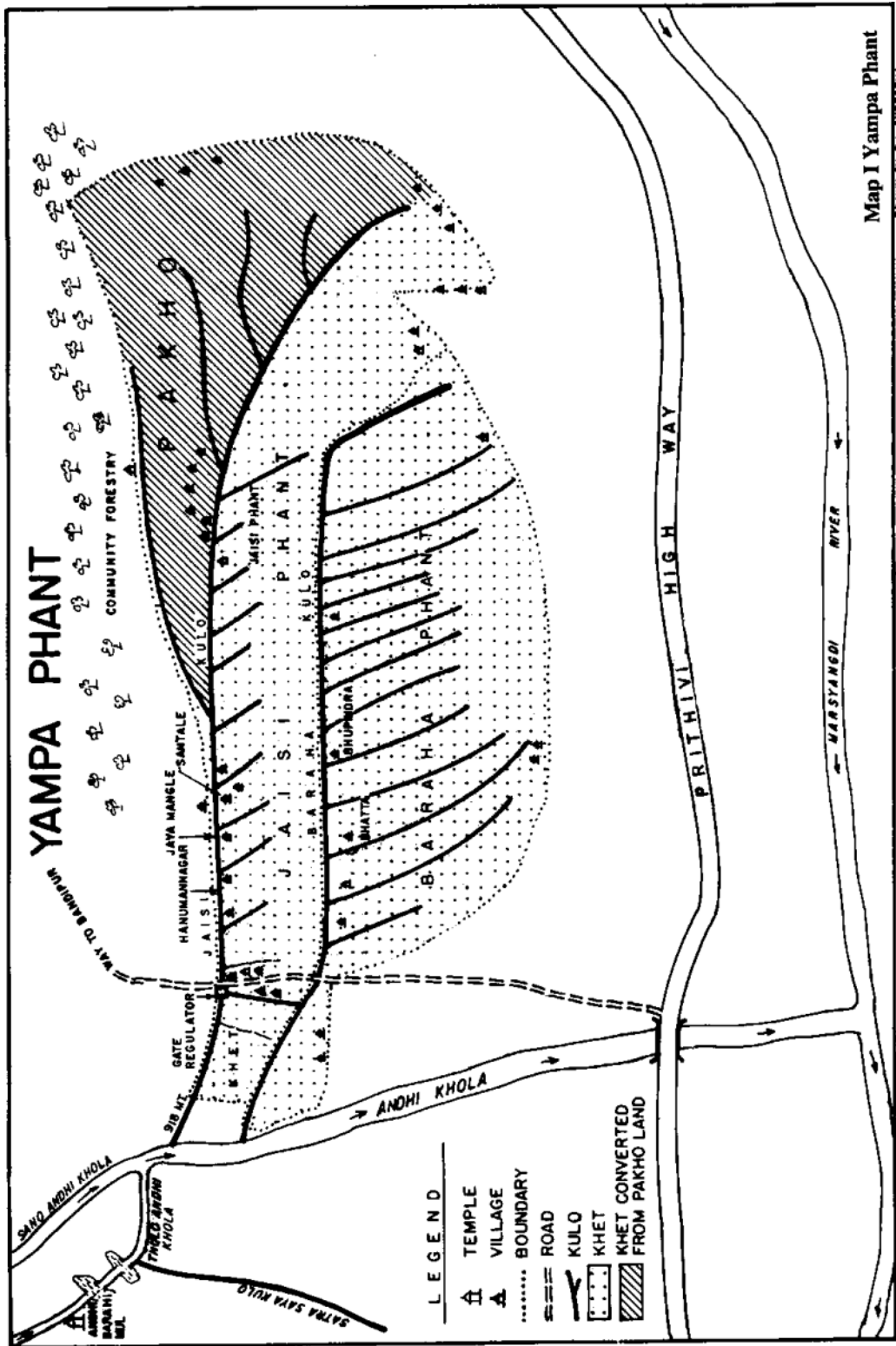
In 1988 and 1989 the Yampalis received two grants of Rs. **8,85,576.00** and **Rs. 6,00,000** respectively from the Hill Food Irrigation Development Project (HFDIP) to rehabilitate and combine the two irrigation systems. The two systems were to have a single diversion structure in **Andhi Kholra** and water was to be diverted to Baraha Kulo from a gate regulator in Jaisi Kulo. The tail end of Jaisi Kulo was to be enlarged to irrigate pakho land. The fanners had **to** contribute **25%** of the **total** cost, **20%** as labour and **5%** cash as security deposit.

Before the implementation of this project, the total cultivated area in Jaisi Phant was **22.15** ha of which only 1.60 ha was irrigated **by** Jaisi Kulo. In Baraha Phant, of the total cultivated area was **14.35** ha, 11.85 ha **was** irrigated by Baraha Kulo. Baraha Phant had **2.5** ha of pakho (unirrigated fields) and Jaisi Phant had **20.55** ha of unirrigated fields. At present, after the rehabilitation and extension as well **as** fusion of the two irrigation systems, Jaisi and Baraha Kulo service about **37** ha of fields and benefit **65** households. All the cultivated fields, including the formerly pakho fields, are irrigated.

Whatever may have been the plan proposed to the HFDIP office in order to get the budget **sanctioned, the farmers did not mean to implement the project according to the plan. Once the plan** was approved and budget sanctioned the Yampalis began to dispute between themselves about which canal should be improved and enlarged and the share of water they were to be allocated. There were **three** parties to this dispute: a) existing irrigators of Baraha Kulo, b) existing irrigators of Jaisi Kulo and c) potential irrigators who owned pakho land in the tail end of the Jaisi Kulo command area. They disputed before, during and after the project **was** implemented. While the farmers of the existing irrigated fields justified their claims by reference to local law, the owners of pakho land and officials of the state agencies gave other reasons to support the claims of the pakho land owners. After protracted negotiation, mediated by government officials, they were able to reach a compromise which secured water rights for the pakho fanners of Jaisi Kulo while at the same time protected the prior rights of the existing rights holders.

Dispute before Implementation of the Project

The fanners of Jaisi Kulo demanded that most of the canal improvement work should be **carried** out in their canal and that they be allocated a larger share of water than Baraha Kulo. They argued that Jaisi Kulo can service both khet and pakho land. Pakho land could be converted to khet after the canal was improved and extended. Further, Jaisi Kulo could easily irrigate fields in Baraha Phant, located directly below the command area of Jaisi Kulo. The fanners of Baraha Kulo argued that they should be allotted more water **than** Jaisi Kulo because they have a larger command area. They demanded that water should be allocated according to size of the command area. Moreover, traditionally irrigated *khets* (*sabik khet*) have higher priority for irrigation than *pakho* land. The owners of pakho land in Jaisi Phant demanded water from Jaisi Kulo to irrigate their monsoon rice



Map I Yampa Phant

DRAWN BY: R. L. SHRESTHA

crop (i.e., after they had converted their pakho fields to khet). They argued that they have rights to water from the (improved) canal because had their fields not been included in the project plan (to increase the command area) the project would not have been sanctioned.

The three disputing parties could not come to an agreement and the owners of pakho land filed complaints with the Chief District Office, the Agriculture Development Office, the District Panchayat Office and the HFIP office. Officials from these offices visited Yampa Phant and, after surveying the area, suggested that irrigation should be provided to the pakho fields. The District Panchayat (now called District Development Committee) instructed the Village Panchayat (now called Village Development Committee) by letter to ensure that the pakho land received irrigation and that at the same time the traditionally irrigated fields did not receive less water than they had been receiving. The rhetoric used here is not that of rights but appeal to the broad national policy of increasing irrigated land. Part of the letter reads, " His Majesty's Government has a policy of providing irrigation facilities to pakho land to grow irrigated crops and increase national income." The Pradhan Pancha (chairman of the village council) was given the task of mediating in this dispute.

In a meeting attended by 56 farmers of Yampa Phant and the Pradhan Pancha, Ward member and a member of Peasant Organisation, the following following resolutions were passed:

1. *Cash and labour to be contributed by the farmers for the improvement of both Jaisi and Baraha Kulos would be made on the basis of the size of land which was registered as khet (sabik khet) in 1933 and later.*
2. *Water is to be distributed from the same location in the river as has been done traditionally.*
3. *Regarding water allocation, water discharge should be measured at the place of distribution. Since the Baraha kulo has larger service area, 3 parts of water would be allocated to Baraha Kulo and 2 parts to the Jaisi Kulo from the intake point at the river.*
4. *Equal priority is given for the improvement of both Jaisi and Baraha Kulos to prevent water loss through kakes from the canal.*
5. *Required irrigation is to be provided to the existing pakho land (sabik pakho) for growing winter crops such as wheat, mustard, and vegetables. The main objective is to provide irrigation to the pakho land to increase crop yields by utilizing minimum water.*
6. *Irrigation will be provided from 1st Aswin to 15th Chaitra (15th October to 30th April, i.e. winter season) to grow winter crops in the Pakho land (sabik pakho).*
7. *Irrigation will be provided from Jaisi Kulo for the establishment of vegetable nursery and transplantation of vegetables in the pakho land but if more irrigation is needed, water will be provided from both Jaisi Kulo and Baraha Kulo.*
8. *When pakho land receives irrigation from Baraha Kulo, the khet fields of Jaisi Kulo should not be irrigated from this water.*
9. *Irrigation will be provided to the pakho land for the required time from a suitable place in the canal.*

10. *Regarding cash contribution from the farmers as deposit for the HFIP project, cash should be collected at the rate of Rs. 20 per ropani (0.05ha) from pakho land since irrigation is essential for growing winter crops there and Rs 90 per ropani from Khet fields.*
11. *Distribution of water at the field level is to be done by the Thekedar (water monitor) on the basis of Bhijuwa Palo (water distribution from the head to the tail, each field getting as much water as is required) as per the allocated share of water (between different sectors).*

One copy each of the above agreement was distributed to the concerned Village Panchayat office, Jaisi Kulo and Baraha Kulo farmers.

The terms of the agreement accorded priority to the existing rights holders and at the same time recognized the (junior) rights of the newcomers, who would be allocated water only for winter crops. The agreement favoured the users of Baraha Kulo: not only were equal priority accorded to both the canal for improvement work, Baraha Kulo would receive more water than Jaisi Kulo, which had to be shared with the new irrigators. The pakho land farmers were given rights to water from the irrigation system due to the intervention of government officials. And Baraha Kulo farmers were able to extract favourable terms because the Pradhan Pancha of the Village Panchayat owned land in Baraha Kulo command area and was able to manoeuvre the terms in their favour. The users of Jaisi Kulo were not too happy with the terms of the agreement, as can be seen from the disputes which occurred later. They agreed to the terms only to begin the rehabilitation work.

Disputes during Implementation of the Project

The decisions taken in the meeting temporarily resolved disputes between the different stakeholders of these irrigation systems. When the construction work was nearly completed, there was another dispute between the owners of existing khet land and the newly pakho land (who had converted their land to khet) over water distribution. The pakho khet farmers again appealed to the officials to secure water for their fields. Another meeting was held between the farmers of Yampa Phant, the CDO, officials from the Regional Director of Agriculture Development, the Coordinator of the Hill Food Irrigation Project, the Pradhan Pancha and ward members. The following resolutions were passed in the meeting:

The improvement work of the project is almost complete and now there is dispute between (the owners of) pakho land and khet land over using water from the canal. Do not dispute about using water from the canal. The water available in the canal can irrigate maximum land area and increase crop yields and the national income. All of us should think about the development of the country. Irrigation water will be provided to pakho land without affecting water supply to the existing khet fields.

The District Panchayat has authorized the Village Panchayat to form a Water Users' Committee (WUC). This committee will be formed by the beneficiary farmers with the help of the concerned Agriculture Development Officer and technicians from the project. The main objective of the WUC is to manage irrigation properly for the pakho land. The pakho land is to be gradually converted into khet to increase crop production.

As per the decision of the meeting a eleven member Water Users' Committee was formed under the chairmanship of Mr. Ram Kumar Shrestha, Pradhan Pancha and chairman of the construction committee.

The resolutions passed in the meeting, as in the earlier decisions, legitimised the claims of the newcomers (pakho land owners) to water without specifying their share of water from the system. Again, the rights of the existing irrigators were protected (to the extent of their traditional share of water) while insisting that the new irrigators should be allocated water from the improved system. The basis for allocating water was that there was sufficient water and that the national goal was to increase irrigated agriculture.

Disputes after Completion of the Project

After the construction work was completed, the construction committee was dissolved in a meeting held in 1989. The meeting was attended by the Acting Agriculture Development Officer, Manager of Agriculture Development Bank (ADB/Nepal), the overseer of HFIP, four ward members of Bandipur Village Panchayat and 42 farmers. The following decisions were made in this meeting:

The improvement works in Jaisi Kulo and Baraha Kulo have been completed under the assistance of the Hill Food Irrigation Project. Water is to be delivered to Baraha Kulo from the main canal of Jaisi Kulo 918 meters downstream from its intake.

Water is to be distributed on rotational basis, 12 hours each for Baraha Kulo and Jaisi Kulo; out of 12 hours for Jaisi Kulo, 8 hours for existing khet land (sabik Khet) of Jaisi Kulo and 4 hours for pakho land to irrigate rice crops.

The decision taken in this meeting not only legitimised the claims of the pakho land owners to water rights in the system, it also allocated water to them from the share allocated to Jaisi Kulo. The pakho sector was allocated 4 hours of water (one-sixth). The pakho land owners were able to establish their rights so securely that later when the farmers of Jaisi and Baraha canals disputed over water allocation, the pakho sector was still assigned 4 hours of water.

The Jaisi Kulo farmers, however, were not happy with the share of water allotted to them and they later demanded more water. In 1993 after protracted negotiation, equal shares of water (10 hours each every day) were allocated to the traditionally irrigated fields in Jaisi Kulo and Baraha Kulo and four hours to the pakho fields. The next year, the users of Baraha Kulo demanded that they be allotted 12 hours of water per day, as agreed upon during the meeting, arguing that before the unification of the two canals they had received equal share of water and, moreover, 10 hours of water was not sufficient for them because they had more land to irrigate than Jaisi Kulo. The Jaisi Kulo users were not willing to share water equally so the users of Baraha Kulo were unable to receive more water than allocated to them. And it was not possible for the users of Baraha Kulo to forcefully acquire more water because water was conveyed to Baraha Kulo from Jaisi Kulo, and the users of Jaisi Kulo could always control how much water flowed to Baraha Kulo.

In all these disputes, the three parties raise the issue of equity although the rhetoric is not phrased in equity terms. The farmers of Baraha Kulo demanded more share of water claiming that they had more rice fields and moreover according to traditional (customary) law, old rice fields have priority over new rice fields in water allocation. In other words, they argued for more water on the grounds of land size and of customary law. The Jaisi farmers were not willing to allocate more water because they were upstream and reserved the right to deliver as much water as they wanted. The pakho land owners demanded right to share of water on the ground their land was included as part of the command area in the project plan. They could no longer be excluded from sharing water because the HFIP project was funded by the government. To put it differently, they argued in effect that with the intervention of the government by means of grants (and the fact that they too had contributed cash and labour for the rehabilitation and enlargement of the system), property relations and rights, and thus water rights, had changed. They too had rights to be included in the property relations and to acquire water from the system.

The government officials who mediated in these disputes had to draw a fine line between upholding customary law and rights and insisting on new rights. We are not sure whether they were concerned with the question of equity. They did not argue that since this was a government funded project, the government had a right to decide on who had legitimate rights to water, rather they pointed out that with the improvement of the canal, there was sufficient water for all the fields, including the pakho fields. And they appealed to nationalistic feelings: to increase food production and thereby national income by irrigating more land. They also stressed the fact that it was government policy to bring more fields under irrigation. At the same time, they recommended that the share of water allocated to the previously irrigated fields not be reduced; in other words, they upheld the state and local law of the senior rights of prior appropriators.

Strong intervention by the state in this case helped the tail end farmers (pakho land owners) of Jaisi Kulo gain legitimate rights and actual access to water which they otherwise may have been denied.

Tallo Chapleti Kulo and Other Irrigation Systems

Sikharpur and Bandigaon are neighbouring VDCs in Sindhupalchowk District. Bagmara Khola, which separates these two VDCs, is a spring fed tributary of the Irrawati river and the source of water for many irrigation systems in these two VDCs. The irrigation systems in the Sikharpur side of Bagmara service fields in the hamlet known as Bangaon whereas the systems on the other side of the river service fields in Dundegaon. (See Map II and Table I).

By most accounts the three canals servicing fields in Dundegaon are older than the canals in Bangaon, except for the uppermost canal (Mathillo Chapleti Kulo). The other canals in the Bangaon side of Bagmara were constructed by the farmers over the past 30 years. The discharge of water in Bagmara is not sufficient to irrigate all the fields in Dundegaon, especially at the tail end of the three command areas. Constructing new irrigating systems which tapped water from Bagmara would considerably decrease water supply to the older canals. It is only natural to expect that there would be conflicts between these two villages, especially since the intakes of the new systems are located very close to the intakes of the older canals.

The most active villagers in initiating the construction of these new canals in Bangaon were Dhan Bahadur Rijal and his relatives who owned large tracts of cultivated but un~~irrigated~~ irrigated fields. In the early 1960s, Dhan Bahadur retired from the Indian Army, returned to his village and involved himself in local politics. He built connections with local administrators and national level politicians. Using his connections, influence and organising skills he initiated work, first in extending Thakuri Kulo and then on the construction of two new canals. **As** he himself admitted he was one of the main beneficiaries of these irrigation systems.

The Dundegaon villagers who opposed the constructions of these canals were led by the Katwals, high caste Hindus, who owned land in the head and middle sectors of the command areas of all three canals in Dundegaon. They were not as well connected or active as Dhan Bahadur and were not very effective in preventing Dhan Bahadur from constructing new canals which decreased water supply to their canals.

TABLE I: IRRIGATION SYSTEMS WHICH ACQUIRE WATER FROM BAGMARA KHOLA

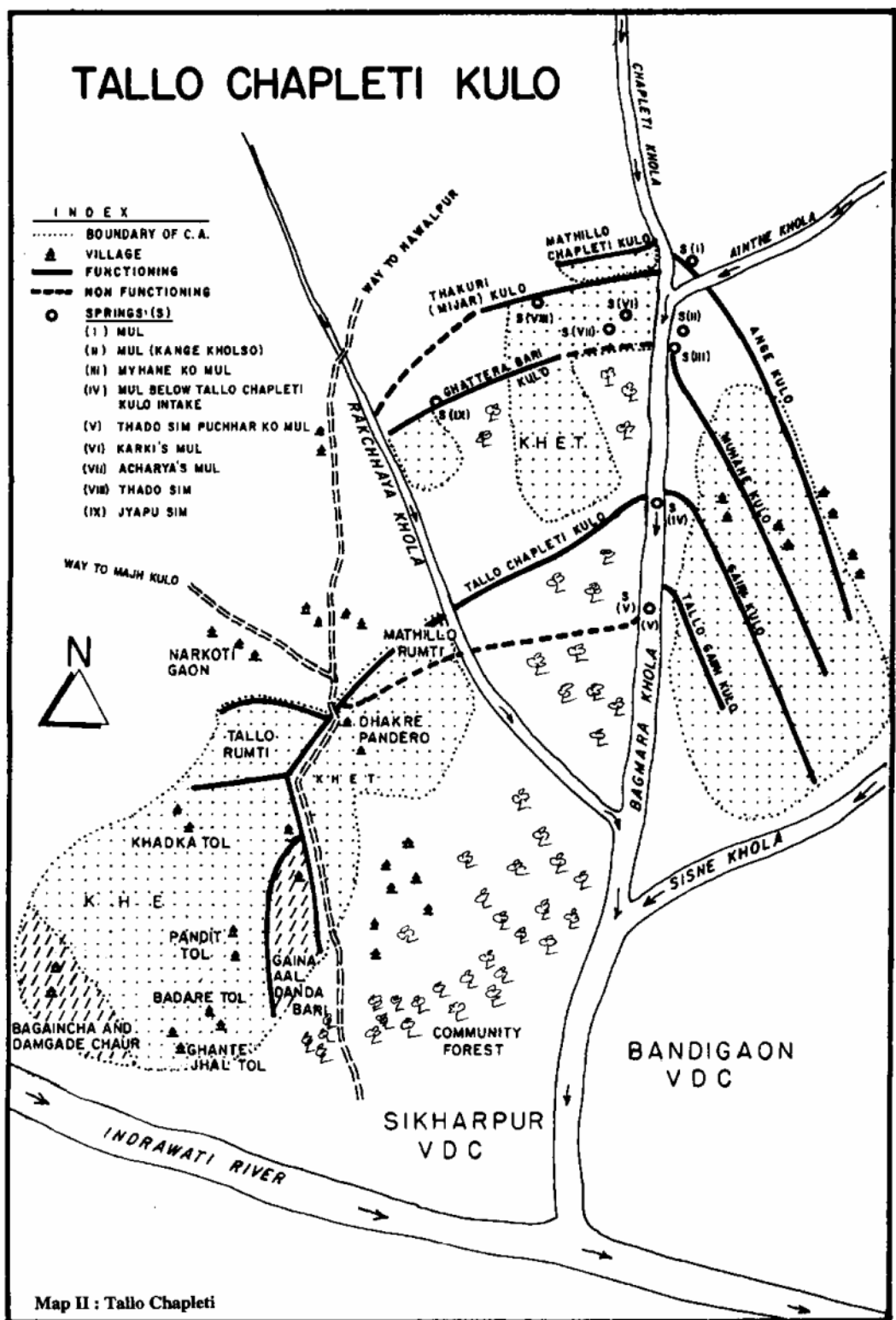
Name of the canal	Location	Date Constructed/extended/improved
Mathillo Chapleti	Chapleti, Sikharpur	Registered in 1895 A.D. ; >100 years
Thakuri* (Mijar)	Chapleti, Sikharpur	Registered in 1895 ; extension in 1968
Ange'	Dunde, Bandieaon	>100 years
Ghattara Bari*	Chapleti, Sikharpur	Completed in 1974
Muhane'	Dunde, Bandieaon	> 100 years
Gairi	Dunde, Bandieaon	> 100 years
Tallo @ Chapleti	Bangaon, Sikharpur	Completed in 1980 rehabilitated in 1988 with IIMI/WECS grant
Tallo Gain Kulo	Dunde, Bandigaon	1994
Thado Sim* Puchar Kulo	Bangaon, Sikharpur	1994

Note: * denotes the system taps water from spring(s) too:
 @ denotes the ~~system~~ system taps water from Rakshya Khola (a seasonal stream)
 Tallo Chapleti benefits 110 households and irrigates **26.25 ha khet** and 25.70 ha of **bari** land.
 Ange, Muhane and **Gairi** canals benefit **64** households and irrigate **15 ha** of **khet** and 10 ha of **bari**.

TALLO CHAPLETI KULO

INDEX

- BOUNDARY OF C.A.
- ▲ VILLAGE
- FUNCTIONING
- - - - - NON FUNCTIONING
- SPRINGS (S)
- (I) MUL
- (II) MUL (KANGE KHOLSO)
- (III) MYHANE KO MUL
- (IV) MUL BELOW TALLO CHAPLETI KULO INTAKE
- (V) THADO SIM PUCHHAR KO MUL
- (VI) KARKI'S MUL
- (VII) ACHARYA'S MUL
- (VIII) THADO SIM
- (IX) JYAPU SIM



Map II : Tallo Chapleti

DRAWN BY: R.L. SHRSTHA

The disputes between Bangaon and Dundegaon residents over sharing of water for irrigation from Bagmara go back at least 30 years. There have been a series of conflicts and disputes on different sites and in different arenas (forums) concerning different intake points and canals. The state has intervened several times in these systems, mostly to mediate conflicts over water rights, to support one of the disputing parties or rehabilitate and extend the systems. Intervention by the state and donor agencies, including IIMI/WECS helped the farmers of Bangaon claim and acquire rights to tap water from Bagmara. The farmers from Dundegaon were forced to accept, de facto, as it were, their claims even at the cost of reduction of water supply to their system.

These conflicts are interesting from the perspective of our study for they are concerned directly with water rights (who has rights to water and the basis for these rights), mechanisms for conflict resolution, the process of negotiation between disputing parties to arrive at a settlement, the consequences of state interventions, and equity issues.

Moves and Countermoves

The Dispute over the Extension of Thakuri Kulo

Our story begins in 1968 when Bangaon farmers, under the leadership of Dhan Bahadur Rijal, extend Thakuri **Kulo**, located below Mathillo Chapleti and above Ange Kulo, to irrigate fields in Bangaon. They did not inform, much less consult Dundegaon farmers about their plans. **The** Dundegaon farmers, worried that the supply of water to Ange Kulo would be drastically reduced, destroyed the extended portion of Thakuri **Kulo**. They were willing to allow the existing irrigated land to be irrigated but not new areas. Dhan Bahadur then approached the Chief District Officer (CDO) for help and the CDO ordered the police to protect them while they constructed the canal. They were able to complete construction of the canal under police protection. They were able to operate the full length of the canal only for a few years then they could operate only the head reach of the canal because of insufficient water supply, frequent landslides in the tail end and recurrent conflicts with the Dundegaon farmers.

The Dispute over the Construction of Ghattera Bari Kulo

A few years later, Bangaon farmers, again under the leadership of Dhan Bahadur, built Ghattera Bari Kulo (also known as Tallo Chapleti Majh **Kulo**) downstream of **Thakuri Kulo**. The **intake** point of this canal is located 15 meters above that of Muhane Kulo and just below two springs. They hoped to tap water from Bagmara as well as the springs which were already tapped by Muhane **Kulo**. Dhan Bahadur would be one of the main beneficiaries of the canal.

The Dundegaon farmers, having learnt from their earlier mistake, did not destroy this canal but instead filed a petition with the district Land Revenue Office requesting the office to restrain Bangaon farmers from irrigating the new command area. The Land Revenue Office took two years to decide the case, or rather to suggest to the petitioners that they file a case in the court because the Office did not have the authority to hear the case. Strangely, although the Dundegaon farmers did not file a case in the court, both parties agree that the Land Revenue Office decided in favour of the Dundegaon farmers. The decision was interpreted to mean that the Bangaon farmers were

acting illegally by constructing the canal. They were in fact violating both local and state laws by constructing and operating the canal which affected water supply to existing irrigation systems. After operating the full length of the canal for about six years, they gave up using the head and middle sectors of the canal, as in the Thakuri Kulo case, due to frequent landslides and conflicts with Dundegaon farmers. The tail end could be operated because it taps water from a spring, known as Jyapu Sim.

The Disputes over Telia Kulo

In 1980, Dhan Bahadur again initiated work on another canal, the Tallo Chapleti Kulo, to irrigate fields in Bangaon. This canal was constructed as part of the Food for Work Program, for which the farmers received 17 quintals of wheat which was sold to pay local contractors. The Dundegaon farmers did not object to the construction of this canal for several reasons. First, Dhan Bahadur had by then developed good social and political relations with the elites of Dundegaon and was able to negotiate with them about the construction of the canal. Second, the intake of this canal was to be located below that of **Gairi Kulo**, the most downstream of the three canals serving Dundegaon. Third, **Gairi Kulo** had not been functioning for the past two years (and did not function for further three years). Fourth, the Dundegaon farmers did not believe that Tallo Chapleti Kulo would operate successfully due to geographical reasons (difficult terrain, frequent landslides, etc.). And in fact, the canal did not function well until it was rehabilitated in 1987.

Tallo Chapleti Kulo was selected as one of the irrigation systems to be rehabilitated and extended as part of the IIMI\ WECS action research project. The canal was actually selected by an engineering consulting firm which had carried out a Rapid Rural Appraisal survey of numerous systems. The rehabilitation and extension work included construction of a gabion diversion structure (to tap more water), widening the canal at places, construction of culverts, laying hume pipes and increasing the length of the canal. The irrigation system was capable of conveying more water and of irrigating a larger command area than before the project. However, the discharge of water at the point where the diversion structure was constructed was not sufficient to meet the water demand in the command area. The only way the Bangaon farmers could convey more water in Tallo Chapleti was by blocking off the intake point of **Gairi Kulo** to divert water to their system.

The Dundegaon farmers were not informed, much less consulted, about the plans to rehabilitate and extend Tallo Chapleti. They later came to know that the project was to be implemented but they had not expected the gabion diversion structure to be constructed only a few feet below the intake of **Gairi Kulo**. The Dundegaon farmers rightly feared that the Bangaon farmers would divert water from **Bagmara** to Tallo Chapleti at their cost because it was easy to block off the intake of **Gairi Kulo**. They also feared that the Bangaon farmers would claim equal rights to tap water from this source and that their claim would be supported by state agencies and officials (CDO, police, Department of Irrigation, etc.)

This incident occurred during the Panchayat regime. It was a period, as an informant from another site remarked, "when you could be arrested as anti-national (and anti-development) if you criticised any 'development' work, even if it went against your interest". The Dundegaon farmers were afraid to complain to the authorities about the construction, especially since it was a government supported project. Moreover, Bangaon was (and still is) part of a powerful politician's

constituency. This politician was a minister then and Dhan Bahadur was (and still is) his trusted and important supporter. Dundegaon is part of another constituency, which elected a rival of the politician to the parliament (Rastriya Panchayat).

Given the political and administrative powers 'arrayed' against them, the Dundegaon farmers felt that they had no option but to destroy the newly constructed gabion diversion structure. Unfortunately this desperate act to protect their water source backfired because they destroyed 'government property'. (The diversion structure was built with aid money.)⁹ The destruction of government property gave the residents of Bangaon the opportunity they were seeking. They, as well as the department of irrigation officials Concerned with the construction of the canal, filed separate cases with the CDO claiming that a part of the canal was damaged and further that they were stoned by the Dundegaon farmers. They thus cleverly converted a dispute over water rights to a law and order problem.

The CDO called representatives of both VDCs to a meeting six months later. He probably had someone investigate the dispute because he rightly understood that the conflict was over water. However, since he was more concerned with law and order problem and the completion of the project than water rights issues, he 'suggested' verbally (which was understood to be his ruling) that the two villages share water equally because the stream bordered both villages. He also ordered the chairmen of both villages councils to meet at the police station to discuss this dispute. In accordance with his order, the chairmen and other farmers of both villages met at the police station to negotiate sharing of water from Bagmara.

Dhan Bahadur, representing the Bangaon farmers, negotiated with the elites of Dundegaon with whom he had good relations. They agreed that the intake of Tallo Chapleti would be located below that of Gairi Kulo and use water nottapped by it. They also agreed that water from Bagmara would be fully diverted to Tallo Chapleti after the 25th of Asad (June/July) by which date the command area of Gairi Kulo would have been fully irrigated for the monsoon rice transplantation. Many farmers from Bangaon as well as Dundegaon were unaware of this agreement. A few farmers denied that such an agreement, especially the part about diverting all the water after a certain date, had been made. However, some Dundegaon farmers do recall such an agreement. One of them said, " Why waste water? So we let them use water left over, or which seeps or spills over."

The compromise they reached acknowledged the prior and senior rights of Gairi Kulo irrigators to water from Bagmara as well as the (junior) rights of the Tallo Chapleti Kulo irrigators. They shared water from Bagmara as per the agreement for a few years but then they began to dispute again about sharing water, especially during periods of water shortage. Dundegaon farmers said that the Bangaon farmers had agreed to use only the left over water but later they began to use the water even before they (the Dundegaon farmers) could irrigate their fields. This is why they tried to prevent the Bangaon farmers from using the water all together.

The Bangaon farmers began to demand more water than they had agreed because, unlike the Dundegaon farmers, they were organised and had powerful political and administrative connections. Further, the CDO's administrative ruling (*adesh*), though illegal because he did not have the authority to grant the Tallo Chapleti Kulo irrigators equal rights to water, 'authorised' them to divert half the share of water from Bagmara and claim equal rights. The CDO's ruling was illegal because the older canal would be receiving less water than they traditionally tapped. But he could

threaten to arrest (or even arrest) the Dundegaon farmers named in the petitions for creating a law and order problem and for damaging government property.

So confident were the Bangaon farmers of state support that they later shifted the intake of Tallo Chapleti Kulo directly opposite, or a few feet above, the intake point of Gairi Kulo, thereby claiming equal water rights. The Dundegaon farmers did not accept the claims of the Bangaon farmers to equal water rights but they did not take this dispute to court or other dispute resolution forums or destroy the intake structure. They did not appeal to higher authorities or go to court probably because they did not have the right connections and powerful local leader to encourage them. Further, they were not willing to spend time and money going to court. Court cases are time consuming, expensive and problematic. The villagers believe(d), not without some validity, that political and economic resources are required to ensure decisions in one's favour. And they dared not destroy the intake structure because they had earlier committed a criminal offence by destroying government property.

Currently, though the farmers of Bangaon and Dundegaon still dispute over sharing water from Bagmara, they have come to an unofficial understanding such that both irrigation systems tap water from Bagmara. When there is sufficient water in the river both systems tap water simultaneously and there are no, or very few, conflicts between them. During periods of water shortage, they acquire water following a queue system based on first come, first served rule. This system of water acquisition does not seem to work too well because one or the other party diverts water out of turn or demands half the water and leads to disputes.

How do the disputants justify their claims to water rights from Bagmara? The Bangaon farmers offer three justifications. One of the rhetoric they use is that of equity. They argue that it is not fair that Dundegaon farmers refuse to share water with them because they too have rights to grow and eat rice just like the Dundegaon farmers. **As** Dhan Bahadur *so* well expressed this justification, “They want us to eat only millet (a low status food) while they eat rice. But we say, 'let us both eat rice' “.

Another rhetoric used is that of state support to their claims. Their justification is that the CDO had granted them rights to acquire water from Bagmara. Here the Bangaon farmers seem to be arguing that the state, or rather state officials, have the authority to bestow water rights to them from sources already in use. This justification is not defensible in court because the CDO did not have the authority to grant them such rights but, nevertheless, it can be used, and has been, to acquire water from a disputed source.

The third rhetoric used is that of property. Many Bangaon farmers argue that the Bagmara river is a common property owned jointly and equally by Bangaon and Dundegaon because it lies at the boundary of the two villages therefore they have equal rights to extract water from the stream. In other words, the Bangaon farmers are claiming rights to acquire water from Bagmara on the basis of riparian principle even though local as well as state law is based primarily on the prior appropriation rule. Going strictly according to the prior appropriation rule, latecomers, even if **their land borders a stream, may not tap water from it if this will reduce water supply to pre-existing irrigation systems.** If the riparian principle, as interpreted by the Bangaon farmers, is to be followed, then villages which adjoin a stream (or a river) have rights to water from the stream, equal

to the rights of other villages on the opposite bank, whether or not they have already tapped water from this source.

The Dundegaon villagers offer other justifications for claiming virtually exclusive rights to water from Bagmara. Their main argument is that they are **prior** appropriators and, as such, new irrigation systems may not be constructed which will affect water supply to their systems. They further reason that their fields were registered as *khet* (irrigated rice land) at least hundred years ago whereas the fields in Bangaon were registered as *bari*. In accordance with local law, traditionally irrigated fields have priority over unirrigated fields for water distribution. And lastly, to counter the argument that Bagmara is common property of both villages, they argue that they (the Dundegaon fanners) own the stream because the sources of the stream (springs) are located in their village.

As can be seen from the above discussion, the disputants use justifications which best suit their claims and actions. Dundegaon fanners, **as** prior appropriators, have first rights to water from Bagmara so they base their justifications on prevailing customary and statutory laws. Bangaon fanners, **as** newcomers, cannot base their claims to water rights on the prior appropriation rule. They therefore use other rhetoric, such as equity, riparian rights, and **support (sanction) by the state** or state officials for their claims. Though the justifications offered by Dundegaon fanners are in accordance with prevailing law, they are not confident of retaining their almost exclusive rights to water from Bagmara because the Bangaon fanners are **organised**, supported by the state and have been operating Tallo Chapleti for over a decade. Bangaon fanners can later claim that they have rights to acquire water from the disputed location based on the fact that they have been doing so for some time. In other words, they could convert their (illegal) acquisition of water to (legal) rights to do so.

In all the cases of conflicts between Bangaon and Dundegaon fanners described above, the Bangaon fanners attempted to acquire water from a source already used by others, in **most cases** without prior negotiation with existing users and in violation of existing local and state laws. The most important law in this context is that existing users have first priority to water and new users cannot construct systems which will diminish supply of water to existing users. The Bangaon farmers **extended the length of the Thakuri Kulo**, over the objections of Dundegaon farmers whose fields would receive less water as a result of the extension. Similarly, the Bangaon fanners **constructed a new irrigation system above the existing two irrigation systems** in Dundegaon, again clearly in violation of the existing laws because water supply to these two systems would have been reduced. Tallo Chapleti was constructed in accordance with the law because its intake was located below the existing irrigation systems but later, taking advantage of the rehabilitation project, they shifted the intake upstream, on the same level as the intake of Gairi Kulo, again in violation of the existing law. In these cases, the state, either directly or indirectly, and with or without the knowledge of its officials, supported the Bangaon fanners even when they violated the law.

It is clear now that the state helped the Bangaon fanners violate both local and state law of prior appropriation. It could be argued that Clause 3 of the Canal, Electricity and Related Water Resources Act, 1967 had empowered the state to rehabilitate existing systems or construct new ones even at the cost of other existing systems. The users of the existing irrigation systems had to get a licence from the government if any "irrigation project of His Majesty's Government

constructed before **or** after the commencement of this Act, or those proposed to be constructed in the future” would be adversely affected by using the same water resources (even if they are prior appropriators). **As** far **as** we know, this clause was not cited **by** the Department of Irrigation or others to support the claims of the Bangaon fanners for water rights.

The strategy **of** the Bangaon farmers seemed to have been to see how far they could get away with acquiring water from Bagmara, using their connections to protect them, and then over time to claim rights to tap water. Once they had begun acquiring water from a source, they could claim after a few years that they had traditionally acquired water from this source. **If** this claim was upheld, they would acquire rights to tap water. Tallo Chapleti Kulo irrigators are in the process of acquiring such rights.

The important point to note here is that water rights had been restructured to the disadvantage of the existing rights holders due to state intervention and the clever use of the state by the Bangaon farmers. One consequence of this is regular conflicts between the two villages over water acquisition and distribution especially during peak water demand periods. Another consequence is that the Dundegaon fanners have not invested much in repair and maintenance of their canals due to which the tail end farmers in Dundegaon, mostly small farmers, do not receive sufficient water to irrigate their crops. It should be obvious that ‘robbing’ Ram to help Hari may not always be equitable”.

CONCLUSION

State interventions in fanner managed irrigation systems have had several consequences. Command areas and agriculture production have increased and many newcomers have been able to acquire rights and access to water which they had been denied earlier. However, not all stakeholders benefitted equally. It is usually the dominant groups, the powerful fanners, who benefit most from interventions. The targeted beneficiaries of the interventions (for enlargement **of** the systems) do not always benefit, especially if they are small, poor, unorganized farmers and own land in the tail end of the command area. Sometimes the targeted beneficiaries benefit at the cost **of** existing rights holders, especially if they belong to different irrigation systems.

In all the cases discussed above, state intervention restructured water rights relations between the stakeholders. The existing rights holders were compelled to accept the claims of the ‘newcomers’ to rights to water from their irrigation system or water source. However, though the claims of the newcomers to water rights were accepted, at least in theory, this does not mean that they automatically and actually have access to water. In most cases, the existing rights holders are reluctant to share water with newcomers, even if the systems were enlarged to benefit the non-rights holders. In some cases the newcomers are unable to acquire water to which they have rights (Sattrasaya Phant Kulo, Dumtar fanners) while in other cases, they receive **less** water than believe they have rights to (Aaruhote **Kulo**). In both cases, the state did not intervene to ensure that the proposed share **of** water was delivered to the newcomers, who owned land in the tail end of the command area and are poor, socially weak and unorganized. In another case (Jaisi Kulo) active

state intervention helped the tail end farmers (newcomers) acquire water which they otherwise probably would not have received. In all except the Tallo Chapleti case, the existing rights holders were able to protect their rights and retain priority in water allocation and distribution even if such rights were contested by those who did not have (prior) water rights in the systems. One important conclusion to be drawn from these cases is that state intervention can help newcomers acquire water rights and actual supply of water while at the same time protecting the existing rights (share of water and priority) of the existing rights holders (cf. Durga and R. Pradhan; M. Pradhan and R. Pradhan, this volume).

In the Tallo Chapleti Kulo case, Bangaon farmers did not succeed in their previous efforts to acquire water rights from Bagmara Khola, or did not succeed for long, until WECS/IMI intervened to rehabilitate the system. These farmers used WECS as a weapon to seize "rights" to water in the stream to which they had been denied access, at least for new systems. The state agencies were responsible, directly or indirectly, for helping the users of Tallo Chapleti Kulo acquire water at the cost of existing systems. This case study illustrates the important point that state intervention may adversely affect the existing water rights of the traditional rights holders which may lead, among other things, to the reluctance of the farmers to invest in improving their irrigation systems (Cf. Martin 1986; U. Pradhan 1984).

Rights to water (or other rights) are legitimized or justified by law. However, in legal plural situations such as in Nepal, the stakeholders often contest which law and which particular rule or interpretation of the law is to be accepted as legitimizing or justifying water rights in a specific situation. It is often the case that existing rights holders justify their rights by reference to local law or the Chapter on Land Reclamation in the National Code which accords priority to prior appropriators and upper riparians whereas the newcomers justify their claims by reference to other law or justifications, such as the fact that the system was enlarged to benefit them (the newcomers) or that water should be shared. The government officials usually do not justify their action (for example, insisting that newcomers be given water), by reference to water related laws (see Khadga, this volume), but by reference to other laws or policies, such as law and order problem, national policy of expanding irrigated agriculture and national development. As the cases illustrate, government officials, in their zeal to expand irrigated agriculture, may violate local law, or even, national law.

These cases raise the question of equity but how are we to address this difficult question? Are we to emphasize only the principle of eminent domain and focus on wider public benefit by increasing command areas and agriculture production? Are we to ignore customary laws and local rights and go strictly by state laws? Or are we to uphold customary laws and local rights even if the existing rights holders monopolize all or most of the water? How do we strike a balance between respecting the rights of existing rights holders and the claims of those who are excluded? And who is to decide these issues?

If we consider the examples of direct state interventions in the cases discussed above and other cases, as well as indirect interventions by the various laws (Acts, Regulations) enacted, it appears as though the state reserves for itself the responsibility and right to decide how water should be utilised and shared. While the earlier interventions and laws (Muliki Ain) supported, to a great extent, customary laws and local rights, latter interventions, especially in projects involving international finance, seem to disregard local laws and rights. The Water Resources Act 1992 vests

ownership of all water resources within the kingdom in the state and the state then decides how water is to be utilised and allocated. This way of utilising water may be more efficient and productive than the old ways but is it more equitable? When we speak of democracy and decentralization, surely we must also speak of respecting local law and rights.

Yoder, Martin, Barker and Steenhuis (1987:4) identify four issues concerning equity from a community perspective, very similar to the three elements suggested by Martin (1986: 21) earlier. According to them, equity concerns from a community perspective include these four issues:

1. Do fanners within the systems receive water to which they are entitled?
2. Do fanners at the head of the system receive more water than those at the tail?
3. Is there a relationship between the share of benefits received by individual fanners and the proportion of the costs of operation and maintenance assumed?
4. Do all fanners have rights to access water?

These authors ignore three important issues regarding equity. First they do not discuss the differences between different stakeholders in their definitions of equity. They assume that all members of a community agree on a common definition of equity. But different stakeholders may perceive these elements differently and the perspectives of the dominant fanners group and the intervening agency may differ. Secondly, they do not discuss the question of equity between different systems sharing water from the same source. Which systems have or do not have legitimate access to water from the same source and the basis for the access or lack of access are important equity (and water rights) issue. And finally, they have not concerned themselves with the consequences of state interventions in FMIS for equity. State intervention often opens up a Pandora box of conflicting claims to property relations and water rights and the basis for equitable allocation of water rights and obligations.

The rights that the users have to water are not always equal. Water rights are generally related to the past and present investment or contributions to the system; the users contributing more usually have more rights and (sometimes) higher priority than those contributing less. Further, the users differentiate between 'original' rights holders and 'latecomers'; original contributors usually have more rights or higher priority to water than latecomers (Ambler 1990). In many cases, water allocation is based on these factors (share of investment; original investors or latecomers) rather than on the size of irrigated land (cf. Martin 1986).

It is clear then that leaving the decision to the local communities do not always ensure that water rights are equitable (cf. F. And K. Von Benda-Beckmann and Spiertz, this volume). Local law can be very unjust and inequitable: the existing rights holders, usually the local elite, often deny irrigation to new areas even when water is abundant. Further, the stakeholders do not always agree on the criteria to be used to define equity.

State interventions in fanner managed irrigation systems have many implications and ramifications. In this paper we discussed issues related to law, rights, and equity, to indicate some of the problems faced by local communities when the state intervenes in their irrigation systems. At this stage we are reluctant to suggest recommendations because this topic requires further research and moreover, as pointed out in the Introduction to this volume, some of these issues require political, more than purely research, solutions.

NOTES

1. This paper is a revised version of the paper presented at the workshop on "Water Rights, Conflict and Policy", January 22-24, 1996, held in Kathmandu. We are grateful to the discussants and Franz von Benda-Beckmann for incisive comments.
2. Consultant, IIMI/Nepal, Acting Head, IIMI/Nepal, and Program Officer, Ford Foundation, New Delhi, respectively.
3. Intervention by the state in existing irrigation systems may be either direct or indirect. The state intervenes directly a) by rehabilitating, extending and improving the system either through its own implementing staff or by the farmers under their supervision, b) by making changes in the organisation and institutions as well as water management activities of the irrigators, and c) by administrative support to one of the disputing parties. It intervenes indirectly by changing laws, policies, regulations, etc. relating to irrigation (cf. U. Pradhan 1990).
4. IIMI\ WECS (1989); WECS\IIMI (1990); RTDB\IIMI (1995). Also Martin Edward and Robert Yoder's theses; U. Pradhan et al. eds. (1992); Ujjwal Pradhan's and Ganesh Shivakoti's theses the latter supported by IIMI from Ford Foundation grants.
5. It needs to be mentioned that water rights issues have not been ignored. The first major water rights study was carried out for the Ministry of Law by APROSC in 1985 (*Study on Water Rights Law - Nepal*); another study entitled "Water Use Conflicts and Their Resolutions in Selected Irrigation Systems of Nepal", was conducted by Irrigation Management Center (IMC), Pokhara; 1990. These are in addition to the publications by Martin and Yoder (), Yoder, Martin, Barker and Steenhuis (1987). See also Martin (1986); U. Pradhan (1990; 1995).
6. For example, in the 1990 publication by WECS and IIMI, *Assistance to Farmer-Managed Irrigation Systems*, based on their action research project, the lessons learnt and recommendation deal mainly with ways to reduce the cost of assistance to farmer managed irrigation systems, to increase maximum production of food and to enhance farmer-management capability for operation and maintenance (ibid 12). This small report does mention water rights issue in several places but does not give it the importance it deserves. For example, one of the lessons learnt from the action research is: "Farmer participation results in: cost savings, mobilisation of farmer resources, sense of ownership, and improved ability to manage" (ibid: 5). And one of the recommendations suggested is: "The users' organisation must agree on water-allocation and resource-mobilization rules and procedures before physical improvement begin" (ibid: 39). No mention is made of the social dynamics between the farmers and the farmers and the state which determine to a large extent how water is allocated and resource mobilised.
Similarly, in the 1995 RTDB\ IIMI publication, *Improving Support Services to Farmer Managed Irrigation Systems in Nepal*, many of the papers discuss the consequences of intervention (support) in FMIS in terms of increase in command area, production, and cropping intensity, decrease in cost of rehabilitation due to farmer participation, improvement in system management by the users, institutional development, etc. Only passing remarks are made on water rights, equity and conflicts (by Shivakoti and Pradhan; B.B. Gurung; and Tuladhar).
7. The issue of water rights in Nepal have been discussed mainly by U. Pradhan (1984, 1990, 1995) from a property perspective. Martin (1986) addresses this issue in his thesis. P. Pradhan (1989) mentions this issue without any serious discussion.
8. This paper is based on fieldwork carried out for the joint IIMI/FREEDeAL research project titled, "Water Rights in Nepal" which was funded by the Ford Foundation. The study attempted to document and analyze the dynamics of water rights, the relations between customary and state laws, and between state and locality in farmer managed irrigation systems in three districts of Nepal. Field studies of water management activities as well as water related conflicts and conflict management processes were done (Papers by Khatri-Chhetri and Pradhan, M. Pradhan and R. Pradhan and this paper in this volume). Water related laws and policies as well as court cases

- were collected and analysed (Khadga, Khanal and Khetri-Chhetri, this volume.) A quick survey of 40 farmer managed irrigation systems was also conducted (Malla and Khadga, this volume). As part of the study, IIMI also first conducted fieldwork and then sub-conducted research on inter-sectoral water use and conflicts in the Upper Bagmati Basin (Dixit, this volume).
- 9 The farmers of irrigation systems downstream of Telia Kulo in Dang too destroyed a part of the permanent diversion structure constructed by the Department of Irrigation with foreign grant to protect their water rights. The leaders were arrested for a day and then released on the condition that they presented themselves at the zonal commissioner's office to present their case (see M. Pradhan and R. Pradhan, this volume).
- 10 The **RRA** report as well as subsequent reports by IIM/WECS did not discuss these conflicts or raise the question of water rights between systems. This is quite surprising considering the fact that key IIMI/Nepal personnel had already written about water rights and conflicts between systems over such issues. These issues were probably not discussed precisely because the state (and donor agencies) were more concerned with expanding irrigated agriculture than water rights issues.

REFERENCES

Ambler, John. 1990. "The Influence of Farmer Water Rights on the Design of Water-Proportioning Devices" In Robert Yoder and Junita Thurston (eds.), *Design Issues in Farmer-Managed Irrigation Systems*. Colombo: IIMI. pp 37-52.

Coward, Walter and Gilbert Levine. 1987. "Studies of Farmer-Managed Irrigation Systems: Ten Years of Cumulative Knowledge and Changing Research Priorities." In *Public Intervention in Farmer-Managed Irrigation Systems*. Colombo: IIMI and WECS.

IIMI/WECS. 1981. *Public Intervention in Farmer-Managed Irrigation Systems*. Colombo: IIMI (Proceedings of the conference held in Kathmandu in 1986).

Martin, Edward. 1986. *Resource Mobilisation, Water Allocation and Farmer Organisation in Hill Irrigation Systems in Nepal*. Ph. D. Dissertation. Cornell University, Ithaca, New York.

Martin, Edward and Robert Yoder. 1987. "Conference Overview." In *Public Intervention in Farmer-Managed Irrigation Systems*. Colombo: IIMI and WECS.

Pradhan, Prachanda. 1989. *Patterns of Irrigation Organisation in Nepal. A Comparative Study of 21 Farmer-Managed Irrigation Systems*. Colombo: IIMI.

Pradhan, Ujjwal. 1984. "Water as property: Its ramifications." Paper presented at the 13th Annual Conference on South Asia, University of Wisconsin, Madison.

1990. *Property Rights and State Intervention in Hill Irrigation Systems in Nepal*. Ph.D. Dissertation, Cornell University.

1994. "Farmers' Water Rights and Their Relation to Data Collection and Management." In, Sowerine, et. el. (eds.), *From Farmers' Fields to Data Fields and Back* Kathmandu: IIMU IAAS.

Pradhan, Ujjwal; Valera, Alfred; and Rana, Sujata (eds.). 1992. *Role of NGOs in Irrigation Development and Management in Nepal*. Kathmandu: IIMI- Udaya-Himal Network.

Research and Technology Development Branch, DOI/ IIMI. 1995. *Improving Support Services to Farmer Managed Irrigation Systems in Nepal*. Proceedings of a National Seminar held at Kathmandu, 1-2 September. Kathmandu: RTDBUIMI.

Sowerine, J., G. Shivakoti, U. Pradhan, A. Shukla, and Ostrom, E. (eds.). 1994. *From Farmers' Fields to Data Fields and Back A Synthesis of Participatory Information Systems for Irrigation Systems for Irrigation and Other Resources*. Kathmandu: IIMU IAAS.

Yoder, Robert; Edward, Martin; Barker, Randolph; and Steenhuis, Tammo. 1987. *Variations in Irrigation Management Intensity: Farmer-Managed Hill Irrigation Systems in Nepal*. Water Management Synthesis II Project, Report 67. Kathmandu: USAID.

WECS/ IIMI. 1990. *Assistance to Farmer-Managed Irrigation Systems. Results, Lessons, and Recommendations from an Action-Research Project*. Kathmandu: WECS and IIMI.

Improvement and Enlargement of a Farmer Managed Irrigation System in Tanahu: Changing Rights to Water and Conflict Resolution'

Durga K.C. and Rajendra Pradhan²

INTRODUCTION

Throughout Nepal, irrigation has been subject to considerable change. Changes in **the** physical structure or in operation and management (which often, but not always, go hand in hand) have **often resulted in changes in various rights over water**. This is not a new development but the recent irrigation projects, launched by the government and often financed by international donors, have increased the pace and extent of change. Project planners and implementors have not always been sensitive to the fact that changes in the physical structure, in distribution and allocation of water, and in operation and management have a strong impact on existing rights to water and have often been a source of considerable conflict (U.Pradhan 1994, R.Pradhan and U.Pradhan 1996, R.Pradhan, A. Haq and U.Pradhan, this volume, and M.Pradhan and R.Pradhan this volume). This raises the question of the impact of such changes on existing rights and obligations. Three questions will be raised in this paper:

1. What happens with existing rights to water if a physical structure (canal, weir) is altered or built?
2. What happens with existing rights to water if operational or management organization is changed?
3. What conflicts arise from such changes; how are disputes prevented; and how (if at all) are they resolved?

We will discuss these questions with an example of the Satrasaya Phant irrigation system in Tanahu, which over the years has undergone a number of important changes. Some changes have been initiated and implemented by local people and others by the government. In 1989 the government launched a project, financed by the World Bank, to improve and enlarge the system. This irrigation system is therefore a good example to study the effects of changes. The changes involve the three main types of irrigation management activities as described by Uphoff et al. (1985), i.e. (i) physical system activities, such as maintenance, operation and construction; (ii) water use activities, such as acquisition, allocation and distribution of water; and (iii) other organizational activities, such as resource mobilization, decision making and conflict management. We will describe how with each change the rights to water were affected, whether and if so, what new operation and management structure, enforcing agency and sanctions were introduced. In particular it will be discussed how and to what extent physical structures can be used to reduce or prevent conflicts from arising. The government enlargement project of 1989 gave rise to several disputes, showing the tensions, shifting relations and negotiations between old and new users. In the second part of the paper we will discuss some of the disputes that arose in this system and see how they were dealt with and what the outcome was.

CHANGING RIGHTS TO WATER

A wide range of rights and obligations exist concerning water use, distribution and allocation, operation and management of irrigation systems. These include (priority) use rights, ownership to both land and water, access rights, rights to turns in rotation, rights to convert *tpakho* (upland) into *khet* (low land), full rights to use water, rights during monsoon or winter only, rights for way (for a canal), rights of compensation (for a physical structure), rights and obligations to contribute labour (especially for tenants who do not have ownership rights), and so on.

Rules and regulations facilitate mobilization of resources for operation, maintenance, improvement and construction of irrigation systems, and help actualize water rights. Rights are held by individual fanners or one or more groups of fanners to allocate and distribute water. Allocation and distribution of water are usually based on resource contribution by the users for original construction or current maintenance of the irrigation system.

From a water rights perspective, the three sets of irrigation management activities mentioned above may be seen as different means to actualize and protect water rights. For example, proportioning structures (which are means of water distribution) are “mechanism for realizing and verifying water rights” (Ambler 1990 38) and water rights are related to past and present contributions to the construction and/or maintenance of the system (ibid: 47). Similarly, Coward (1990 83) argues that the rules for allocating water “are useful in structuring the broad relationships among the various groups and individuals with a claim to water and between them and those without such claims.” This means that everytime one of these three kinds of activities undergo changes, rights and obligations related to water change accordingly.

Most of the fanner managed irrigation systems in Nepal have developed their own written or unwritten rules and regulations. These local rules and regulations are altered in response to the

changes mentioned above. However, the state is becoming increasingly involved in irrigation and is imposing its own notions on rights and obligations related to water, which may or may not correspond with local law. When government projects are introduced, new sets of regulations are introduced as well, causing much tension and conflict among old and new users of the upgraded system.

IMPLEMENTATION OF LAWS

Unless laws are effectively implemented or enforced, there is no assurance rights will be protected. Enforcement of laws helps better operation and maintenance of irrigation systems, prevention of conflicts and protection and actualization of water rights. There are mainly four factors crucial for implementation or enforcement of laws.

Acceptable Rules

The farmers of local communities must agree that rules are adequate and acceptable. This factor is very important for farmer managed irrigation systems because rules are often negotiated between the users and between them and non-users. Lack of agreement often leads to 'water stealing' and disputes.

Enforcing Agency

Rules are implemented or enforced by formal or informal organisations. Strong organizations can effectively control water allocation and distribution, mobilize resources for operation and maintenance, and prevent or resolve conflicts. Earlier, in many irrigation systems, the leading farmers in the command area enforced the rules, often made by them. A government appointed revenue collector, such as Jimmawal, assisted by another lower level functionary, such as Kotwal, also often enforced rules. Other farmer managed irrigation systems had managing committees. Over the past few decades, more and more irrigation systems have formal and registered irrigation management committees which are responsible for enforcing rules. Many irrigation management committees, as in Satrasaya and Kulo, are assisted by water contractors or monitors, variously called *pani thekdar* (water contractor) or *pani chowkidar* (water guard). These monitors or contractors are employed to deliver water in the main and branch canals, patrol the system and carry out minor repairs. Many systems have found water monitors to be effective in lessening conflicts between farmers over water acquisition and delivery (cf. Shivakoti and Pradhan 1995).

Sanctions for Violation of Laws

Sanctions are tools for protecting and upholding water rights. In irrigation systems, violation of laws take place when farmers disregard local laws or state laws or both, such as taking water out of turn, stealing water, not contributing resources, and damaging the canal. Those who violate rules are usually fined or prevented from acquiring water, especially if they are not organized and powerful.

Physical Structures

Physical structures, such as diversion weirs and proportioning weirs and distribution outlets, are means of allocating and distributing water. Through them water distribution may be controlled and conflict over water distribution may be prevented. Physical structures may make equitable distribution possible, but they do not always do so, nor are they always equally suitable to do so. And not all physical structures are equally suitable to prevent conflicts from arising.

ISSUES OF CONFLICTS

Conflicts and disputes between farmers over water rights related issues are very common in irrigation systems. Some of the conflicts are between individuals, others between groups (e.g., head and tail end; existing and new users) within an irrigation system. Conflicts between farmers of different systems are not uncommon. There are three major issues of conflicts.

Water Allocation and Distribution

Conflicts often occur over hierarchy and priority in water rights between senior and junior rights holders. Conflict usually arises over water allocation and distribution between owners of irrigated rice land (*khet*) and unirrigated land (*bari*), between head reach and tail end farmers, between downstream and upstream irrigation systems, and between prior right holders and new right holders (often through government intervention).

Water Stealing and Acquisition (within and Between Systems)

During peak periods of water scarcity, 'stealing' is frequently resorted to. Conflicts usually occur within systems when a farmer steals water to irrigate his fields during another person's turn; or when non-rights holders steal water from a system. Non-rights holders usually try to acquire water rights through stealing. Conflict between irrigation systems usually occurs over acquisition of water from water source shared by the systems.

Resource Contribution

Farmers need to constantly mobilize resources for operation and maintenance, improvement and development and effective operation of their irrigation systems. Conflicts occur between new and old irrigators over the basis of contribution of resources towards the improvement of irrigation systems, with aid from the government or donor agencies, and from whom and how much contribution is to be mobilized. Old irrigators want to contribute less resources than the new irrigators, reasoning that they are prior holders of rights to water and have contributed resources regularly, whereas the new irrigators want to use the government or donor agency aided system on an equitable basis. They refer to state law because local rules do not give them rights of access to water, if prior users refuse to do so, or only under unfavourable conditions.

CONFLICT MANAGEMENT

Since conflicts between farmers are endemic to irrigation systems, conflict management is an important water management activity. Conflicts within irrigation systems, especially between individuals or between individuals and the management committee are usually resolved locally, often by the management committee. And if the management committee is strong, it may also resolve conflicts between groups, for example, between head and tail end farmers over water distribution or resource contribution. Negotiation, compromise, threat to use sanctions (fine, temporary suspension of water rights, etc.) are common means of settling disputes between farmers within systems. Disputes between groups of farmers, especially between existing rights holders and new claimants as well as between farmers of different irrigation systems are difficult to resolve by negotiation or accommodation and are often played out in quasi-judicial or administrative offices, such as Village Panchayat or Village Development Committee offices or the Chief District Office. Disputes are also taken to courts. Conflicts and disputes are not always resolved or resolved only temporarily.

HISTORY OF SATRASAYA PHANT KULO

There have been many changes in the Satrasay Phant Kulo irrigation system since its construction over 150 years ago. In this section we describe changes in the physical structure and command area, operation and management, water allocation and distribution and resource mobilisation. We will discuss these changes for three phases, namely, (i) original construction and immediately after; (ii) from this period till the rehabilitation and enlargement project (roughly 1850 to 1989); and (iii) after the completion of the project (1989 to the present).

Original Construction and Immediately After

Satrasaya Phant lies on the right bank of Andhi Khola in Ward no. 1 of the Anbu Khaireni Village Development Committee (VDC) in Tanahu District. Satrasaya Phant was once a dense forest and was cleared for cultivation by Markande Upadhyaya Adhikari about two hundred years ago. Later Markande's son as well as four other farmers (who too had cleared the forest for cultivation) constructed a canal to irrigate their fields in Satrasay Phant. The main source of water of this canal was (and is) Thulo Andhi Khola, a tributary of Andhi Khola. Thulo Andhi Khola is fed by Andhi Mul, a perennial spring, located some three kilometers from the command area of Satrasaya Phant Kulo. The intake of the canal is located about two and a half kilometers from the command area.

Initially, the canal irrigated 8.99 ha (719 *mato muri*) of rice fields, divided into five plots. Each plot was owned by one farmer and named according to its size, measured in a unit known as *asmato muri* (80 *mato muri* = 1 ha). Later, it is not known exactly when, the farmers irrigated additional 6.07 ha of land which they had converted to rice fields, below their original fields. The original fields were and are still known as Upallo (upper) Chhabise, Upallo Sathimure, Upallo Chalise, Upallo Satbise and Upallo Barabise and the new, lower fields as Tallo (lower) Chhabise, Tallo Sathimure and so on (see Table I).

Table 1: Original and Expanded Irrigated Land in Satrasaya Phant Kulo Before the Rehabilitation and Expansion.

Original Irrigated Fields Upper Area (Upallo)		Expanded Irrigated land Lower Area (Tallo)		Total Irrigated land
Name of the Plot	Area (ha)	Name of the Plot	Area (ha)	
Upallo Chhabise	1.50	Tallo Chhabise	0.62	2.12
Upallo Sathimure	0.75	Tallo Sathimure	0.75	1.50
Upallo Chalise	2.25	Tallo Chalise	2.00	4.25
Upallo Satbise	1.75	Tallo Satbise	1.50	3.25
Upallo Barabise	2.74	Tallo Barabise	1.20	3.94
Total	8.99	Total	6.07	15.06

The five farmers managed and operated the irrigation system. Soon after completion of the canal, water was apportioned into five parts for the five original canal-builders, based on the share of investment in the construction of the canal. The share of investment was in turn based on the size of land to be irrigated. In other words, water allocation was based on the size of land to be irrigated. After the enlargement of the command area, water allocation and labour contribution for repair and maintenance were done, as earlier, in proportion to the size of land to be irrigated.

Between the Original Construction and 1989

During this phase, operation and management functionaries changed twice. First, Jimmawals (revenue collectors also responsible for irrigation management) were appointed by the state and after the abolition of this post a canal committee was formed. Additional 1.66 ha of rice fields were irrigated and there were some changes in water allocation and distribution.

Changes in Operation and Management Functionaries

We do not know when a Jimmawal was first appointed for Satrasaya Phant but it was probably around mid-nineteenth century. Jimmawals were non-official functionary who collected taxes on irrigated rice fields (*khet*) in the hills. He was responsible for the operation and maintenance of irrigation systems within his jurisdiction. He was responsible for mobilizing labour and cash for operation of the canal, and for allocating and distributing water to the farmers. He also adjudicated disputes relating to land and water.

Jimmawals were assisted by a village functionary known as Katuwal. **Katuwal** functioned as the village policeman and messenger. The main responsibilities of the Katuwal were to inform the villagers about irrigation activities, social activities, marriages and rituals; to collect land tax (*malpot*); and to carry out irrigation activities as directed by the Jimmawal.

Jimmuwals ceased functioning after **1978**. In Satrasay Phant, the functions of Jimmuwals as regards irrigation activities were performed by water contractors and the canal committee. Water contractor is the literal translation of the Nepali term "*pani thekdar*". His main responsibilities are to distribute water according to a schedule agreed upon by the farmers and to carry out minor repairs. He also patrols the canal to prevent diversion of water out of turn. A water contractor was first employed in **1977** on a trial basis to prevent disputes which arose between farmers due to diversion of water from the canal out of turn or for longer time than allotted. The water contractor was able to decrease such activities and consequently he has been hired on an annual basis since then.

The farmers with rights to water from the canal formed a seven member canal committee in **1979**, with the former Jimmawal as the chairman, to oversee the operation and management of the canal. The committee was empowered to take decisions on behalf of the farmers. It appointed the water contractor, supervised his work, mobilized cash and labour for repair and maintenance, collected fines from farmers who did not contribute labourers or diverted water out of turn. It **also** mediated in water related disputes between the farmers of Satrasaya Phant.

Water Allocation and Distribution

Two types of water distribution methods were used for the monsoon rice irrigation during the period of the Jimmawal and until the LLC project: i) continuous supply of water, known as *ni palo* (withoutturn), and ii) rotation method (*thokuwa palo*) which could be either a) *dui palo* (two turns) or b) *char palo* (four turns).

The *ni palo* method was used when there was abundant water in the canal and fields (due to good rains). In this method of water distribution, water is available continuously throughout the whole canal and the farmers themselves opened the outlet to their fields whenever and for as long as they wanted. The command area was not divided into sectors, as in other water distribution methods.

In the *thokuwa palo* method, water was distributed by turn to different sectors of the command area for a fixed duration, depending on the volume of water in the system. As soon as the allotted time was up another area received water even if all the fields had not been irrigated. Such unirrigated fields, however, were given first priority in the next turn. In the *dui palo* (two turns) distribution method, the command area was divided into upper and lower sectors which correspond to the Upallo (**8.99** ha) and Tallo fields (**6.07** ha) mentioned earlier. Each sector received water for 12 hours by turn, beginning with the upper area. This method of water distribution was used after transplantation of rice and if water was not sufficient, they used the *char palo* (four turns) method which was also used for monsoon rice transplantation when there was drought.

A variation of two turns method known as *bijuwa palo* (wet turn) was introduced in 1982 by the canal committee. In this method, as in the two turns method, the command area was divided into two sectors. head and tail but these two sectors did not correspond to the upper (Upallo) and lower (Tallo) fields. Further, the size of the sectors varied for different turns. Within each sector, water is distributed sequentially from head to tail, from one field to another, the lower field is irrigated only after the upper field has been covered with water. All the fields receive irrigation in each turn. This method of water distribution was used to irrigate the fields after rice had been transplanted in the whole command area.

In the *char palo* method, the command area was divided into 4 sectors and each sector received water for 24 hours in each turn. Each sector received another water turn after 96 hours. Sometimes two sectors combined to form one sector and received water for 48 hours. The four sectors were as follows:

1st sector:	Upallo and Tallo Chabise Upallo and Tallo Sathimure	[3.62 ha]
2nd sector:	Upallo and Tallo Chalise	[4.25 ha]
3rd sector	Upallo and Tallo Satbise	[3.25 ha]
4th sector:	Upallo and Tallo Barabise	[3.94 ha]

In theory, all the fields were allotted equal shares of water from the canal, measured in units of time. This may have been the case when the original five investors in the construction of the canal **operated and managed the system**. But in practice, some sectors and fields were allotted more water than others. For example, Upallo and Tallo Satbise with 3.25 ha of rice fields were allocated water for the same duration as Upallo and Tallo Chhalise with 4.25 ha. Fields which did not retain water easily were allotted more water than those which did. Similarly fields owned by the Jimmawal and his relatives were allotted more water than fields owned by others. Jimmuwals allotted to themselves more water than others **for** the same unit of land.

In addition to the fields in the command area, fields in Simle, Dungadi and Kundare were also irrigated from Satrasaya Phant Kulo but only if there was drought during monsoon. Farmers from these locations requested the farmers of Satrasaya Phant for water and diverted water to their fields 'licitly' if permission was given and 'illicitly' (i.e., 'stole' water) if they were not granted permission.

Resource Mobilisation

Operation and maintenance of irrigation systems require resources. In farmer managed irrigation systems, the users **of** the system contribute cash, labour or grains depending on the requirement. Construction and maintenance work are often done by the farmers either by themselves or hired labourers. Cash or grain contributions are collected to pay contractors or **guards**.

Regular repair and maintenance of Satrasay Phant Kulo was carried out two times a year: once in June in preparation for the monsoon rice crop and once in November for the winter crop. The irrigation system was also repaired during monsoon due to damages caused by heavy rains.

The users of the canal contributed a total of 128 labour days for the pre-monsoon and pre-winter repair work. Depending on the type of work to be done and the urgency, either eight persons worked daily for sixteen days or sixteen persons worked daily for eight days. For this, the command area was divided into eight sections. Uppalo Chhabise and Uppalo Sathimure formed one section and Tallo Chhabise and Tallo Sathimure another unit, the other six plots formed individual sections. Every section contributed one labourer in the eight *khetala* (agricultural labourer) system and two labourers in the sixteen *khetala* system.

In theory, the fanners contributed labourer according to the size of land irrigated but in practice **the farmers contributed the same number of labourers for different land size serviced. For example,** Upallo Chalise with 2.25 ha of irrigated land, Upallo Satbise with 1.75ha and Tallo Barabise with 1.20ha all contributed one labourer each. Some fanners contributed more labourer per unit of land irrigated because their fields, which were sandy, required more water and other fanners contributed less labourer because they were powerful. The Jimmawal, for example, contributed less labourer per unit of irrigated land than others.

If repair work was not completed within the stipulated date then all beneficiary households contributed one labourer daily until the work is accomplished. This type of labour contribution is known as *sithe* and was often done for emergency work during monsoon.

With the abolition of the Jimmawal system, it was difficult to mobilize labourers for repair and maintenance. The fanners then opted to contribute cash instead of labourers. The cash was used to pay either a contractor (not the water contractor) or daily wage labourers, whoever was cheaper, to repair the canal. The fanners contributed cash on the basis of the area of land irrigated. The rate varied between Rs. 1 to Rs. 10 per 0.25 ha, depending on the total amount to be collected for expenses.

The fanners contributed grains (paddy), based on size of land irrigated, to pay for the services of the water contractor.

The fanners of Side, Dungadi and Kundare had to help repair the canal if it was damaged during monsoon but they **were not allowed to contribute labour or cash for regular repair and maintenance** for fear that they would later claim rights to water from the system.

From 1989 to the Present

During this phase there were major changes in the physical structure and command area of the irrigation system, the operation and management functionaries, water allocation and distribution and resource mobilisation.

Changes in the Physical Structure and Command Area

In 1989 the farmers received a grant assistance from the District Irrigation Office (DIO), as part of the World Bank funded Irrigation Line of Credit (ILC) program, to rehabilitate and enlarge the irrigation system. Under the grant, the intake point was improved with gabion, the canal was widened and lined, crossings and culverts were constructed in various parts of the canal, and the length of the canal was increased at the tail end of the system. These modifications resulted in better supply of water in the canal and irrigation of additional fields.

After the completion of the project, the command area (or more specifically the service area) increased from 16.72 ha to 25.13 ha. The additional 8.41 ha of irrigated fields are located in Andhi Khola at the head end and in Dumtar, Kundarc, Simle and Dungadi at the tail end of the command area. The beneficiary households increased from 45 to 73. 14 households converted 1.86 ha of pakho land to *khet* in the newly extended command area sectors.

Operation and Management Functionaries

The canal committee was not recognized as a legal entity by the state because it was not registered with the Central District Office (CDO). So, when the ILC project was to be implemented, the farmers formed and registered a water users's association (WUA) and selected members of the managing committee, as required by the project.

The responsibilities of the managing committee are similar to those of the canal committee which it replaced. They carry out decisions made by the association members during the annual general meeting which is held just before monsoon. During the meeting the members review the performance of the water contractor(s), renew contract, select members of the managing committee, prepare work plan for canal maintenance, and approve the annual budget proposal.

Water Allocation and Distribution

After the implementation of the project, water is allocated to additional areas, namely, Andhi Khola at the head end and Simle, Dungadi, Kundarc and Dumtar at the tail end of the expanded command area. The old command area receives priority in water distribution and receives more water than the new sections of the command area.

As before the project, water is distributed either continuously (*ni palo*) or by rotation from head to tail, depending on the availability of water, the type of crop and the phase of the crop cycle.

Water Distribution During Monsoon

For the monsoon rice crop, the fields are irrigated at least three times: first for transplanting rice, second, the day after transplantation (known as *maad pani*) and third, a few weeks later (known as *chara paani*). For the first two irrigation, the command area is not divided into sectors; the farmers irrigate their fields, as much as required, generally starting at the head end.

Transplanting of the rice seedling, and thus the irrigation of the fields, begins from the head of the command area. The farmers have to inform the water contractor (*hekdar*) one week in advance to get water for rice transplantation. The farmers have to arrange their rice planting schedule according to the availability of water because the first priority of water is for those who have already transplanted their rice and need to flood their fields.

The day after transplanting, the rice fields are flooded with water (known as *maad pani*). This flooding is very important because otherwise the fields may dry and crack resulting in poor harvest. If necessary, transplanting activities are stopped to allow the transplanted rice fields to be irrigated. While the *maad pani* is distributed from night to 11 a.m. in the morning, water for transplantation is provided after 11 a.m. (The labourers come to work in the fields at 11 a.m.).

Maad pani irrigation is followed by *chara pani* irrigation a few weeks later, during the growth period. *Bijuwa palo* method of water distribution is used for this irrigation. The command area is divided into three sectors, and not two as it was before the ILC project: i) Uppalo Chabise to Tallo Satbise, ii) Tallo Chabise to Dumtar, iii) Simle, Kundare and Dungadi.

While the ILC project was being implemented, the water users managing committee decided that for the monsoon rice irrigation Simle, Kundare and Dungadi would receive one turn of water after the old command area had received 5 turns. However, after the project was completed, they received water only twice a month for *chara pani* and only if there was drought. Later, they received water for 12 hours after the old command area received water for two turns. After prolonged negotiation between the farmers of the old and new sections of the command area, from 1994, the first two sectors receive water for 24 hours each by turn during monsoon and for 36 hours immediately after monsoon whereas Simle, Dungadi and Kundara receive water for 24 hours every Tuesday, irrespective of the season. Dumtar receives water for 2 hours out of the 24 hours allotted to the second sector.

Water Distribution in Other Seasons

The demand for water in the winter and pre-monsoon seasons is not as high as during the monsoon season because the crops grown during these seasons require much less water than monsoon rice crops. In these seasons too, fields in the old command area have first priority to water from Satrasay Phant Kulo. Fields in the old command area receive water first, as much as required, and without any fixed system as to turns or time. Farmers in the new command area may deliver water to their fields after the fields in the old command area have been irrigated. The fields in the new command area usually receive as much water as they want in winter but supply is limited once spring rice is planted in the old command area.

Resource Mobilisation After the ILC Project

After the ILC project, the irrigators have stopped using contractors or daily wage labourers for repair and maintenance preferring to do this task themselves. There are several reasons for this change in resource contribution from cash to labour. First, the canal requires less repair and

maintenance after the rehabilitation and extension project, which included lining of the canal. Second the number of households which benefit from the canal and thus contribute resources increased from **45** to **73**. And third, the big farmers, who control the managing committee, were able to change the basis of labour contribution from the size of land irrigated to household.

Such system of labour contribution whereby every beneficiary household was to contribute one adult male labourer for repair and maintenance is known as *sithe*. The *sithe* system of labour contribution is not new; it was used for emergency repair work during monsoon. However, it is now used for normal repair and maintenance. This system of labour contribution benefits the big farmers because they have to contribute less labourers per unit of land than the small farmers. That this is recognized as unfair is reflected in the fact that less than one third of the households turn up for repair and maintenance work despite threats of fine being imposed on those who do not contribute labourers.

As earlier, the farmers of the old command area who irrigate their monsoon rice crops from the canal pay the water contractors in grains instead of cash. However, the farmers from Simle, Dungadi, Kundari and Simle do not pay the water contractors because they do not deliver water to their fields.

CONFLICT CASES

Conflicts between farmers over water for irrigation are common in all irrigation systems. Many of these conflicts are minor disputes about diverting water out of turn or using more water than allotted, especially during monsoon irrigation when in the heat of the moment words and blows may be exchanged. These disputes are usually resolved quickly by the farmers themselves, often mediated by neighbours or the operation and management functionaries, only to occur again next year. In Satrasay Phant water contractors have helped to decrease such conflicts because they deliver water and patrol the canal and their contract is renewed if they perform well. But such disputes still occur.

Other conflicts occur, not so much annually, almost as part of the irrigation cycle, but when changes are introduced, in management, water allocation, resource mobilisation or the physical structure.

In the following section we describe two cases of conflicts between farmers with existing rights to water from Satrasaya Phant Kulo and new claimants to such rights which occurred when the World Bank funded Irrigation Line of Credit project was initiated to rehabilitate and enlarge the irrigation system. There were a series of disputes before, during and after the implementation of the project between the disputants. The disputes between these farmers were over three issues, namely, a) resource contribution, b) who had rights to water from the system and the basis of these rights and c) priority and hierarchy of rights.

Negotiation Between Farmers Before the Project Was Implemented

The World Bank funded a project known as Irrigation Line of Credit (ILO), implemented by the Department of Irrigation, in the mid-eighties to expand irrigation in the hilly areas of Nepal. Tanahu District was one of the project areas and Satrasaya Phant Kulo was selected as a potential irrigation system to be rehabilitated. The initial plan was to rehabilitate the system to benefit the existing irrigators but the command area was too small to meet the technical and economic conditions of the program. So as suggested by the overseer from the District Irrigation Office (DIO), who had carried out the survey, the farmers with existing rights to water from Satrasaya Phant Kulo agreed to extend the canal and increase the command area to include Andhi Khola, Simle, Dungadi, Kundare and Dumtar.










Once the technical and economic aspect of the system was approved, the farmers had to fulfill two conditions before the project would be implemented: First, the farmers had to form a duly registered Water Users' Association and second, they had to deposit cash in an approved bank as security money. The farmers also had to contribute labour for the construction work. They would forfeit the deposit if they did not meet their labour contribution requirements. The District Irrigation Office was responsible for ensuring that the project was completed.

The farmers held several meetings to discuss issues concerning expansion of the command area, allocation of water and contribution of cash. They finally agreed that Simle, Dungadi and Kundare, at tail end of one branch of the canal, and Dumtar at the tail end of the other branch would be included in the proposed extension of the command area of Satrasaya Phant Kulo **see Map**. The farmers of the proposed extension areas also agreed to the conditions stipulated by the farmers of the old command area. The four major conditions were as follows:

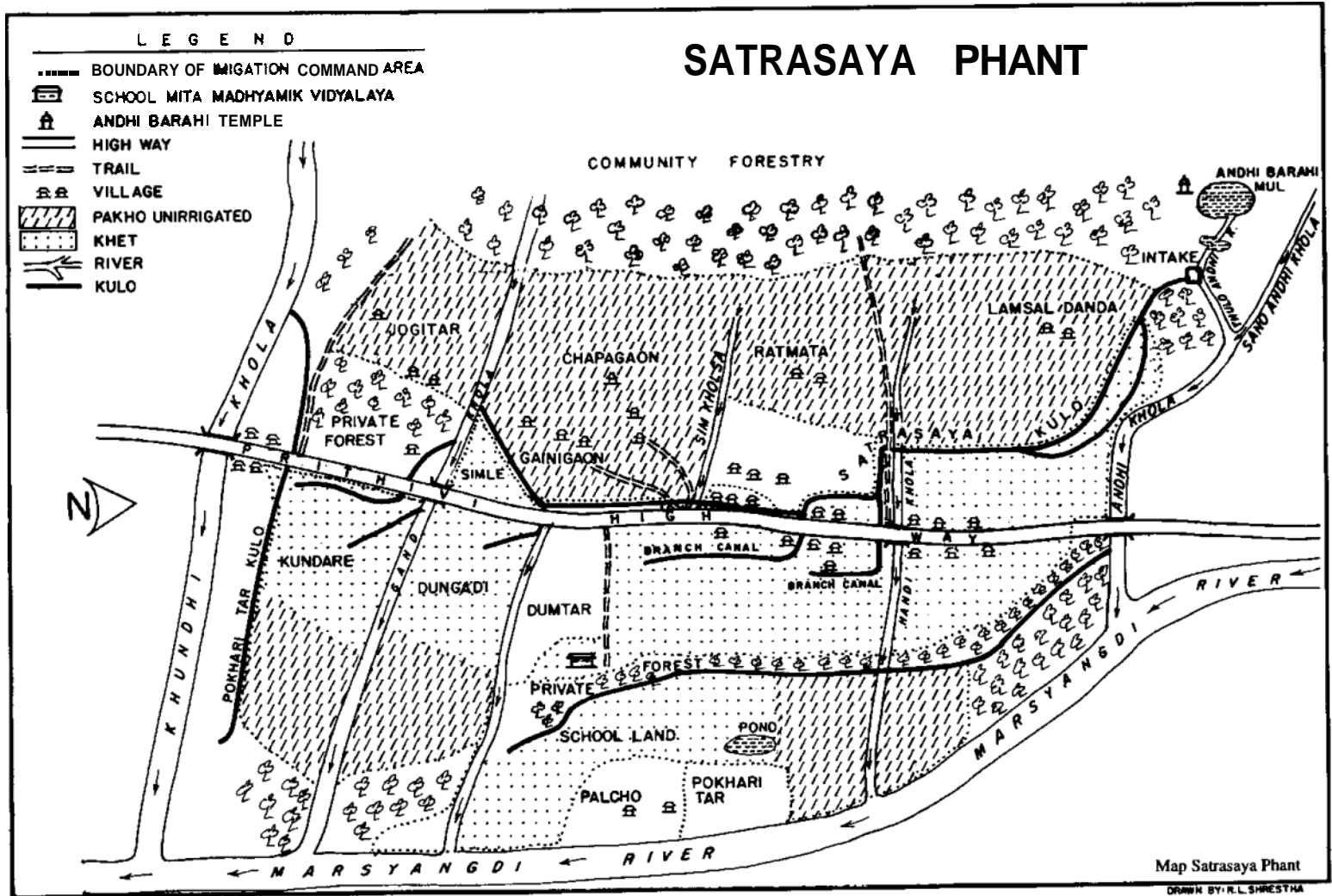
- (i) The existing canal structure would be rehabilitated first and it would be enlarged to irrigate new fields only if there was money left after the rehabilitation.
- (ii) The traditionally irrigated rice fields (*sabik kher*) in the old command area would have the first priority in water distribution; the extension areas would receive water after the *sabik khets* were irrigated.
- (iii) Pakho (upland) fields in Dumtar, Simle, Dungadi and Kundare would receive water only after the *khers* (traditional as well as new) were irrigated.
- (iv) The farmers from the different sectors would contribute cash for the deposit in varying proportion, depending on whether their fields were traditionally irrigated by Satrasaya Phant Kulo, or are part of the new command area, and whether the fields were *khet* (rice fields) or pakho land.

The rate and amount agreed upon changed over different meetings. They first agreed to collect Rs. 20 per 0.05 ha from the farmers of Satrasaya Phant, Rs. 50 from the farmers of Simle, Dungadi and Kundare (all *khet* land) and Rs. 80 from the farmers of Dumtar pakho land. This was later revised to Rs. 45, 75 and 100 respectively because the old rate was insufficient to cover the total amount required for the security deposit.

LEGEND

- BOUNDARY OF MIGRATION COMMAND AREA
-  SCHOOL MITA MADHYAMIK VIDYALAYA
-  ANDHI BARAHI TEMPLE
-  HIGH WAY
-  TRAIL
-  VILLAGE
-  PAKHO UNIRRIGATED
-  KHET
-  RIVER
-  KULO

SATRASAYA PHANT



The agreement between the farmers reflected the status of the farmers of the old command area as the original holders of rights to water from the system and the (proposed) change in property relations due to government intervention (investment). The command area would be enlarged only if the old rights holders agreed but they had to agree to increase the command area if they wanted the ILC project to rehabilitate their irrigation system. The farmers of the new command areas would not be denied access to water but their rights would be secondary to the existing rights holders. The new rights holders could irrigate their fields only after the old irrigators had irrigated theirs. Further, the existing rights holders were to contribute less amount for the deposit than the new irrigators. The new irrigators had to contribute over one and a half times (Simle, Dungadi and Kundare) or twice (Dumtar) the rate to be contributed by the existing irrigators.

The farmers with existing rights to water in Satrasaya Phant Kulo were not really keen to share water with other farmers and had agreed to enlarge the command area only to meet the conditions of the ILC project. This becomes clear from their disputes with the farmers of Simle, Dungadi and Kundare over water allocation and distribution, with the farmers of Dumtar over extension of the canal and with the farmers of Andhi Khola over access to water from the canal.

In all these cases the new irrigators demanded rights to use the improved and extended canal to irrigate their fields on two grounds. First, the improvement and extension work were done with government grant. Second, they had contributed cash for the security deposit, i.e., they invested in the irrigation system. In other words, they acquired property rights to the system and rights to use water by public (i.e., government investment) and private (i.e., their own) investment. The old irrigators, although formally acknowledging rights of the new irrigators, did not grant them rights to use water easily. The farmers at the head reach were able to actualise their claims because they were organised and threatened to use violence. Moreover, they could always breach the canal to divert water to their fields located at the headreach. The small farmers in Dumtar, at the tail end of the command area, were not able to enforce their claims to their water rights from the canal because they were not strong enough to do so. They neither complained to the authorities, nor threatened to use violence.

We will begin with the dispute between the farmers of Andhi Khola and other farmers first

Dispute between Satrasaya Phant and Andhi Khola Irrigators

The fields in the Andhi Khola area were shown as part of the proposed enlargement of the command area but the farmers who owned land there were neither called for the meetings nor asked for contributions by the farmers of the old command area and the proposed extension at the tail end. The farmers of Andhi Khola were under the impression that their fields would be irrigated by Satrasaya Phant Kulo so they did not protest until the rehabilitation work was well under way and they realized that they would not be provided an outlet for their fields. Then nine farmers filed a complaint in the District Irrigation Office (DIO) against the Water Users' Association (WAU) construction committee members. In their complaint they argued that they should be provided water from the canal because it was being rehabilitated and enlarged by the government. Moreover, Andhi Khola area was shown as part of the expanded command area in the survey report.

The DIO instructed the WUA construction committee members to provide an outlet for the fields in Andhi Khola. The WUA committee members agreed to do so but only on the condition that the Andhi Khola farmers contributed Rs. 500 per 0.05 ha of land to be irrigated. This condition was not acceptable to the Andhi Khola farmers who then threatened the committee members with sticks. They argued that they would not contribute more than the farmers of the tail end who had contributed between Rs. 45 to 100 per 0.05 ha of land to be irrigated. They further accused the committee members of discriminating against them by not informing them when money was collected from other farmers for the security deposit before the project was initiated. They then threatened to prevent work on the canal unless an outlet was provided to their fields and they did not have to contribute more than others. The committee members finally agreed to grant them rights to water from the canal upon payment of Rs. 100 per 0.05 ha of land to be irrigated as contribution for the deposit and an outlet was provided for them.

The threat of violence by the Andhi Khola farmers, the location of their fields at the head reach of the canal, and possibly, the instructions by the DIO, compelled the committee members to grant them water rights upon payment of the deposit money. If they were not allocated water they could easily divert water to their fields unless the other farmers guarded this area day and night. One of the reasons why the old irrigators were reluctant to grant them water rights was precisely because their fields are located upstream and it would be difficult to regulate and control the share of water they diverted. This is borne out by the case of one farmer in Andhi Khola who refused to pay his share of the security deposit and illicitly diverts water to his fields even though the outlet to his fields is blocked off time and again and downstream farmers as well as the management committee members threaten him.

Despite opposition from the existing rights holders, the Andhi Khola farmers acquired, or appropriated, water rights. In effect, they could now legitimately divert water to their fields, instead of doing it illicitly. Government grant and their cash contribution as well as their threat changed property relations and water rights in their favour.

Dispute between Farmers of Satrasaya Phant and Dumtar

In the case discussed below, a few small farmers of Dumtar have been denied access to water even though they have 'acquired' water rights because they are neither organised nor powerful. Further, their fields are located at the tail end of the official command area and the canal does not reach their fields, so they are unable to steal water. The conflict here is not only between Satrasaya Phant (old command area) and Dumtar farmers but also between big and small farmers in Dumtar. Farmers whose fields are located at the tail end of the canal do not allow the canal to be extended through their fields (i.e., give right of way) to irrigate the fields of the small farmers. These disputes remained unresolved during our fieldwork.

In the meetings held before the project was implemented, the farmers had agreed that Dumtar would be included as part of the extended command area and the farmers of Dumtar contributed Rs. 100 per 0.05 ha of land to be irrigated as part of their share of the security deposit. While the construction work was going on they were under the impression that the canal would be extended to their fields after the old canal was rehabilitated and improved. They had no reason to be

suspicious because the responsibility for the project was undertaken by the District Irrigation Office and the WUA construction committee and further, many of the farmers owned fields both in Dumtar and in the old command area. However, the canal was not extended to Dumtar.

The small farmers of Dumtar were dismayed and angry. They did not have land elsewhere and depended on their fields in Dumtar for their livelihood. They complained to the District Irrigation Office overseer and the construction committee members only to be informed that the canal would not be extended to their fields because all the project money had been spent.

After the completion of the project, the construction committee was dissolved and a management committee was formed. The small farmers who have not received irrigation complained frequently to the Water Users' Association Management Committee members. These members acknowledged the rights of the farmers of Dumtar to water from Satrasaya Phant Kulo because they had contributed cash and the project was implemented with government grant. But they claimed that they are unable to convince the other farmers to give right of way to construct the canal. These farmers own land both in Dumtar, where they grow lentils (and have recently begun growing rice), and in the old command area where they grow rice. They oppose the construction of the canal through their fields in Dumtar not only because they would lose soil in their land due to irrigation but also because they may face water shortage in their rice fields in the old command area if additional fields were irrigated. They were, in a way, reserving water for future drought periods.

Sailo Sarki had requested the WUA committee members to resolve the question of right of way. The committee called a meeting of the Dumtar farmers to try to resolve the conflict. The committee requested Mrs. Adhikari to provide land for the canal and she replied that she would be willing to do so if other farmers also provided equal area of land. She complained that Sailo Sarki took advantage of her because she never said anything when he dug the temporary canal without asking for her permission. She added, "I have *khet* land in Satrasaya Phant to grow enough paddy to eat rice. In Dumtar I only have *pakho* land which is sufficient to grow black lentils to eat dal. Honestly, I do not want to convert my *pakho* land in Dumtar to *khet* to grow paddy." She added that the farmers were taking advantage of her because she was weak. She was a widow and her sons were living in Kathmandu.

The committee members then requested another farmer to provide land for the canal. He agreed to provide land which was uneven but refused to allow the canal to pass through his *khet* fields. But this was not acceptable to Sailo. Some of the committee members then requested other farmers, two of whom are committee members, to provide land for the canal. One of them had converted his *pakho* land to *khet* at the head reach of Dumtar which is irrigated by water from the canal. Like others, he too is not willing to give up a small portion of this land for the canal. This person, who is the current secretary of the WUA Committee, is reported to have told the farmers, "use power and force, if you can, to plant rice [i.e., to deliver water to the rice fields]". None of the farmers were willing to give up part of their fields for the canal as a result of which the small farmers are unable to plant rice. Sailo Sarki, a poor, low caste farmer, had to revert back to growing lentils instead of rice.

The rich farmers were protecting their interests (land as well as water for their fields in Satrasaya Phant proper) at the cost of these small farmers and by doing so, they violated a local law pertaining to rights of way. In other sections of the command area the farmers gave up portions of their fields along the canal alignment without compensation since they would benefit and, as one informant claimed, in the interest of the whole community. Elsewhere in the same village, farmers gave rights of way for another canal which irrigated fields donated to the village school even though they did not benefit directly. And in a neighbouring village, farmers gave right of way for a canal which did not irrigate their fields; they could request and be given water in times of severe drought but they had no rights to the water. In all these cases, compensation was not sought or paid for the land given up although according to the National Code (Muliki Ain) they could claim compensation either in cash or land.

Why did the big farmers violate the local law concerning right of way? Laws are usually negotiated for each instance of its actualization. The relative strengths and interests of the negotiators as well as other stakeholders on the one hand, and the degree of effective social control and community feeling on the other, determine how the law will be actualised, put into practice. In this case the small farmers of Dumtar were not powerful enough to insist on right of way for the canal. The big farmers did not want the canal to be extended to Dumtar because once it was done, the farmers would insist on acquiring water and the would affect water supply to their fields in times of drought. Another reason was that farmers from other sections of the command area, e.g., Simle and Dungadi, were demanding that they be allocated more water than they had been allocated so far. Distributing water to Dumtar would have reduced water supply to their fields. These farmers, who are more organised and powerful than the small farmers of Dumtar, have managed to increase water allocation to their fields for the monsoon paddy crop from twice to four times a month. These farmers were not supportive of the small farmers of Dumtar because their interests clashed.

The Water Users Association, and especially the Management Committee, are responsible for assuring that the rights holders do receive irrigation but they have not done this. The old irrigators, the elites of Satrasaya Phant, continue to exercise control over water allocation, reserving first priority to themselves. Farmers of Simle, Dungadi and Kundare, not only receive water but over the past two years they have been receiving water more frequently (from two times a month to once a week), after prolonged negotiations. While the big farmers of Dumtar do receive water regularly, the small farmers have not received irrigation yet though they have rights to water from the canal. Sallo Sarki along with other farmers have been demanding that the money they contributed for the deposit be returned to them if the canal was not extended to their fields but they have not yet received it most of the Satrasaya Phant farmers were not willing to return the money.

In both these disputes we can clearly see that all the parties acknowledge the fact that state financial intervention changed existing property relations and water rights. While prior rights of the existing rights holders are recognized, for example, in the agreement that they would have first priority for water, the 'new' rights of those without previous rights to water from the canal are also accepted, but as secondary rights. The existing rights holders do not deny the rights of the 'newcomers' to water from Satrasaya Phant Kulo because the rehabilitation project was implemented with state funds on the condition that their fields are included in the command area and moreover, they had contributed cash for the deposit. The newcomers do not demand equal rights because they accept (or are forced to accept) the local law that prior appropriators and existing rights holders have first

rights to the water. The newcomers agreed to contribute more cash for the security deposit than the existing rights holders who had previously invested in the system and existing rice land owners contributed less than upland (*pakho*) land owners. The terms the farmers agreed to took into account the rights of the old **as** well as new rights holders.

CONCLUSION

Changes in the physical structure, command area and operation and management organisation often result in changes in water rights of existing rights holders and those who did not have rights to water in the irrigation system. Water rights are reflected in water allocation and distribution (which include share of water and priority in distribution) as well as resource contributions made for original construction and annual repair and maintenance.

We have seen how with the change of management functionary from the original five canal-builders to the Jimmawal, water allocation and distribution were altered. The Jimmawal's fields received more water than the fields owned by other farmers and similarly, he contributed less labourers per unit of land irrigated than other farmers. When Jimmawals ceased functioning, water contractors were employed to ensure that water was distributed and delivered according to agreed method and schedule.

With the initiation **of** the ILC project, there was a change in management organization. **All** the users of the irrigation system were members of the water users's association which met annually to select the managing committee members and discuss rules and regulations. But the major decisions were actually made by the leading farmers of Satrasay Phant, many of who were elected as committee members. The rules and regulations passed in the meetings often benefitted the big farmers more than the small farmers. This is clear in the case of the rule regarding labour contribution for regular repair and maintenance which previously was based on size of land irrigated and currently is one person per beneficiary household. However, this rule may not be as **unfair as it looks at first sight if one takes into account previous contributions of the old beneficiaries** to maintain the system.

Without the cooperation of the big farmers, the managing committee is not able to function effectively. This is illustrated **by** the case of the small farmers in Dumtar who are unable to irrigate their fields for their monsoon crops because the committee was unable to convince farmers to give right of way to extend the canal to their fields.

Changes in the physical structure affect water rights. When canals are improved and enlargement water supply is usually increased. More water can be supplied to traditionally irrigated fields or new fields can be irrigated. The existing rights holders, especially if they are powerful control, to a great extent, how the increased supply of water is allocated and distributed, even when the state intervenes.

In the two cases discussed earlier, physical structures were used **as** means **of** allocating and

distributing water. Water was not allotted or distributed to the Andhi Kholafarmers during the early phase of the project and this was done by not constructing outlets in the lined canal. Later when the fanners protested, they outlets were made to enable them to acquire water. The farmers of Dumtar were allotted water in principle but they could not acquire water because the canal was not extend to their fields. Whether water is distributed by rotation or simultaneously, the size of the outlets determine the volume of water the fields receive. The smaller the outlet, the **less** the water discharged into the branch or field canals for the same period of time.

When the government is involved in enlarging existing fanner managed irrigation systems, fanners without rights to water from the systems claim rights and often are able to acquire rights, even if secondary to the existing rights holders. But, and this point is often ignored by government officials, enlarging irrigation systems do not always ensure that the targeted beneficiaries have access to water from the system; they may have no access at all (as in the case of the Dumtar fanners) or have less access than targetted (as in the case of the fanners of Simle, Dungade and Kundare who received less water than agreed upon. In other words, some targeted beneficiaries may acquire rights to water from a system but may not have access to water.

The study illustrates the importance of understanding social relations between stakeholders, particularly between existing rights holders and those without rights. As we have seen existing rights holders are usually big farmers who are reluctant to share water with others. Small farmers find it difficult to gain access to water unless they are organized or strategically located at the head end of the command area. Farmers who are in a position to negotiate and negotiate hard are often able to acquire more water than they have been receiving as is illustrated by the case of the farmers from Simle, Dungadi and Kundare who were able to demand and be given water every Tuesday instead of twice a month.

Conflicts and disputes over water are endemic in irrigation communities. They occur between individuals and between groups over water allocation and distribution, taking water out of turn, 'water stealing', resource contribution and so on.

There are ways to lessen, if not prevent, the occurrence of conflicts. We have seen how better and more effective management such as water **users'** committee and rule enforcing agencies such as water contractors can lessen conflicts. Conflicts are lessened when rules are framed and acceptable to most of the users. Similarly, suitable physical structures can lessen conflicts if they are redesigned and operated in a manner which allows distribution of water as agreed upon

These mechanisms, however, are not effective in preventing conflicts between existing rights holders and those who do not have rights in **an** irrigation system, especially when the system is to be enlarged by donor or government grant. **In** such cases, the relations between **the** existing rights holders and the new claimants as well **as** the extent of state involvement determine how disputes are resolved, or whether they are resolved at all. If disputes are not resolved, the intended beneficiaries of extension and enlargement projects, especially if they are at the tail end of the command **area**, **do** not have access to water from the system (see Pradhan, Haq and Pradhan, this volume). Lack of access **to** water defeats the objective of projects to enlarge irrigation systems.

NOTES

1. This paper is a revised version of the paper presented at the conference titled "Water rights, conflict and policy" held in Kathmandu, Jan 23-26, 1996. We are grateful to Kees Benda-Beckmann for extensive comments on this paper. This paper is based on fieldwork carried out by IIMI and FREEDEAL as part of the research project on "Water Rights in Nepal".
2. Durga K.C. worked for IIMI/ Nepal as research officer. Currently he is working on the process document research in Nepal for Mountain Resources Management Group, a local NGO. R. hadhan was formerly consultant to IIMI/Nepal for the research project on water rights in Nepal. Currently he is directing research on the second phase of the water rights in Nepal project for FREEDEAL, a Nepalese research organization.

REFERENCES

Ambler, John. 1990. "The influence of farmer water rights on the design of water-proportioning devices." In *Design issues in Farmer-managed irrigation Systems*. Colombo: International Irrigation Management Institute. pp 37-52.

Benda-Beckmann, K. von. 1984. "Forum shopping and shopping forums: dispute settlement in a Minangkahau village in West Sumatra, Indonesia. In K. von Benda-Beckmann, *The Broken Staircase to Consensus: Village Justice and State Courts in Minangkabau*. Dordrecht: Foris. pp 31-66.

Coward, Walt. 1990. "Property rights and network order: the case of irrigation works in the Western Himalayas" *Human Organization*, Vol. 49 (1):78-88.

Pradhan. Rajendra and Ujjwal Pradhan. 1996. "Staking a claim: Politics and conflicts between statutory and customary water rights in Nepal." Paper presented at the Sixth Annual Conference of the International Association for the Study of Common Property, "Voices from the Commons", Berkeley, California, June 5-8, 1996

Pradhan, Ujjwal. 1990. *Property Rights and State intervention in Hill irrigation Systems in Nepal* Ph.D. dissertation submitted to Cornell University.

1994. "Fanners' Water Rights and Their Relation to Data Collection and Management." In Sowerine, J, G. Shivakoti, U. Pradhan, A. Shukla, and E. Ostrom (eds.), *From Farmers' Fields to Data Fields and Back*. Kathmandu: IIMI/ IAAS. pp 187-198.

Shivakoti, Ganesh and Ujjwal Pradhan. 1995. "Managing support services: A comparative study of processes and performance of FMIS interventions in Nepal." In *Improving Support Services to Farmer Managed Irrigation Systems in Nepal*. Kathmandu: Research and Technology Development Branch\ IIMI. pp 1-16.

Uphoff, Norman, Ruth Meinzen-Dick, and Nancy St. Julien. 1985. *Getting the Process Right: Farmer Organization and Participation in Irrigation Water Management*. A State-of-the-Art paper prepared at Cornell University for the Water Management Synthesis II Project. Ithaca: Cornell University.

Disputing, Negotiating and Accommodating as Means to Acquire and Protect Water Rights: A Case Study of Conflicts in Dang¹

Mahesh C. Pradhan and Rajendra Pradhan²

INTRODUCTION

There are many ways of acquiring and protecting water rights in farmer managed irrigation systems. Water rights are acquired principally by investment in original construction, rehabilitation, or extension of a system, and by inheritance or purchase of irrigated land (U. Pradhan 1990). It is often the case that the farmers who have water rights are not willing to share water with farmers who do not have such rights in their irrigation system or water source. These farmers try to acquire rights to use water from the irrigation system or water source by means of state intervention, negotiation or disputing. The existing rights holders use similar means to protect their water rights.

The means used to acquire or protect water rights depend on specific situation, relations between stakeholders and the options available to them. If relations are cordial, new claimants may acquire rights by contributing for the rehabilitation or maintenance of the system; if relations are problematic, new claimants may acquire rights by seeking help of the state or by disputing. Powerful local elites may use threats or violence or ask for help from state agencies to acquire or protect their rights and small farmers may take recourse to the courts or administrative bodies or 'steal water' to acquire or protect their rights. Changes in political situation and power relations may compel the disputing parties to negotiate and accommodate instead of taking a conflictuous stand.

The means used to acquire or protect rights are thus different strategies employed by the stakeholders. Strategies include the forum to which the disputes are taken, such as the courts, local

bodies and the streets, the type of claims being made (of ownership, use rights, senior and junior rights) and the justifications offered for the claims.

Claims to water rights (of ownership or use) are justified by reference to law. Different communities have different local laws which legitimize claims and different ways of acquiring rights. The state has its own laws which may or may not recognize such local laws. In most communities in Nepal it is often difficult (or rather was difficult) to distinguish between 'customary' law and 'state' law, unless they contradict each other, because the everyday practices of water rights do not always distinguish between the two. It is mostly when disputes occur and are taken to judicial or quasi-judicial bodies, or when the state is involved, that such distinctions are most relevant. For the purpose of this paper we will explicitly refer to customary or state law mainly if the distinction is relevant which may be the case if local or supra-local actors apparently orient themselves at the one or other, or at a specific combination of the two. Otherwise we will just speak of local rules or local law.

There are different levels and kinds of rights to water: property rights; use rights; senior or first rights and junior or secondary rights; rights for specific season and so on (cf. U. Pradhan 1994; Wiber 1992). Prior appropriation of water from a source by constructing an irrigation system (thus by investment) usually gives the investors senior rights to water from the source. Investors who later construct another canal using the same source of water acquire rights junior to the rights of the prior appropriators. Upper riparian users may have senior rights to lower users. Some users may acquire rights to use water from a source by virtue of long use even though they do not own the water source.

This paper discusses the means used to acquire or protect water rights in farmer managed irrigation systems. It will be argued that the specific means used by the stakeholders depend on which strategy they consider most suitable in the existing situation, social relations between them and the options available. It will also be argued that the law which is used to justify claims are not only fixed 'customary law' or 'state law' but local rules or local law, generated by the local people. The paper describes three conflict cases in Telia Kulo (Guhar Khola Irrigation Project) to illustrate how conflicts arise and disputing and negotiation are used to acquire or protect water rights as well as how and what rules are generated by the stakeholders. It will be argued that disputing is one of the options available to the stakeholders and is used either when other means fail or better alternatives are not available. Similarly, the stakeholders take their disputes to the forums which they believe best suit their interests (Benda-Beckmann 1984).

A BRIEF HISTORY OF TELIA KULO

Before describing the conflict cases, it will be useful to give a brief history of Telia Kulo. Telia Kulo is located in Bijauri Village Development Committee (VDC), formerly known as Bijauri Village Panchayat, in the northern section of Dang Valley, at the foothills of the Mahabharat hills. Bijauri VDC comprises of several villages such as Kharkhare, Hadime and Doghare. Dang Valley is a part of Dang District in the southern part of Nepal, known as Terai. The Terai is the northern part of the Gangetic plain and is flat land except for some areas such as Dang Valley. Dang Valley

is surrounded by the **Chure** and Mahahharat range of hills

Dang Valley was at first populated solely by Tharus, who **are** indigenous to the Terai. From the 14th century onwards they were ruled by kings from outside the area. Until the middle of this century Dang was part of petty kingdoms and relatively independent from the center. The kings of this kingdom donated huge tracts of tax free land to their Brahmin priests. These priests were sometimes granted whole villages as gifts. For example, an ancestor of the present day Majhgainyas received the village Majhgaon as a gift from a king. According to one estimate, the Majhgainyas received over 2040 ha of land as gifts in Dang District. The Majhgainyas, like other landlords, constructed irrigation systems to irrigate their fields.

Telia Kulo was constructed between 150 to 200 years ago by Majhgainyas to irrigate their mustard crops in **Hadime** and **Doghare**. Later it was also used to irrigate rice crops. The canal was later extended to service other villages such as Pakare and Mairawa. And as described below, it was again extended in 1982, this time by the government, to service villages such as Hemantapur, Bankatta and Nimuwa. Currently, the main crops during monsoon is rice and corn and during winter wheat and mustard.

The Majhgainyas, known as Jamindars (landlords), were the most powerful families in the command area of Telia Kulo. Though they are not as powerful as they were formerly, they are still influential in village politics. The traditional rivals of the Majhgainyas in Telia Kulo command area are the **Regmis**, another Brahmin family. They own land in the head sector of the command area and claim that their ancestors first constructed the irrigation system. Whatever may have been the case, the Majhgainyas controlled the management of Telia Kulo. The actual operation, maintenance, and water distribution activities were carried out by the Tharus, their servants and tenants, under the supervision of a **Tharu Sardaruwa** (leader) who was appointed by the Majhgainyas. The Majhgainyas, however, made all the decisions relating to the management of Telia Kulo.

The main source of water of Telia Kulo is Guhar Khola, a perennial river which begins from the hills and flows from the north to the south. Guhar Khola is also the main source of water for several other irrigation systems such as **Malware Kulo**, **Manpure Kulo** and **Duruwa Kulo**, all of which are located below (south of) the intake point of Telia Kulo. In accordance with the local law, which seems to be accepted by most of the farmers in the locality, Telia Kulo, as the most upstream of all these irrigation systems, has first priority (senior rights) in acquiring water from the river. Telia Kulo farmers may withdraw as much water as they want from the river even to the extent of leaving no water in the river for the downstream irrigation systems. This means that more intensive irrigation or extension of the existing command area of Telia Kulo would lessen water supply to the downstream irrigation systems.

We are not aware of any conflicts or disputes between the farmers of Telia Kulo and the downstream irrigation systems over sharing water from the river. Presumably, as long as they received sufficient water, the farmers of these downstream irrigation systems accepted, or were made to 'accept', the local law of first priority to the upstream canal. The farmers of the downstream canals were not totally deprived of water from Guhar Khola for three reasons. First, the diversion weir of Telia Kulo was constructed of brushwood which allowed water to seep

through. Second, the farmers of Telia Kulo did not expand their command area or allow the conversion of non-rice fields to rice fields (*khet*) which would have increased demand for water. Third, some of the leading families in Telia Kulo had fields or relatives in villages served by the downstream canals.

The alignment of Telia Kulo canal parallels Guhar Khola for a few kilometers then snakes east towards Lama Khola. Several villages such as Hemantapur, Bankatti and Nimuwa lie to the east of the old command area of Telia Kulo, beyond Lama Khola. These villages have their own sources of water such as Sakram Khola, Dude Gajari and Lama Khola, which, however are (and were) not sufficient to meet their irrigation needs for winter crops. The elite fanners from these villages had made various attempts for about a century to acquire water from Guhar Khola to irrigate their fields. They did not succeed because it was difficult and expensive to construct a new canal, which would have to be at least 13km long, on the hilly terrain between Guhar Khola and their villages. Another option, cheaper and more feasible, was to link their canal to the tail end of Telia Kulo. But they had to get permission from the farmers of Telia Kulo. However, the Telia Kulo farmers were not willing to cooperate because the increased demand for water would have reduced supply to the irrigation systems which tapped water below the intake point of their canal.

We are not sure whether the farmers from Hemantapur and other neighbouring villages negotiated with the Telia Kulo farmers (especially the Majhgainyas). It seems more likely that they used other means to try to acquire water from Guhar Khola and Telia Kulo. For example, in **1907** one person sought and received permission from the Land Revenue Office (*Mal Kachhari*) in Dang to construct a canal from Guhar Khola to irrigate his fields located in the present day new command area of Telia Kulo. He was unable to complete the construction of the canal due to the difficult hill terrain. Some sixty years later, landlords of Hemantapur constructed Mani Kulo which diverted water first from Dude Gajari and Lami Khola and later from Chammi Sota and Jhari Bharne, all located close to the tail end of Telia Kulo. Some fanners from Telia Kulo allege that the real intention of constructing Mani Kulo was to acquire water from Telia Kulo. All they had to do was to dig a ditch which would link these two canals. This allegation may be true because in **1975** leading fanners from several villages served by Mani Kulo petitioned the Zonal Commissioner and at his insistence, they were able to buy water from Telia Kulo to irrigate their winter crops. However, after a few years they were unable to buy water from Telia Kulo due to a violent confrontation over the timing of water distribution to these villages.

Finally the leading farmers of Hemantapur and other neighbouring villages appealed for help from the Dean of the Sanskrit Institute to which they had donated large tracts of land. The Sanskrit Institute is located in Baljhundi, near Hemantapur. The dean, who lived in a house owned by one of these farmers, had close links with the royal family. During the king's visit to Dang, the dean petitioned the king for an irrigation system which would irrigate fields in Hemantapur and several other villages. The king then directed the concerned ministry to implement such a project, which is known as Guhar Khola Irrigation Project.

Prior to the implementation of Guhar Khola Irrigation Project (GIP), Telia Kulo was 6 km long, with a gross command area of **450** ha and actual irrigated area of 260 ha (177 ha of *khet* and 88 of *bari*). It benefitted 340 households in wards six, eight and nine of Bijauri VDC. After the completion of the project the canal is 13 km long, with a gross command area of **700** ha and actual

irrigated area of 344 ha (177 ha of khet and 167 of bari), and benefits 465 households in wards four, six, eight and nine of Bijauri VDC and ward 7 of Manpur VDC.

The irrigation systems downstream of the intake of Telia Kulo service a gross command area of 3984 ha in Bijauri, Halwar, Manpur and Daruwa VDCs and benefit approximately 2900 households.

CONFLICT CASES IN TELIA KULO/(GIP)

We will now discuss three cases of water rights related conflicts in Dang District. The first case describes the conflict between farmers of irrigation systems downstream of Telia Kulo irrigation system and the Department of Irrigation, more specifically the Guhar Khola Irrigation Project (GIP), over the rehabilitation and extension of Telia Kulo which would affect water supply to the downstream irrigation systems. The second case is between the existing water rights holders of the old command area of GIP and the claimants in the newly expanded command area. The third case is between existing rights holders and new claimants (owners of *bhit* land) within the old command area of GIP³.

In the first case, the existing rights holders used political and administrative means to protect their water rights whereas in the second case they used the court. In the third case, the existing rights holders first used their power to prevent new claimants from acquiring rights but later accommodated their claims. The new claimants in all three cases used political and administrative means to ~~try~~ to acquire water rights. In all three cases, the new claimants were able to acquire water if not water rights to some extent by state intervention in the first case, negotiation and accommodation in the second case and accommodation in the third case.

The Conflict Over Guhar Khola Irrigation Project

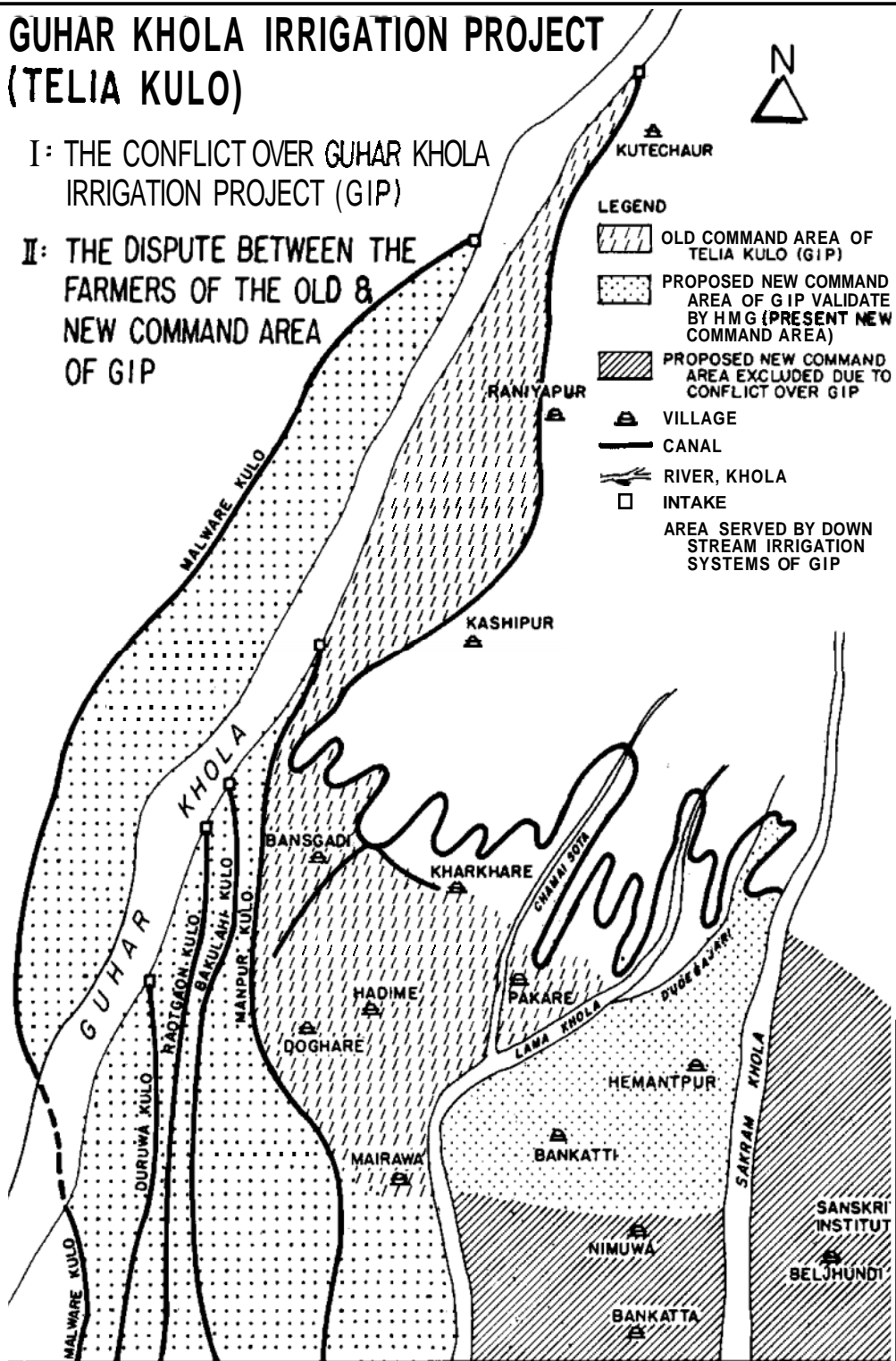
As per the royal directive, a project was sanctioned to irrigate fields in Hemantapur, Bankatti, Bankatta, Nimuwa and several other villages, all east of Lama Khola, with water from Guhar Khola (See Map I). The project, known as Guhar Khola Irrigation Project (GIP), was initiated in 1978. It was financed by the International Labour Organisation (ILO) and implemented by the Department of Irrigation. Like many projects implemented during this period, both the donor as well as the implementing agencies did not take into consideration the existing water rights of the local communities and, as elsewhere, this led to conflicts and disputes (cf. U. Pradhan 1990).

Many of the farmers of the old command area of Telia Kulo and the downstream irrigation systems claimed that the feasibility study for the project was done in secret and that they were never informed about the project, much less consulted. The farmers of the downstream irrigation systems had not objected to the project when a few sections of Telia were rehabilitated because they were ignorant about the proposed project plan. But once the construction work in the headworks had begun, a few of them somehow managed to get information about the actual plan of the project.

GUHAR KHOLA IRRIGATION PROJECT (TELIA KULO)

I: THE CONFLICT OVER GUHAR KHOLA IRRIGATION PROJECT (GIP)

II: THE DISPUTE BETWEEN THE FARMERS OF THE OLD & NEW COMMAND AREA OF GIP



Guhar Khola Irrigation Project Map I

The original plan of the GIP was to construct a permanent concrete diversion weir at the intake point of Telia Kulo, and to rehabilitate and extend the canal. The command area was to be increased by 525 ha, east of Lama Khola, to benefit villages such as Hemantapur, Bankatti and Nimuwa. Land owned by the Sanskrit Institute would also benefit. None of the villagers served by irrigation systems downstream of the intake of Telia Kulo would benefit from the project; on the contrary, they would be deprived of their existing water rights.

Traditionally Telia Kulo fanners constructed temporary brush wood diversion weir which allowed sufficient water to seep through to the canals downstream of the intake point. The permanent diversion weir was designed such that all or most of the water could be diverted from the river, leaving no or very little water in the river below it. And there **was a very strong possibility** that most of the water would be diverted to Telia Kulo (GIP) to irrigate the newly extended command area because GIP was a government project funded by ILO and the irrigation system, renamed GIP by the government, was to be managed by the Department of Irrigation. This would considerably reduce water supply to the downstream irrigation systems such as Malware Kulo, Manpure Kulo and Duruwa Kulo whose intakes were located below the weir. The farmers of these downstream irrigation systems would be deprived of their traditional share of water from Guhar Khola. They thus protested and disputed very vigorously to protect and assert their water rights.

In this case the major conflict of interest over water rights in Guhar Khola (and Telia Kulo/ GIP) was between the farmers of the proposed new command area and the downstream irrigation systems. But they do not seem to have negotiated or disputed with each other directly. The water rights of the downstream farmers would not have been threatened had the GIP project not been implemented. As we have seen earlier, all the attempts of the fanners of the proposed new command area to acquire water from Guhar Khola had failed. The fanners of the downstream irrigation systems therefore disputed directly with the GIP project office because it was the implementing agency of the project. The farmers of the old command area of Telia Kulo were not involved in the dispute but apparently supported the farmers of the downstream irrigation systems behind the scene. According to some fanners from the old command area of Telia Kulo, they did not join in the dispute because they would benefit from the project (the permanent diversion weir and rehabilitation of the canal would reduce labour and maintenance requirement considerably) and they were afraid that the government may cancel the project if they protested about it.

The fanners of the downstream irrigation systems first petitioned and protested with the project officials. The project officials were unable or unwilling to alter the project plan for two reasons. First, the project was apparently approved by the king himself and second during this period the state did not tolerate any protest against 'development' work, especially, foreign funded projects. Seeing no other immediate alternative, about 500 farmers of the downstream irrigation systems, led by local landlords destroyed part of the diversion weir. A few of the leaders were arrested for a day and then released on bail. The leaders then organised protests and demonstrations and sent petition letters to different offices and officials such as the GIP office, the Chief District Officer, the Zonal Commissioner Office. These officials too could or would not help them *so* they took the help of a Member of Parliament of Dang District to petition several offices in Kathmandu again in without success. Finally, again with the help of their Member of Parliament, they petitioned the cabinet to protect their water rights.

The cabinet did not take a hasty decision but instead sent a high level commission to Dang to investigate. After the commission had submitted its report, the cabinet met to discuss what to be done. The cabinet had to take several factors into consideration while making its decision. The project could not be stopped because, as mentioned above, it was approved by the king and funded by ILO, and also because most of the construction work had already been completed. At the same time, the project would have adversely affected about **2900** households of the downstream irrigation systems and benefitted only about 855 households in the proposed new command area. Further, the project had created a law and order problem and needed to be defused. The cabinet finally decided to change the plan of the project and directed the concerned ministry to do so. The ministry, more specifically, the Department of Irrigation, Hydrology and Meteorology, instructed the Guhar Khola Irrigation Project office (i) to reduce the proposed new command area from **525** ha to **250** ha ii) to allocate water to the farmers of the new command area only for monsoon crops iii) not to allocate more water to the old command area than it had traditionally used and iv) to **construct the sluice gates of the head works in such a way** that the supply of water to the downstream irrigation systems would not be **less** than it had traditionally (*sabik*) received.

The cabinet's decision protected water rights of the existing rights holders (the farmers of the **old** command area of Telia Kulo as well as the farmers of the downstream irrigation systems). Most of the targeted beneficiaries of the project (**730** households) were unable to acquire rights to water in GIP (and Guhar Khola) because the new command area was not expanded as originally proposed. Other farmers (125 households) acquired rights to water from the system but only for monsoon crops when they really wanted water for winter crops.

The farmers of the downstream irrigation systems were able to protect their water rights by means of protests, petitions and use of administrative and political connections. The farmers of downstream irrigation systems used these modes and forums of disputing instead of going to court for several reasons. The three most important reasons cited by informants are: i) The judicial process takes a long time and is expensive and troublesome; ii) they believed that the courts would decide in favour of the government (the Department of Irrigation) because it had invested heavily in the project and, moreover, the courts usually favoured the government, and iii) they had connections in Kathmandu and believed that it would be better for them and quicker if they used administrative and political channels instead of the judicial process. They had to resolve their dispute **as** quickly as possible because it would be very difficult to alter the plans once the project had been completed.

The cabinet's decisions were accepted by all the stakeholders for the moment. The conflict however remained and later there were other disputes over water rights in Telia Kulo/ **GIP**. These disputes had been simmering for a long time and came to boiling point after the completion of the GIP project. We will describe two such disputes, the first between the farmers of the old and new command area and the second between the existing rights holders and the 'new' claimants in the old command area of Telia Kulo. The farmers of the downstream irrigation systems were not involved in any of these disputes.

The Dispute Between the Farmers of the Old and New Command Area of GIP

As discussed earlier, the farmers of Hemantapur and Bankatti, in the new command area of GIP, had made several attempts to acquire water from Telia Kulo for their winter crops because their water sources supplied sufficient water during monsoon but not during winter. After the Guhar Khola Irrigation Project was implemented, they acquired rights to water from the canal hut only for the monsoon crops, as per the cabinet's decision. A few years later, they asserted claims to water rights for their winter crops by petitioning the Bijauri Village Panchayat (now known as Bijauri Village Development Committee) for help in securing their rights.

The chairman of Bijauri Village Panchayat was an old rival of the Majhgainyas, the elites of the old command area, and (as politics go) a friend of the elites of the new command area of the GIP. The chairman was very willing to help the petitioners especially because his father had lost a court case some forty odd years ago in a dispute over water rights issue with the Majhgainyas.

The chairman of Bijauri Village Panchayat in collaboration with other Village Panchayat officials and the petitioners formed a water users' sub-committee and allotted water to the new command area for winter irrigation from Telia Kulo/ GIP. The farmers of the old command area were not consulted about water allocation from Talia Kulo but simply informed by a letter sent by the Village Panchayat office. These officials justified their actions on the grounds that the GIP was no longer a 'private' but a government irrigation system (*sarkari kulo*) and, therefore, the Village Panchayat had jurisdiction to allocate the water.

The farmers of the old command area were not willing to share water with the farmers of the new command area for winter irrigation. They believed that Telia Kulo was their irrigation system and had the right to decide whether and to whom they would allot water. To assert and protect their right, some of the farmers of the old command area, led by the Majhgainyas, filed a case in the Zonal Court against a few farmers of the new command area, the water users sub-association, the Chairman of the Bijauri VDC, and the Bijauri VDC. In their petition they requested the court to issue an injunction ordering the defendants not to acquire water from Telia Kulo. They suspected that the defendants were trying to acquire water illegally from Telia Kulo and thus infringe on their traditional water rights. They argued that Telia Kulo was constructed by their ancestors and that they, the petitioners, have been lawfully using it for a long time. It is their property. However, the government rehabilitated and extended Telia Kulo and renamed it Guhar Khola Irrigation Project. The decision of His Majesty's Government (of 1983) clearly states that the farmers of the new command area have rights to water only for monsoon crops and not winter crops. The court dismissed the case on procedural ground, namely that cases pertaining to property, of establishing ownership, should first be filed in the District Court and not directly in the Zonal Court.

The petitioners filed an appeal against the decision of the Zonal Court with the Regional Court of Appeal but they did not pursue this case in the court. They gave two main reasons for this. First, it was expensive and time consuming to visit the court in Nepalganj. Second, they settled the dispute out of court for 'political' reasons. During this period there was a nation wide movement to overthrow the Panchayat regime and restore democracy in Nepal. Many of the litigants were actively involved in this political movement and found themselves on the same side. They were able to discuss the dispute and reach a compromise. The chairman of the Village Panchayat and the Village Panchayat were not involved in the discussion or the compromise. The agreement they

reached was that the new command area would be allocated water for up to 20 days a year to irrigate mustard but not wheat crops. They would get water only after the old command area had been fully irrigated. In exchange, the fanners of the new command area would contribute labour for repair and maintenance of the canal.

In this case when other means (use of Village Panchayat by one party and of the court by the other) failed, the fanners of the new command area acquired secondary rights to water in Telia Kulo for their winter irrigation and the fanners of the old command area were able to protect their senior rights by negotiation, accommodation and compromise instead of further disputing.

The Dispute Between Bhitwals and Other Farmers in the Old Command Area

Telia Kulo is in the Terai, the stretch of flat land, stretching from east to West, in the southern part of Nepal. In Terai, land is classified either as bhir or dhanhar which is similar to the *pakho/khet* classification in the hills. Fields which are levelled and bunded and are suitable for rice cultivation are called khet or dhanhar. Fields which have not been levelled and bunded and in which crops which do not require irrigation but depend on rain such as corn and millet are cultivated are known as pakho or bhit. Bhit fields may be irrigated but only for winter crops.

In the old command area of Telia Kulo, bhit fields are located mainly between Raniyapur and Bangsadi and in Kashipur and Kharkhare (see Map II), i.e. between the head and middle sectors **of the command area. Most of the owners of these fields are small farmers, mainly recent migrants** from the hills. They bought these small plots of land from the landlords, some of whom, including Majhgainyas, continue to own bhit fields, especially in Kharkhare and Kashipur. The farmers, especially the small fanners who did not own rice fields, slowly started to convert their bhit fields to khet, especially the fields which adjoined the canal, and to grow rice. However they were not allotted water by the fanners who managed Telia Kulo.

As mentioned earlier, the Majhgainyas, the biggest landlords in the Telia Kulo command area, managed the irrigation system, assisted by other fanners. Water allotment in the tail end of the old command area of Telia Kulo, where the Majhgainyas live, was based on labour contribution for repair and maintenance of the canal (which in turn was based on the size of the land irrigated). Water was not allotted to new fields without the consent of the Majhgainyas. The Majhgainyas were reluctant to allow conversion of bhit fields to khet because additional land under rice cultivation increases demand for irrigation, especially if the monsoon is late or poor. Fanners depend on irrigation for flooding their fields during and just after rice transplantation.

The bhitwals, as the owners of bhit fields are called, were not allotted water but they would 'steal' water to irrigate their monsoon rice crop by breaching the canal banks adjoining their fields. According to the tail end fanners, the bhitwals did not close the holes they had made which led to loss of water and reduction in water supply to the fields in the tail end of the command area. The powerful landlords forcefully seized livestock or household items as fine (*khara*) to punish the fanners who were caught stealing water and the local authorities did not intervene when these small fanners complained against the Majhgainyas. They and the Majhgainyas believed that the owners of bhit land did not have rights to water from Telia Kulo.

TELIA KULO (GIP)

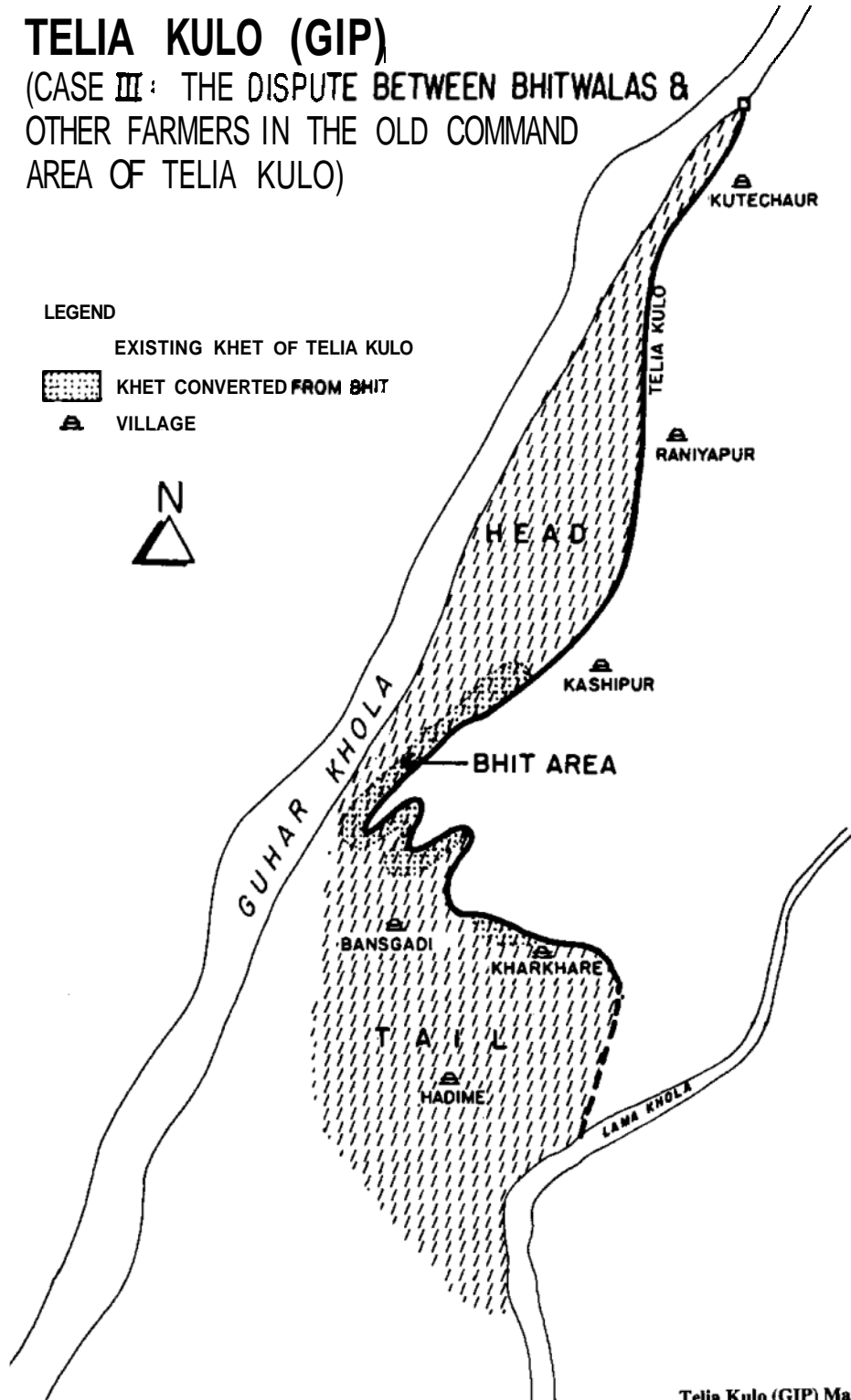
(CASE III: THE DISPUTE BETWEEN BHITWALAS & OTHER FARMERS IN THE OLD COMMAND AREA OF TELIA KULO)

LEGEND

EXISTING KHET OF TELIA KULO

 KHET CONVERTED FROM BHIT

 VILLAGE



Telia Kulo (GIP) Map II

While the Majhgainyas were still very powerful, the villagers did not dare openly convert bhit land to khet but they began to do so when the Majhgainyas began to show less interest in irrigation management and their power and influence declined. In the beginning bhit fields were converted by the bigger landlords, especially the rivals of the Majhgainyas. Encouraged by these examples and supported by a few liberal landlords and Bijauri Village Panchayat officials, other villagers, mainly small farmers and low castes, converted their bhit land to khet, especially after 1979 when the construction work for the rehabilitation and extension of Telia Kulo was initiated.

At first the Majhgainyas tried to deter the bhitwals, especially the small farmers, from irrigating their newly converted khet fields by forcefully seizing livestock or household items as fine and by patrolling the canal. The Majhgainyas lost interest in preventing them from diverting water after their authority was undermined by the Village Panchayat which intervened several times on behalf of the bhitwals. The bhitwals began to 'steal water' more openly.

A document in our possession (presented below) supports the contention of the Majhgainyas that the Village Panchayat office intervened on behalf of the bhitwals. The document was signed by the villagers who had appealed to the Bijauri Village Panchayat to help them recover livestock and household items seized by the Majhgainyas as punishment for "stealing" water. They recovered the seized items with the help of the Village Panchayat and then signed this document in 1985.

The document is an agreement (*majuranama*) and a confession signed in 1985 by seven persons, four from Bansgadhi and three from Raniyapur, that they had diverted water from the canal to their fields⁴. They agreed to divert water to their fields once in five days and only for that year. They would not take or demand more water. They also agreed to abide by the decision of the GIP office regarding water allocation. They agreed to pay the fine as per traditional practice if they diverted more water to their fields than agreed upon.

When (branch) canals of Telia Kulo were being constructed by the Guhar Khola Irrigation Project and we converted our private land to dhanhar (rice fields). The owners of land below us complained that their fields in Bansgadhi, Thangaon, and Bijauri which traditionally received irrigation (sabik pati aayeka jagga), did not receive sufficient water and were in danger of drying up (sukha parti jan sthithi). We (the undersigned persons), therefore, agree that once His Majesty's Government completes the irrigation project, we will do whatever it decides as regards water allocation (howsoever and to whosoever it decides to give water: je jaslai je jasto kisimle pani dela so bamojim garne) and until then agree that bhit land will remain as bhit and dhanhar as dhahnar. Further, we agree to divert water for one day every five days under the supervision of the Sardaruwa of Telia Kulo (and increase the flow of water to the canal from Guhar Khola) to see through this year's harvest. We will not ask or take more water than this. Until the Irrigation Project makes another arrangement, we will not say anything and continue to maintain bhit land as bhit. If we do not do as stated above and take more water, we will pay khara (fine) as per traditional practice.

In effect, the persons who signed the document seem to have been forced to accept the "customary rule" that the traditionally irrigated fields (*sabik pati aayeko jagga*) had first rights to water from

Telia Kulo but at the same time, as the document in shows, they subtly hinted that they too could have rights to water from the canal, renamed Guhar Khola Irrigation, if the state (or the Project officials) *so* decided. Similar views, with additional justifications, were expressed by the 'bhitwals' during interviews with them. Informants from the tail end of the command area stated that these were the reasons given by the 'bhitwals' for diverting water to their fields.

According to the tail end irrigators, the bhitwals justify their action by arguing that Telia Kulo is no longer a private canal but a public or government canal because it was rehabilitated and extended by the government. Everyone with land in the command area has rights to use water from the government canal. As if to emphasize this point, they call the canal '*sarkarikulo*' (government canal) or '*sinchai kulo*' (irrigation canal) instead of Telia Kulo. They further argued that if the farmers in the new command area have rights to the water from the canal, they too should have rights because they own land in the (old) command area. Moreover, since the canal passed through their fields, they should have rights to use water from the canal.

Over the past few years, the tailenders have more or less accepted the fact that the bhitwalas will divert water to their fields, licitly or illicitly. So rather than ignore them, an attempt is being made to coopt them within the system. The recently converted kbet land in Kashipur are not allocated water officially. However, the bhitwalas are allowed to deliver water to their fields unofficially for fixed periods. Initially, they neither contributed nor were allowed to contribute labour for repairs and maintenance because the old irrigators feared that if they contributed labour, they may claim water rights in the future. Later they contributed labour for emergency repair of the canal. At first their labour contribution was not recorded but the Sardaruwa now keeps a record of their contribution and even demands that they contribute labour. The claims of these bhitwals to rights to water from Telia Kulo is gradually being accepted by the existing rights holders. The fact that some of these bhitwalas (i.e., the bigger farmers) are maternal relatives of the Majhgainyas probably helped them secure 'unofficial' water rights.

The claims of the bhitwals from Kharkhare are also being accepted, however reluctantly. The recently converted fields of a big landlord was allocated water first since he is an influential Majhgainya and had migrated to Kharkhare from the tail end of the command area to take advantage of the new section of the canal. The small landholders, recent migrants, were also allotted water by the water users' committee since 1994 for three to three and a half hours per day to dissuade them from diverting water whenever they wanted. These bhitwals however do not contribute labour for system maintenance. They are thus accepted 'freeriders'.

Over the years the bhitwals have been able to acquire water to irrigate their rice crops, if not water rights. If in the beginning they 'stole' water and were punished for it, later they were supported by the Village Panchayat Office and some landlords in acquiring water. The implementation of the Guhar Khola Irrigation Project changed property relations, or rather perceptions of property relations of the bhitwals and other farmers, in that Telia Kulo was considered by them as a public or government canal and not a private one. The Majhgainyas were less powerful and could no longer enforce their rules. They and other farmers in the tail end of Telia Kulo were forced to be more accommodating and less conflictuous.

CONCLUSION

In the cases described above, the farmers used different means to acquire or protect water rights. In all three cases, farmers sought to acquire water rights not by investment, or negotiation or litigation in the courts but by political maneuvering because it was the best means available to them. The existing rights holders were not willing to share water with other farmers. The rights of the prior appropriators were accepted by most of the farmers, even if there were disputes as to who the prior appropriators were. And the courts in most cases upheld the rights of the prior appropriators.

Another means used to justify claims to water rights, if not to acquire rights, was to subvert the justification for exclusive use of water by existing rights holders by insisting that property relations had changed. The new claimants argued that with the initiation of the Guhar Khola Irrigation project by the Department of Irrigation, Telia Kulo was not a private canal but a public or government one. Therefore, everyone who owned land within the command area had rights to water from the system and the Village Panchayat could intervene.

In the first case, farmers from Hemantapur and neighbouring villages (the new command area of Telia Kulo/ GIP) sought the help of a person close to the king to sanction a project which would deliver water to their fields. Earlier efforts to acquire water from Telia Kulo had failed but a project sanctioned by the king and implemented by the government would be difficult to oppose. In the second case, the farmers of the new command area asked for help from the Village Panchayat officials who were rivals of the Majhgainyas, the main persons who opposed sharing water with them for winter crops. The Panchayat officials allotted water to them for winter crops which they justified on the ground that Telia Kulo was no longer Telia Kulo, a private canal, but Guhar Khola Irrigation Project, a government canal. The bhiti land owners similarly used the village Panchayat officials and the Guhar Khola Irrigation Project to legitimize their claims to water from Telia Kulo. Another tactic they employed was to use the strategic location of their fields next to the canal and above the tail end of the old command area to divert water on a regular basis, especially at night when it was difficult to patrol the canal.

The existing rights holders used three means to protect their water rights. In the first case, the farmers from irrigation systems downstream of the diversion weir of Telia Kulo/ GIP took to the streets, protested, petitioned, and used political and administrative channels to alter the plan of the GIP project. They felt that this was a better strategy than using the judicial process. Although the conflict of interest over water was between the farmers of downstream irrigation systems and farmers in the proposed extension of the GIP command area, one party could get water only at the cost of the other. They did not confront each other directly but used the GIP as a medium to try to acquire rights or protect rights. The protests, petitions and political maneuvering by the farmers of downstream irrigation systems were actually directed to the farmers of the proposed new command area and not the Department of Irrigation. They were able to protect their existing water rights, thanks to the cabinet decision. The farmers of the new command area acquired some rights, but secondary to the existing rights holders.

In the second case, the farmers of the old command area of Telia Kulo resorted to the court to

defend their water rights, their rights to use water exclusively for themselves for the winter irrigation. Faced with claims that Telia Kulo was not their irrigation system but a public or state property, they had to establish that the irrigation system was indeed their property. Once this was established by the court, and thus 'legally' accepted, they could prevent others, including the Village Panchayat office, from acquiring water from their system. It is unfortunate that the court did not give its judgement as to who 'owns' the irrigation system because the issue is still not settled. With changes in the political circumstances, they negotiated a compromise and agreed grant limited or secondary water rights for the farmers of the new command area.

In the third case, the Majhgainyas were able to use their position as powerful local elites to enforce the dominant local rules concerning water acquisition (bhit owners did not have rights to water for rice crops). When their power declined and the village Panchayat office intervened, they changed their strategy and became more accommodating. The strategy they then used was to allocate water or 'allow' the bhitwals to acquire water without officially accepting their claims to water rights in Telia Kulo.

Claims to water rights have to be established and justified by reference to law. In this paper we have tried to show that the law that is used to justify claims is plural, multiplex and dynamic. Law as understood here is not one law, customary or state, but often a combination of both types of law and other normative repertoires. State law does become relevant when the actors go to court or the state is involved but state law is only one of the nonnative repertoires available to the actors in a semi-autonomous social field and sub-fields. As Moore (1978) has argued, actors in a semi-autonomous social field generate rules which draw upon several normative repertoires and the rules are not static but change over time. In the case of Telia Kulo/ GIP irrigation context, actors draw upon repertoires of perceptions of state law (and state power), of tradition (customary law), patronage and power, normative ideas derived from perceptions of cropping constraints and opportunities, and perceptions of property relations. Different actors generate different rules or use different repertoires to justify their claims, depending on which they believe best suit their interests.

NOTES

- 1 This paper is a revised version of the paper read at the workshop titled, "Water Rights, Conflict and Policy," held in Kathmandu. Jan 23-26, 1966. Fieldwork for the paper was done in Dang as part of the Ford Foundation funded IIMI/ FREEDEAL study on water rights in Nepal. We are grateful to Joep Spiertz for detailed comments on the paper. The paper is based on fieldwork carried out jointly by IIMI and FREEDEAL for the research project on "Water Rights in Nepal".
- 2 Mahesh C. Pradhan was formerly Research Associate in IIMI/Nepal for the research project on "Water Rights in Nepal" and is currently attached with FREEDEAL on the second phase of the study. Rajendra Pradhan was consulting anthropologist to IIMI/Nepal and is currently directing research on water rights in Nepal for FREEDEAL.
- 3 These cases have been discussed elsewhere from a different perspective (R. Pradhan and U. Pradhan 1996). The first case has also been discussed in this book by Pradhan, Haq and Pradhan.
- 4 The document is a translation of the agreement (manjurnama) signed by the owners of bhit land. We

photocopied the document from Mr. Janardan Pokhrel, a Majhgainya, and former leader of the Telia Kulo management committee. The document, dated 042/5/3 B.S., i.e. 1985 A.D., is a copy of the original document. According to Mr. Pokhrel, this agreement was submitted to Bijauri Village Panchayat Office. The seven persons who signed the agreement are all bhitwals. Presumably there was a complaint against them.

REFERENCES

Benda-Beckmann, K. von. 1984. "Forum shopping and shopping forums: dispute settlement in a Minangkabau village in West Sumatra, Indonesia." In K. von Benda-Beckmann, *The broken staircase to consensus: Village justice and state courts in Minangkabau*. Dordrecht: Foris. pp 37-66

Moore, S. F. 1978. "Law and social change: the semi-autonomous field as an appropriate subject of study". In Moore, S.F., *Law as a process: an anthropological approach*. London: Routledge & Kegan Paul. pp. 54-81.

Pradhan, Rajendra, A. Haq and Ujjwal Pradhan. 1996. "Laws, rights and equity: Implications of state intervention in farmer managed irrigation systems." Paper presented at the conference in "Water Rights, Conflict and Policy", Kathmandu, January 22-24.

Pradhan, Rajendra and Ujjwal Pradhan. 1996. "Staking a claim: Politics and conflicts between statutory and customary water rights in Nepal." Paper delivered at the Sixth Annual Conference of the International Association for the Study of Common Property, "Voices from the Commons", Berkeley, California, June 5-8, 1996.

Pradhan, Ujjwal. 1990. *Property Rights and State Intervention in Hill Irrigation Systems in Nepal*. Ph.D. dissertation submitted to Cornell University.

1994. "Farmers' Water Rights and Their Relation to Data Collection and Management." In Sowerine, J, G. Shivakoti, U. Pradhan, A. Shukla, and E. Ostrom (eds). *From Farmers' Fields to Data Fields and Back*. Kathmandu: IIMI/IAAS. pp 187-198.

Shivakoti, Ganesh and Ujjwal Pradhan. 1995. "Managing support services: A comparative study of processes and performance of FMIS interventions in Nepal." In *Improving Support Services to Farmer Managed Irrigation Systems in Nepal*. Kathmandu: Research and Technology Development Branch\ IIMI. pp 1-16.

Wiber, M.G. 1992. "Levels of property rights, levels of law: a case study from the northern Philippines". *Man (N.S.)*, 26: pp 469-92.

Dynamics in Water Rights and Arbitration on Water Right Conflicts: Cases of Farmer Managed Irrigation Systems from East Chitwan¹

A. Shukla, N. R. Joshi, G. Shivakoti, R. Poudel and N. Shrestha²

INTRODUCTION

This paper examines the dynamism in water rights from the perspective of property creating process and its regulation and use and the mechanisms of arbitration when conflicts arise in the process. In conceptualizing irrigation development as property, the paper draws upon the property framework of Coward (1983). The development and subsequent management of irrigation systems involve investment of resources of some form, whether capital, labor, material or know-how. The mobilization and investment of resources may occur in private, community or state management regimes. Those who make the investment develop claims on the water supply that is acquired and the physical structures that are created for acquisition, conveyance, regulation and distribution of available supply of water. Even in the case of the state management, the investment of resources for irrigation development has a targeted area and users to serve.

Within the system each individual who has invested in the development and management of irrigation system has claim on the portion of available water supply. The collective claim on acquired supply of water is therefore apportioned into individual's claim. In defining the individual's claim the irrigators come to a set of agreements that creates a social contract for

irrigators to realize their claims and acknowledge the claims of others. These agreements are apparent in the forms of **rules**, roles and sanctions to define, constrain and enforce individual's claims (Pradhan 1987). While in some irrigation systems the set of agreements are well articulated, in others there may be little codification. The water right **is** therefore realized **by** both, the mechanisms of access and acquisition of water and also by the mechanisms of its' distribution and **use** (Ambler 1989).

The set of agreements that the irrigators develop to define the collective and individual claims are often equated with the flow regimes at the source and within the system. Available supply at the source and that acquired in the system are temporally fluctuating, **so** a uniform set of agreements may not be adequate for variable flow regimes. The irrigators therefore develop and enforce differential set **of** agreements to define the collective and individual claims depending upon the flow regimes at the source and within the system.

The claims that the irrigators develop collectively or individually have definite objective of directing and ensuring the benefits attainable from irrigation. The irrigators therefore make every effort to maximize the benefits of irrigation. Conflicts arise if moderation or alteration occur on the collective or individual claims either to limit or to expand these claims. Often the causes of such conflicts are man made both within the system or result from external intervention. However, they may also originate from ecological forces working both at the macro and micro levels. Degradation of catchment may reduce dependable supply in the streams and therefore increase the constraints on acquisition of supply in their irrigation systems. Another example is damage caused to the intake and the canal alignment due to increased flood frequency and sedimentation in the streams. Since changes resulting from such ecological forces have bearings on original claims of the irrigators, these become potential sources of conflict.

Several informal mechanisms exist for conflict resolution. The irrigators seek assistance of formal legal and quasi-legal institutions when the informal institutions fail in arbitrating the conflicts adequately. The informal mechanisms are therefore as important as formal institutions for conflict resolution.

This paper **uses** two set of cases of Farmer Managed Irrigation Systems (FMIS) from eastern part of Chitwan Valley to illustrate dynamism in water rights. The conflicts arising from water right issues in the irrigation systems and the roles of formal and informal institutions for arbitration on conflicts have been discussed. While one set of cases of Pampa, Chipleti and Cyampa Irrigation Systems presents the situation in water deficit irrigation systems, another set of cases of Badgaon, Jivanpur and Surtana Irrigation Systems typically presents situation in water adequate irrigation systems. Thus the two sets of cases provide opportunity to compare the nature and dynamics of water rights in water adequate and water deficit irrigation systems.

Study of available records and participants' interview are the two techniques used in this study for information gathering. While participants' interview helped understand the decision making

process, the study of available records helped analyze time series of events and processes at work for dynamics in water rights.

IRRIGATION DEVELOPMENT IN EAST CHITWAN: THE HISTORICAL ACCOUNT

Chitwan District is located at the south-western part of the country between longitudes $83^{\circ} 35'$ to $85^{\circ} 55'E$ and latitudes $27^{\circ} 21'$ to $27^{\circ} 45'N$. About three fourth of the area of Chitwan District is valley with flat to almost flat land having high agricultural potentials. The valley plains are located between Mahabharat range of mountains in the North and Churia hills in the south. The valley is divided between eastern and western parts by Khageri river, popularly known as eastern and western Chitwan. The area south of Rapti river is called Madi Valley (Fig. 1).

Rapti river is the major water resource of east Chitwan. It flows from north-east to south-west and ultimately joins the *Narayani river* system. Perennial rivers like Lothar and Manahari flow along eastern boundary while Khageri flows along western boundary. Dhongre Khola and Budhi Rapti are perennial streams which flow east to west parallel to Rapti river. Several streams flow into the valley from Mahabharat hills which are seasonal in character. These include Kair Khola, Pampa Khola, Tanhi Khola, Chatra Khola and Martal Khola.

In 1993, an irrigation resource inventory of east Chitwan was completed by Irrigation Management Systems Study Group (IMSSG)⁴ at the Institute of Agriculture and Animal Science (IAAS), Rampur. The team could document the characteristics and performance of 88 farmer managed irrigation systems in the area. The total area under command of these irrigation systems was estimated to be **10,704** ha of which 6,626 ha was perennially irrigated while **4,076** ha was irrigated only during monsoon (Shukla et al. 1994). In addition there are two government built irrigation systems in east Chitwan: Pithuwa Irrigation Scheme (600 ha) and Panchakanya Irrigation Scheme (600 ha). Both these systems are now managed by the users through their water users' organization. East Rapti Irrigation Project (ERIP)⁵, a public sector irrigation development program, is being implemented in east Chitwan under credit assistance of Asian Development Bank. One major component of the project is to provide rehabilitation support to existing farmer managed irrigation systems in the project area.

Chitwan Valley is one of the recently settled areas in the country. Until 1953, there were scattered settlements of Tharus and Darais who are indigenous inhabitants of the area. The valley was then known as "malaria hell" due to rampant malaria epidemic. In 1953, the government initiated planned resettlement program in Chitwan under the Rapti Valley Development Project. The project started forest clearing and malaria eradication. In the same year floods and landslides

CHITWAN

LEGEND	
	International boundary
	Zonal boundary
	District boundary
	VDC boundary
	Road
	River
	District headquarter

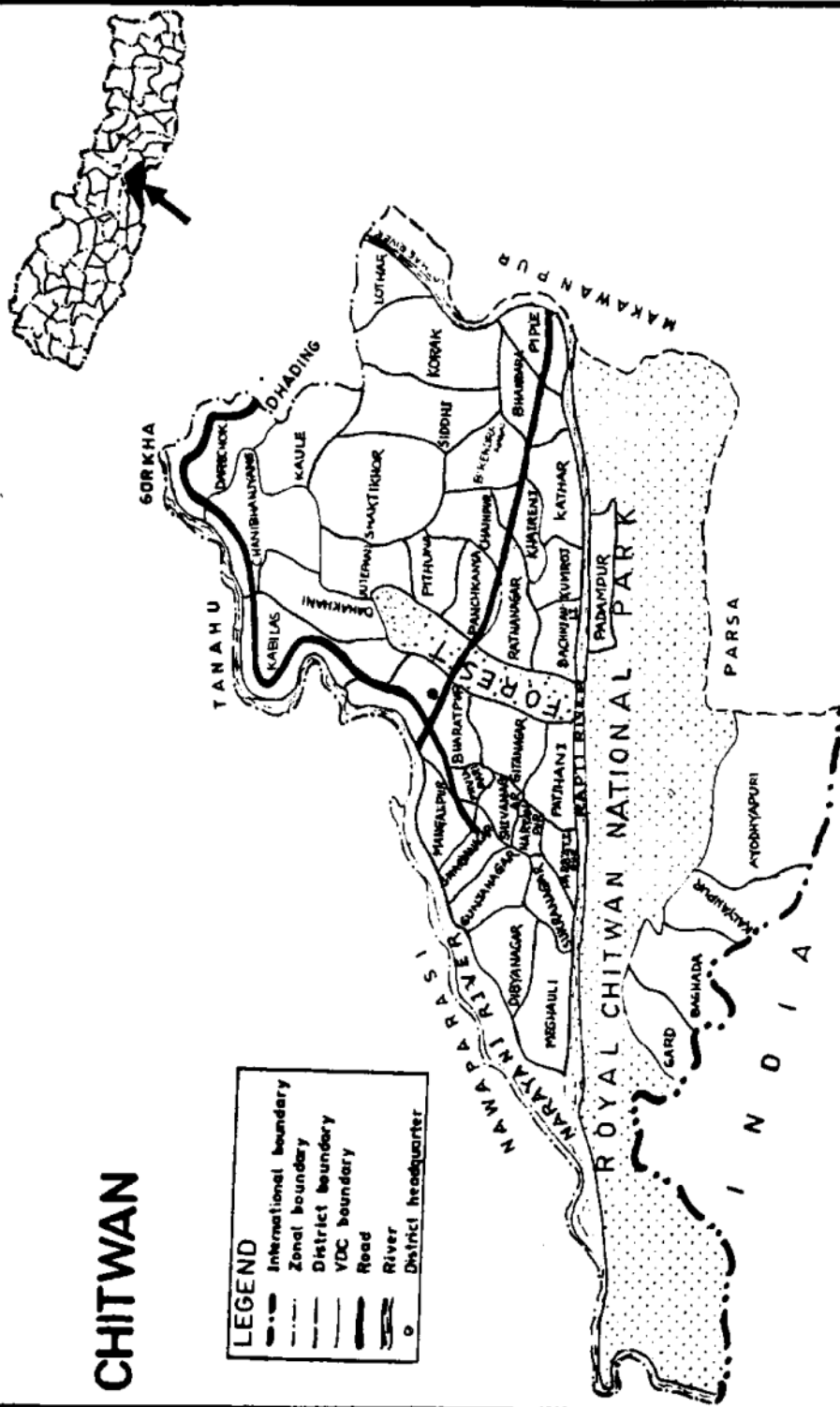


Fig.1. Map of Chitwan District

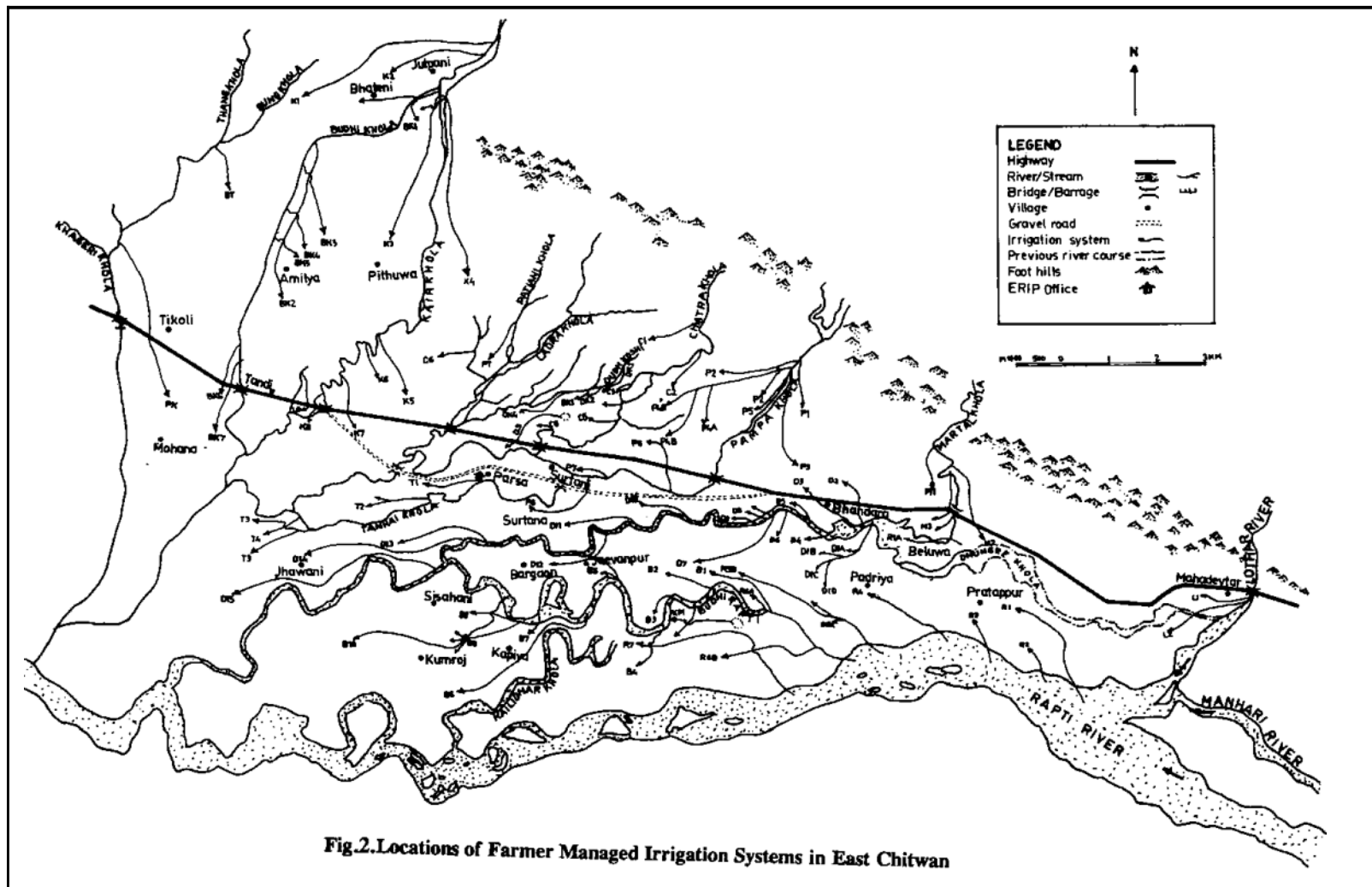


Fig.2. Locations of Farmer Managed Irrigation Systems in East Chitwan

washed hundreds of villages in the adjoining hill districts. The government therefore decided to encourage the flood victims to settle in the valley and clear and cultivate the land, of which they eventually became the owner. During 1958-59, people from all parts of the country migrated into the valley; however, the major influx was from adjoining Lamjung, Tanahun, Gorkha, Baglung, Dhading, Nuwakot and Kaski districts.

The pattern of irrigation development in east Chitwan correlates with the settlement program in the valley. Of the 88 farmer managed irrigation systems inventoried in east Chitwan, 41 were found to be developed before 1953 and 47 were constructed after 1953. Of the 41 irrigation systems constructed before 1953, 35 of the systems were initiated by Tharus and Darais while 6 of them were initiated by migrant communities. Contrarily, of the 47 irrigation systems constructed after 1953, 34 were found to be initiated by migrant communities while only 11 of them were initiated by the original settlers (Shukla et al. 1994).

The migration into Chitwan Valley was also found to have resulted in changes in the management regime of the farmer managed irrigation systems in the area. The migrants took over the primary management responsibilities of many irrigation systems that were initiated by the Tharus and Darais. On the basis of management responsibility, among the 88 irrigation systems inventoried in the area, 20 were found to be managed by original settlers, 45 by migrants and 23 of them managed collectively by original settlers and migrant communities (Shukla et al. 1994).

The Tharus and Darais, the original settlers of the area, were the pioneers of irrigation development in the valley. Many of the irrigation systems initiated by Tharus before 1953 had their origin under the *Pargana* system of governance started during the Rana regime⁶. Pargana was a group of several *maujas* (village) forming an administrative jurisdiction. Each pargana was headed by a pargana chaudhary while the mauja was headed by a *Zamindar*. Zamindars were responsible for collection of land revenue from the tenants within the maujas, while the pargana chaudhary was responsible for collection of revenue from the Zamindars. The headquarter of Chitwan that time was Upartang Gadhi, now in Dahakhani VDC⁷. The revenue collected from each pargana was brought to the headquarter by the pargana chaudhary. During the period of difficult transport and communication this governance mechanism facilitated the state in revenue collection. Eastern Chitwan that time was divided into three parganas while western Chitwan and Madi valley had one pargana each. The pargana chaudhary of each pargana played an important role in the development of the irrigation systems. They used to summon all the tenants in the pargana if labor force of a mauja was inadequate to construct a canal. Jharahi was the form of compulsory labor mobilization from each household, which existed among the Tharu inhabitants as customary institution.

DYNAMISM IN WATER RIGHTS AND CONFLICT RESOLUTION

The Case of Water Adequate FMIS

The case of Surtana, Jivanpur and Badgaon Irrigation Systems illustrate the situation in water adequate regime. While Surtana and Jivanpur Irrigation Systems have only one source, Badgaon Irrigation System has two different sources. The settings of the three irrigation systems is shown in Fig.3. Other characteristics of the irrigation systems are presented in Table 1. The three irrigation systems were initiated by the Tharu Zamindars at different periods. Among them Surtana is the oldest while Jivanpur Irrigation System is of relatively more recent origin.

Table 1: Physical and Socio-Economic Characteristics of Badgaon, Jivanpur and Surtana Irrigation Systems.

	Badgaon	Jivanpur	Surtana
Source	Budhi Rapti+Dhongre Khola	Budhi Rapti	Dhongre Khola
Type of Source	Perennial	Perennial	Perennial
Year of initial construction	Budhi Rapti->100 years Dhongre Khola- 1922 A.D.	1958 A.D.	>100 years
Community responsible for initiation	Tharu	Tharu	Tharu
Nature of intake structure	Budhi Rapti-Brushwood Dhongre Khola-Gabion	Brushwood	Gabion
Service area	225 bigha	60 bigha	258 bigha
No. of household beneficiaries	167	40	200
Average landholding size	0.5 bigha	0.4 bigha	1.25 bigha
Year of major rehabilitation	1987 (FIWUD)	1988 (FIWUD)	1979 and 1987 (DDC+FIWUD)

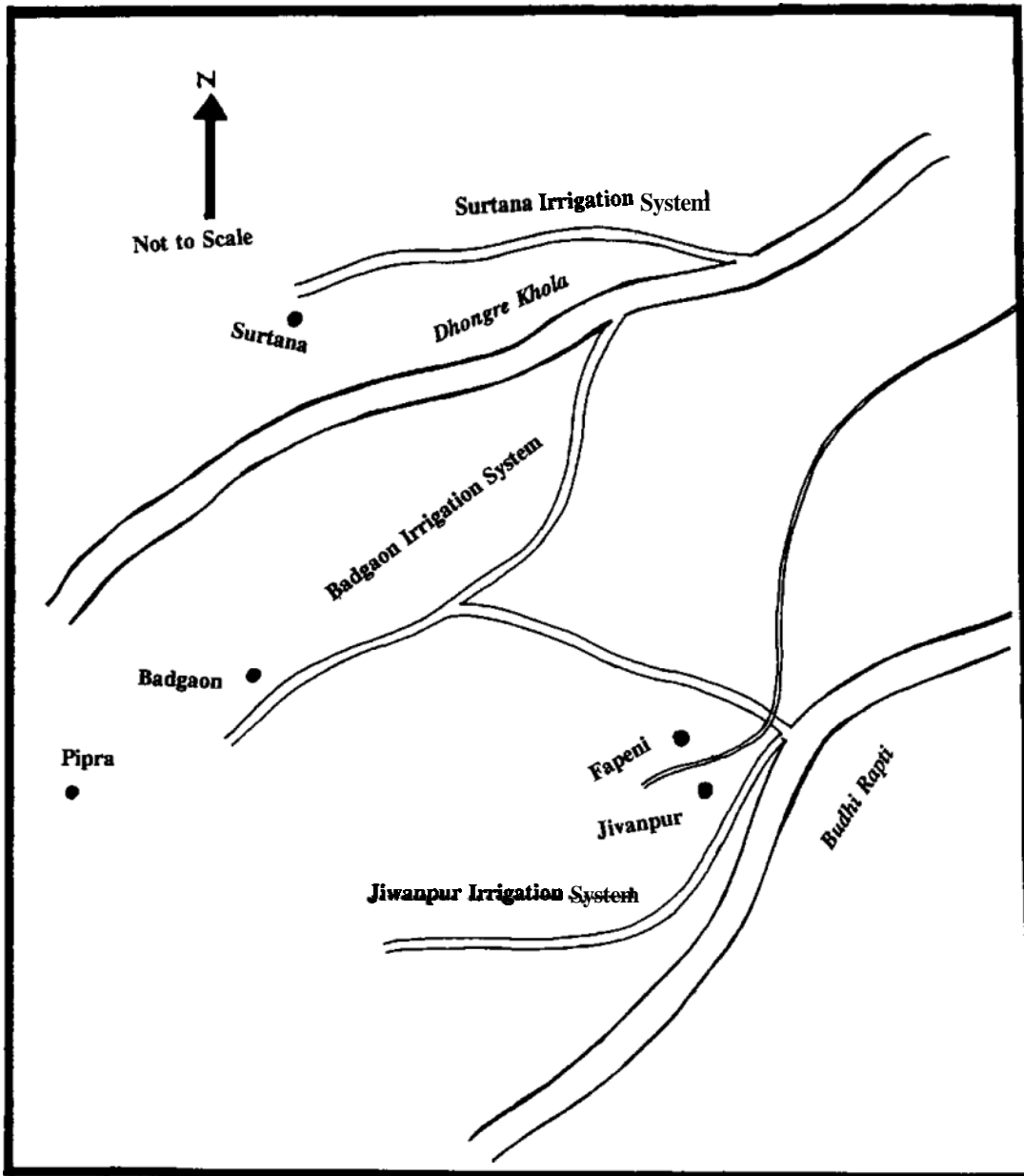


Fig. 3. The Setting of Badgaon, Surtana and Jivanpur Irrigation Systems

Surtana versus Badgaon Irrigation System

Surtana Irrigation System had been obtaining water supply from Dhongre Khola from the beginning. Badgaon had originally built the system with intake in Budhi Rapti which was later abandoned due to deepening of the stream at the point of obstruction. Badgaon at that time was a small village and the service area of the system was between 33 to 40 ha. The labor force available was not adequate to operate the canal with the intake in Budhi Rapti. In 1992 Badgaon users started digging another canal to access the irrigation supply from Dhongre Khola. They built a brushwood type diversion structure upstream of the intake of Surtana. The area that time was under dense forest and the Badgaon users dug the canal day and night through the forest. The people at Surtana could not figure out what was being done until the digging of Badgaon canal was completed and a diversion structure was built.

In 1947, Surtana users decided to shift the intake upstream of the intake of Badgaon in Dhongre Khola. In a flood in 1954, Dhongre Khola changed its course and entered the main canal of Surtana. As a result of this event the intake point of Surtana had to be shifted to about 600 m downstream of the original intake point. Once again the intake of Badgaon got to be upstream of the intake of Surtana.

In yet another major flood in the area in 1970 the flood control dike in Lothar river got broken, as a result, a course of Lothar river entered Dhongre Khola. The intake of Surtana and Badgaon were heavily damaged and it became impossible for Surtana to operate the canal from the same intake. The people of Surtana decided to shift the intake upstream near Shanti Bazar. Since the land near Shanti Bazar belonged to the users of Majhui Irrigation System which had its intake upstream of Surtana, the people of Surtana had to face resistance of Majhui users in obtaining the access to the new intake. For three years from 1970 to 1973 the Surtana canal could not be operated and the farmers could not grow paddy. Surtana users filed a case with the then Zonal Commissioner of Narayani Zone⁸. Later with the intervention of Mr. Him Prasad Upreti, a prominent local leader and the then member of District Council of Chitwan, the dispute was settled and in 1973 Surtana could obtain access by purchasing land adjacent to the intake. This resulted in the shifting of Surtana intake upstream of Badgaon.

In 1979 the District Development Committee (DDC)⁹ of Chitwan provided a grant of Rs. 70,000.00 for the construction of a gabion diversion structure at the intake of Surtana. While the work was being planned, the users of Badgaon filed a written petition with the District Development Committee complaining that construction of gabion diversion structure in Surtana would reduce the quantity of supply at the intake of Badgaon. Another issue of conflict resulted from the location of intake points of Badgaon and Surtana as shown in the cadastral map of the area prepared in 1969. Since the area was surveyed and mapped before Surtana shifted its intake upstream of Badgaon in 1973, this became a legal document for Badgaon to justify its position. The issue was settled with the intervention of the District Development Committee (DDC). The agreement between Surtana and Badgaon was written down and signed. The main provision of the agreement was that Surtana would allow one-sixth of the flow in Dhongre Khola at the intake

to pass downstream to be used in Badgaon. When the authors discussed with the farmers of Badgaon their rationale for agreeing on one-sixth of the flow in Dhongre Khola, they expressed the following view:

“Dhongre Khola is such a source that if you obstruct the stream at any point almost the same quantity of water reappears a few hundred meters downstream. We objected to the construction of the gabion diversion structure in Sultana, not because this would constrain our supply but to legitimize our claims on the (water) supply in Dhongre Khola”.

Badgaon versus Jivanpur Irrigation System

After the Budhi Rapti source of Badgaon was abandoned, the farmers of Fapeni village near the intake filled out the canal alignment and started cultivating. The farmers of Pipra village, which belonged to the Zamindar of Surtana, did not have access to irrigation and therefore they could not cultivate rice. In the absence of irrigation the tenants did not have incentive to settle in the village. The Zamindar of Sunana had matrimonial relations with the Zamindar of Kathar village. Kathar village had its own irrigation system with intake in Dhongre Khola upstream of Majhui Irrigation System. The excess water from the irrigated areas of Kathar drained into Budhi Rapti near the abandoned intake of Badgaon. The Zamindar of Kathar was willing to provide drainage water to Pipra but there were only few tenants in Pipra who were in a position to mobilize the required labor to dig a canal to access this water. The possibility for them was to negotiate with Badgaon to use the old canal alignment dug for Budhi Rapti intake. In 1965 the Zamindars of Surtana and Badgaon came to an agreement to allow Pipra to use the old canal to access drainage water of Kathar. The agreement was facilitated by the Zamindar of Kathar and the then Chairman of Kathar VDC, Mr. Him Prasad Upreti. Upon this agreement Pipra started obtaining drainage water from Kathar and Badgaon Irrigation System was renamed as Badgaon-Pipra Irrigation System. In the mean time Jivanpur Irrigation System was constructed in 1958 with intake in Budhi Rapti near the abandoned intake of Badgaon.

After the **flood** damage to the Dhongre Khola intake in 1970, the Badgaon users needed an alternative source of water supply. Though they had access to drainage water of Kathar, it was not adequate to meet their demand. The Zamindar of Jivanpur, Mr. Chuda Mani Chaudhary, was also the chairman of Kathar VDC. The users of Badgaon decided to approach Mr. Chuda Mani Chaudhary to obtain access to Budhi Rapti source. Considering the sufferings of the farmers of Badgaon and Pipra. Mr. Chaudhary granted them access to Budhi Rapti on the ground that Badgaon-Pipra would allow the drainage water of Kathar to augment the supply of Budhi Rapti. Upon getting access to Budhi Rapti, Badgaon-Pipra started using both, the drainage water of Kathar as well as water from Budhi Rapti source. Further, the Badgaon-Pipra canal at the intake was passing through lowland while Jivanpur canal was passing through upland. Due to topographical disadvantage water in Jivanpur canal would enter only after impounding of water and sufficient rise of water head at the intake. As a result more water was flowing towards Badgaon-Pipra canal. Jivanpur users were unhappy with this situation and they wanted Badgaon-Pipra to use only one source. They filed a written complaint with the Kathar VDC to settle the dispute. The dispute was

settled with the intervention of Mr. Chuda Mani Chaudhary. Badgaon-Pipra was allowed to use one-fourth of the water in Budhi Rapti and the drainage water of Kathar. A written agreement was reached between Badgaon-Pipra and Jivanpur to this effect in 1972.

Despite the agreement that had put restriction on the access of Badgaon-Pipra to Budhi Rapti source, the actual supply in the system was more than to Jivanpur due to the alignment of the canal. In 1987, the Farm Irrigation and Water Utilization Division (FIWUD)¹⁰ provided assistance to Kathar Irrigation System for system rehabilitation. The farmers of Fapeni, who did not have access to irrigation, joined the users of Kathar in resource mobilization. Upon the intervention of FIWUD the drainage water of Kathar, which was earlier recycled for irrigation in Badgaon-Pipra, was diverted to irrigate areas of Fapeni village and some upland areas of Kathar that did not have access to irrigation. When the farmers of Badgaon-Pipra objected to this intervention, they were convinced by the FIWUD engineer that FIWUD would provide assistance to Badgaon-Pipra in rehabilitation of their system.

In the mean time users of Badgaon-Pipra increased the cross-section of the canal to access more water from Budhi Rapti. In 1992 the users of Jivanpur decided to put a hume pipe culvert at the intake of Badgaon-Pipra to limit their access to Budhi Rapti water. This was unacceptable to the users of Badgaon-Pipra so they broke the pipe culvert at the intake. This raised a serious dispute between Jivanpur and Badgaon-Pipra. The users of Jivanpur filed a written petition with the Kathar VDC. The dispute was settled with the intervention of Mr. Shyam Upreti, who was chairman of Kathar VDC. A written agreement was reached between Badgaon-Pipra and Jivanpur stating that (i) Jivanpur would get two-third and Badgaon-Pipra one-third of the water at the intake in Budhi Rapti, (ii) all the resources for the subsequent repair and maintenance of the intake would be jointly mobilized by the users of both the systems, and (iii) that if government agencies decide to provide support for the construction of permanent intake the required resource would be mobilized by both the systems proportional to the area under irrigation.

FIWUD provided support to Badgaon-Pipra in rehabilitation of the system in 1987. A grant of Rs. 60,000 was provided by FIWUD and resources equivalent of Rs. 15,000 in terms of cash and labor were mobilized by the users, which was utilized in the construction of a gabion intake at Dhongre Khola and in the improvement of water distribution structures. Since Dhongre Khola intake of Badgaon-Pipra was functional, the users agreed to one-third of the water of Budhi Rapti while negotiating with Jivanpur in 1992.

In a major flood in the Rapti river in 1993 the joint intake of Jivanpur and Badgaon was washed away and a course of Budhi Rapti entered Dhongre Khola from this point. After the flood, interim support was provided by ERIP for the rehabilitation of irrigation systems in the area. Badgaon-Pipra and Jivanpur could temporarily rehabilitate the system for operation. Once again the dispute for water share at the intake in Budhi Rapti arose. Both the systems have been identified for rehabilitation support under ERIP but due to the dispute of water share at the intake, the rehabilitation works could not be started. Badgaon-Pipra had been claiming more water at the intake on the ground that there is more area under irrigation in Badgaon-Pipra than Jivanpur. While Jivanpur had been stating its position as per the written agreement of 1992 that had granted them access to two-third of the water in Budhi Rapti.

In December 1995, ERIP issued a written notice to both Badgaon-Pipra and Jivanpur to settle their dispute of water share at Budhi Rapti intake or else the proposed rehabilitation support would be cancelled. Both the systems have come to an agreement with the intervention of Kathar VDC on the following clauses: (i) that Jivanpur and Badgaon would agree to share half of the water each at the intake provided a permanent diversion structure be built at the intake, (ii) the resources required to be mobilized internally for the construction of permanent intake would be proportional to service area of both the systems, and (iii) that for subsequent repair and maintenance of the intake the resources would be mobilized equally by both the systems.

Though the dispute between Badgaon-Pipra and Jivanpur is settled some disagreements still persist. One of the issues concerns the nature of the permanent intake. Both the systems have been demanding cement-concrete diversion structure while the engineers of ERIP have been proposing a gabion box type overflow weir. ERIP has adopted the policy of not supporting the construction of cement-concrete diversion structure as it could reduce the available supply to the downstream system and become a source of potential conflict.

The Case of Water Deficit FMIS

To illustrate the situation in water deficit regime, a case study of Pampa, Chipleti and Cyampa irrigation systems is presented. The source of supply of the three systems is Pampa Khola which is a seasonal stream. The people in the area reported that the dry season flow in Pampa Khola has been decreasing. During flash flood, the stream brings massive amount of coarse sediments including sand, boulders and pebbles, as a result of this the bed level of Pampa Khola has been rising. This fact as well as deforestation and uncontrolled land clearing in the catchment area have resulted in changes in the hydrology of this stream. The locations of the three irrigation systems included in this case study are shown in Fig. 4. Among the three systems, Pampa is the oldest. Other characteristics of the three systems are presented in Table 2.

The areas of the three systems are among the recently settled areas in Chitwan Valley. In 1961 ex-armymen who were earlier settled across the Rapti river were brought to settle in this area, because the land of their earlier settlement was acquired by the Royal Chitwan National Park. During that time the forest in this area was being cleared by the Timber Corporation. During the Royal visit of the king to Bharatpur, the ex-armymen requested him to grant them permission to use tree roots and other leftover timbers. They were granted Royal permission to utilize the leftover forest products in 1067 ha of land. They sold firewood and other forest products from this area and raised a fund of Rs. 1.5 million. They utilized this money to support development work in the area including construction of roads, schools, drinking water supply schemes and irrigation systems. Initial funding for the construction of Pampa, Chipleti and Cyampa Irrigation Systems came from this ex-armymen fund.

Table 11: Physical and Socio-Economic Characteristics of Pampa, Chipleti and Cyampa Irrigation Systems.

	Pampa	Chipleti	Chympa
Source	Pampa Khola	Pampa Khola	Pampa Khola
Type of source	Seasonal	Seasonal	Seasonal
Year of initial construction	1967	1971	1969
Community responsible for initiation	Migrant	Migrant	Migrant
Nature of intake	Permanent (Gabion bos)	Brushwood	Brushwood+ Gabion
Service area	105 bighas	217 bighas	135 bighas
No. of household beneficiaries	96	201	55
Year of major rehabilitation	1991 (CSIP/ADB-N)	1981	None

Origin of Pampa, Chipleti and Cyampa Irrigation Systems

Budi Kulo¹¹, Pakakdibas Kulo and Badara Kulo were developed by the Tharus and existed in the area prior to the initiation of Pampa, Chipleti and Cyampa Irrigation Systems. In 1967 the ex-armymen fund provided Rs. 40,000 for the construction of Pampa Irrigation System. The grant was utilized in contracting out the work of canal construction in the difficult portions and in the construction of intake. And all the ex-armymen settled in the area provided free labor in digging the canal. In 1969 a brushwood diversion structure was built in Pampa Khola, about 50 m downstream of present intake and water supply was obtained to irrigate 20 ha of land. In 1970 the intake was shifted upstream of the original intake but it was again washed away in a flood. In 1976 the users decided to dig a tunnel through hard rocks and they shifted the intake further upstream. The next year the users of the system were successful in obtaining a grant from the Community Surface Irrigation Program (CSIP)¹² of the Agricultural Development Bank (ADB/N) which was utilized in the construction of permanent intake and in lining a portion of the main canal. The total cost was Rs. 246,000 of which 60 percent was the grant of the government, 30% was provided by ADB/N as credit and 10 percent equivalent of labor was mobilized by the beneficiaries. The service area of the system increased to 70 ha after the improvement under the CSIP program.

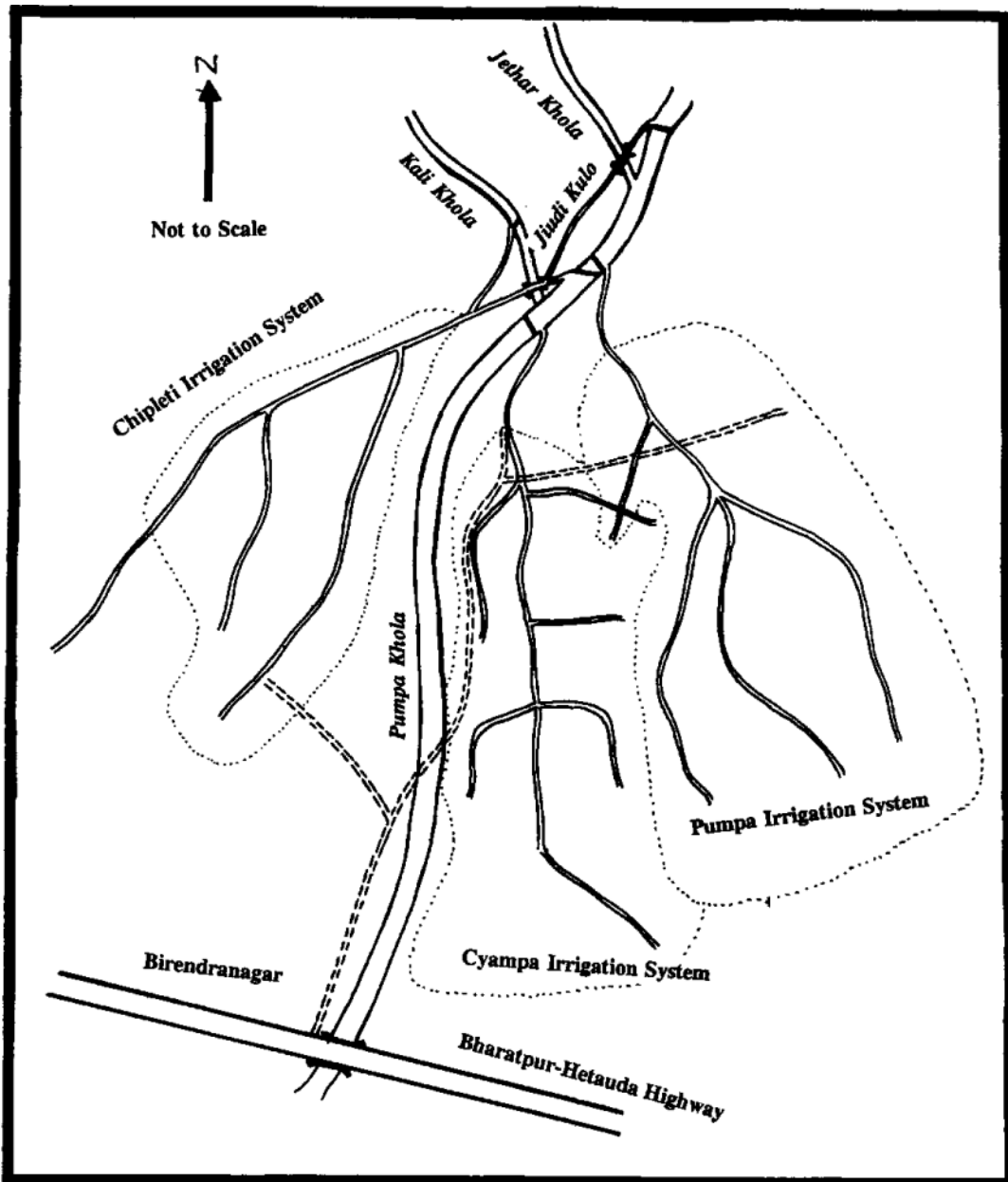


Fig.4. The Setting of Pumpa, Chiplei and Cyampa Irrigation Systems

Chipleti Irrigation System was initiated in 1971 with the intake in Pampa Khola, upstream of the earlier intake of Pampa Irrigation System but the system could not be operated for three years. In 1973 a new intake was built in Kali Khola to augment the water supply. Free labor was mobilized by the users of the system and a grant of Rs. 90,000 from the ex-armymen fund was utilized in contracting out the work of digging the canal in difficult portions. These two attempts were not very successful and the system remained defunct from 1973 to 1981. The farmers in Chipleti were growing maize and millet while in the farmers in the adjoining Pampa Irrigation System were growing rice which was a matter of humiliation for the users of Chipleti. In 1981 an ex-armyman, Mr. Chuda Bahadur Pandey, who had training in the engineering division of the Indian Army, re-initiated the construction of the system. It took 44 days for 86 men to reconstruct the system. The system could be operated to bring 48 ha of land under irrigation. Three years later the District Development Committee provided a grant of Rs. 12,000 and 11 units of gabion boxes for the rehabilitation of the system.

After the construction of the permanent intake of the Pampa Irrigation System the supply of water at the Chipleti intake was reduced. Though Chipleti had another intake in Kali Khola, the available supply was not adequate to meet the demand for water.

A few Chepang households were irrigating about 5 ha of land from a small canal called Jiudi Kulo with intake in Jethar Khola, upstream of Pampa and Chipleti Irrigation Systems. The drainage of this system was utilized by Chipleti for irrigation. To improve the canal and intake in Jethar Khola, the Chepang households obtained a credit support of Rs. 9,000 from the Small Farmers Development Project (SFDP) of ADB/N. In the meantime an underground water tank for drinking water supply scheme was built on the bank of Jethar Khola which reduced the flow in Jethar Khola. The Chepang households decided to move their intake upstream in Pampa Khola in 1978. As a result of this change the water supply in Jiudi canal increased tremendously.

From 1985 onwards, the users of Chipleti Irrigation System obtained water for dry season irrigation upon request to the Chepang households. The users of Chipleti had realized the importance of this water because it was valuable for their wheat irrigation. In 1990 an agreement was reached between the users of Chipleti and the Chepang households that resulted in regular access of Chipleti to Jiudi Kulo. In turn the users of Chipleti paid Rs. 20,000 to the Chepang households which they utilized to pay back the loan from SFDP. After this agreement the Chepang households became regular users of the combined Jiudi-Chipleti Irrigation System.

Cyampa Irrigation System was initiated in 1969. During the construction of the Pampa Irrigation System in 1967 the users of Cyampa had also contributed cash and labor but upon completion of the construction, they were denied access to irrigation. Shanta Bahadur Thapa, a prominent farmer from the area, decided to invest his own money to construct Cyampa Irrigation System. In 1969 he invested a sum of Rs. 12,000 and the users of Cyampa contributed free labor for the construction of the canal. It took nearly one month for 45 men to dig the canal and construct an intake in Pampa Khola. Water supply was obtained for irrigation of 53 ha of land in the command area of the Cyampa Irrigation System. In 1970 the ex-armymen fund provided a grant of Rs. 6,000 which was

utilized to partly reimburse the expenses of Mr. Thapa. The system was later expanded to irrigate 90 ha of land.

Pampa versus Chipleti Irrigation System

In 1971 when the initial construction of Chipleti Irrigation System took place, its intake was upstream of Pampa Irrigation System. Pampa moved its intake upstream in search of relatively more stable intake point. In 1991 when ADB/N provided rehabilitation support to Pampa, the major portion of resources was spent in the construction of the intake structure. The objective was to divert maximum possible amount of water from Pampa Khola.

Though Chipleti had two intake points in Pampa and Kali Khola the available supply was inadequate to meet the demand. The users of Chipleti negotiated with Jiudi Kulo of Chepangs to access more assured water supply.

On the day of July 7, 1992 when the new intake of Pampa Irrigation System was inaugurated, the users of Pampa organized a feast at the intake. During the feast the users of Pampa decided to break the upstream intake of Jiudi-Chipleti system. The position of Pampa was that with the access of Chipleti in Jiudi Kulo the demand of water would increase which would reduce the supply at the intake of Pampa Irrigation System.

When the intake of Jiudi-Chipleti was damaged, the users of this system were transplanting monsoon rice. As the water supply in the canal ceased, the users went to the intake and found the intake broken. The users committee of the Jiudi-Chipleti sent a written message to the users committee of Pampa to enquire into the matter. When they got no response a written complaint was filed in the Birendranagar VDC asking for compensation of Rs. 52,820 for four days of delay in transplanting rice due to the destruction of the intake. The VDC functionaries could not arbitrate in the matter and referred the case to the District Administration Office at Bbaratpur. The District Administration Office organized several hearings from both the parties. While the case was still pending at the District Administration Office, the users of Pampa filed a petition at the District Court of Chitwan on the grounds that the construction of Jiudi Kulo was initiated after the construction of Pampa and therefore it would reduce the prior rights of Pampa Irrigation System in Pampa Khola.

On June 17, 1994 the District Court gave the verdict in favor of Pampa Irrigation System. The verdict of the court stated that until 1978 the intake of Jiudi Kulo was from Jethar Khola and that it was moved to Pampa Khola only after 1978. Since this change was made after the construction of intake of Pampa Irrigation System, it may reduce the supply available for Pampa Irrigation System in Pampa Khola.

The users of Jiudi-Chipleti Irrigation System challenged the verdict of the District Court in the Appellate Court in Hetauda where the verdict was in favor of Jiudi-Chipleti Irrigation System. The

new verdict stated that the existing intake of Jiudi Kulo is 1.5km upstream of the intake of Pampa, so the issue raised by Pampa that it would reduce the supply in Pampa Khola at the intake of Pampa Irrigation System is not justifiable. The case has been appealed in the Supreme Court,

Pampa versus Cyampa Irrigation System

During the initial construction of Pampa Irrigation System in 1967, the present users of Cyampa Irrigation System had also contributed cash and labor but they were denied access to irrigation from this system. They then began to construct Cyampa Irrigation System, locating its intake downstream of Pampa Irrigation System.

The conflict between Pampa and Cyampa irrigation systems arose when the construction of a permanent intake structure was initiated in Pampa Irrigation System in 1991 under ADB/N's support. Until that time Pampa Irrigation System had brushwood diversion structure at the intake. While the construction of the new intake was going on, the users of Cyampa filed a written complaint with the Birendranagar VDC and District Administration Office in Bharatpur. When the authors enquired into the rationale of their complaint, they stated

“We saw cement concrete diversion structure being built with almost 6 feet deep foundation. A structure of this nature was sure to reduce our share of water in Pampa Khola”.

The Birendranagar VDC involved the officials of ADB/N's Small Farmers Development Project in Birendranagar in the arbitration. An agreement, which was written down, was reached on March 10, 1992. As per the agreement, gabion boxes would be used instead of concrete to construct the diversion structure at the intake and Pampa Irrigation System would provide water to Cyampa to irrigate wheat crops. Since then if water is needed in the Cyampa Irrigation System, the users' committee apply in writing to Pampa, stating the area to be irrigated and the actual irrigation time required. The users' committee of Pampa validate the request of Cyampa through actual inspection. If the request is found genuine, Cyampa is given water for irrigation. When the users of Cyampa were enquired about this arrangement they stated that the supply made available by Pampa was never adequate.

SUMMARY AND CONCLUSION

This paper started with a brief conceptual framework of irrigation development as property creating process, the process of defining and realizing claims on irrigation and therefore the emergence of water rights. The later part of the paper dealt with a historical account of irrigation development in east Chitwan that laid the context for initiation of FMIS in the area. To illustrate the dynamism of water rights and conflict resolution mechanisms, two sets of case studies of FMIS, representing water deficit and water surplus conditions, were used. The two sets of cases

illustrated the processes of negotiation, re-negotiation, claims and conflicts in acquisition and sharing of water that occur as a result of changes, whether internally induced or resulting from external forces. The external forces in the context of the study area were Occurrence of flood, change in the flow regimes of the streams and structural changes in the nature of diversion structures caused by external intervention. The internal forces were increase in population and area under cultivation which increased demand for irrigation. From the two sets of cases, conflicts emerging from the claims on irrigation as well as the hierarchy of institutions and mechanisms existing for arbitration on conflicts were identified.

The resettlement program in the area was initiated in 1953 under the Rapti Valley Development Project. **As** the population increased the demand for irrigated agriculture also increased. People started building new irrigation systems to exploit the existing water resources. At the same time, the need for expansion of irrigated area of existing systems also increased. This induced constraints on existing water resources as well as on water supply within the system. When the magnitude of constraints increased such that the benefits the users were enjoying were adversely affected, they started making efforts to define, establish and protect their rights. While establishing their rights, several kinds of differentiation and amalgamation took place. The magnitude of constraints were further enlarged **by** the occurrence of floods and reduction in dependable flow regime in the streams. In attempts to ease the constraints, changes were brought in the physical and structural characteristics of irrigation systems. Traditional brushwood diversion structures were replaced by gabion box intake structures. Such changes further resulted in changes in the relationship between upstream and downstream irrigation systems as regards access to water.

Conflicts emerged when the attempts to protect rights in one system were found to put limits on the benefits realized by others. This is apparent from the case of Pampa, Chipleti and Cyampa irrigation systems where construction of permanent intake structure in Pampa irrigation system became a source of conflict. The conflict between Badgaon and Jivanpur and that between Pampa and Chipleti was due to the attempts made to expand access to the water source. Attempts to gain access to upstream intakes were also made through negotiation with the upstream systems. The amalgamation of Jiudi with Chipleti Kulo was a result of the attempt to expand access to upstream system.

The two sets of cases of FMIS also illustrated the hierarchy of mechanisms that exist for arbitration and mediation of conflicts. There are multiple levels of informal mechanisms before **people** seek the intervention of formal legal and quasi-legal institutions. The initial attempts for arbitration was found to take place among the users. As apparent from the case of Pampa and Chipleti irrigation systems, the users of Chipleti attempted to seek explanation from Pampa when their intake was damaged. The second stage of mediation was found to take place with the involvement of prominent individuals in the community, who may be either village elders **or** leaders of local political units. The role of local feudal like Zamindars who initiated the **FMIS** have also been important. The conflict between Surtana and Majhui irrigation systems and that between Badgaon and Jivanpur were settled with the help of such individuals.

People seek the intervention of legal and quasi-legal institutions only when the informal conflict resolution mechanisms fail. The role of the Village Development Committee (VDC) has been important as a quasi-legal institution in resolution of irrigation related conflicts. The VDC Act of 1991 has empowered the VDC to look into the matters of irrigation development and resolution of irrigation related conflicts. The VDC has authority to mediate between conflicting parties and impose fines and penalties in case of defaults.

In case of conflicts not getting settled at the VDC level, they were found to be referred to the District Administration Office. This was observed in case of Pampa and Jiudi-Chipleti irrigation systems where the Birendranagar VDC referred the case to the District Administration Office in Chitwan when the conflict could not be resolved at the VDC level. The intervention of court in conflict resolution was sought as a last resort. The conflict of Jiudi-Chipleti and Pampa irrigation systems was brought to the court only because other mechanisms for conflict resolution, including the VDC and the District Administration Office, failed to resolve the conflict adequately.

The two set of cases presented in this paper limited the explanation to dynamics in the water rights only at the source and ignored the issues resulting from individuals' claims within the system. The authors plan to extend the study further and document the processes of realizing water rights within the system.

IMPLICATIONS AND POLICY ISSUES

One of the important inference drawn from the two sets of cases is that water right is a continuous flux changing over time because of continuous processes at work. There are multiple dimensions to water rights. Even drainage water from the upstream system could be the potential source of supply for the downstream systems. This has implication for the development and management of irrigation resources. The relationship among the irrigation systems in terms of their rights at the source, if ignored during external intervention, may result in conflicts. Thus, while planning intervention in the irrigation systems, existing access to different sources and the inter-system water transfer must be accounted for and the possible effects of intervention on existing rights must be assessed in advance.

Another issue relates to the ecological forces responsible for water right dynamism at a macro level. Particular to the cases described in this paper, occurrence of floods and changes in the dependable flow regimes of the streams have influence on the existing water rights. The causes of these forces and therefore the means of their control, lie outside the boundary of the irrigation systems, hence multi-sectoral approach in catchment protection, forest conservation, erosion control, flood protection and river training is required.

NOTES

- 1 Paper presented at the Conference on Water Rights, Conflict and Policy, January **22-24**, 1996. Kathmandu, Nepal.
- 2 The authors are Faculty and Members of Irrigation Management Systems Study Group at the Institute of Agriculture and Animal Science (IAAS). Rampur, Chitwan. Nepal.
- 3 Khola in Nepali means river or stream.
- 4 Irrigation Management Systems Study Group (IMSSG) is a professional group of faculties at the Institute of Agriculture and Animal Science (IAAS) involved in the study of issues related to irrigation development and management.
- 5 East Rapti Irrigation Project (ERIP) is a public sector irrigation development program. being implemented in east Chitwan under credit assistance of Asian Development Bank. The objectives of the project are: i) rehabilitation of farmer managed irrigation systems in the project area. ii) construction flood control dike and river training in Rapti river, iii) construction of approximately 60 km of village and link roads and iv) promotion of shallow tube well program in the areas where surface irrigation is not available.
- 6 Rana regime was established by Prime Minister Jang Bahadur in **1846** A.D. The Rana families ruled Nepal during most of 19th and first half of 20th century.
- 7 Village Development Committee (VDC) is an elected body at the village level.
- 8 Nepal is divided into **14** Zones and 75 Districts; each district forms one administrative boundary.
- 9 District Development Committee (DDC) is an elected body at the District level.
- 10 The Farm Irrigation and Water Utilization Division (FIWUD) was started in 1973 under the Department of Agriculture to take up construction of irrigation schemes less than 500 ha in Terai and less than **50** ha in the hills. In 1987 FIWUD was merged with the Department of Irrigation.
- 11 Kulo in Nepali means irrigation canal or irrigation system.
- 12 The Community Surface Irrigation Program (CSIP) is the credit and subsidy based surface irrigation development program of the Agricultural Development Bank of Nepal (ADB/N). Of the total cost of an irrigation project, 60% subsidy in the capital cost is provided by the government, 30% is provided by ADBN as credit and 10% equivalent is home by the beneficiaries through compulsory labor mobilization.

REFERENCES

- Coward E. W. Jr. 1983. "Property in Action". Paper Presented at Khon Kaen University, Thailand.
- Fradhan U. 1987. "Property Perspective in the Evolution of a Hill Irrigation System: A Case from Western Nepal". In, *Irrigation Management in Nepal: Research Papers from a National Seminar*. Kathmandu: IIMI/IAAS/Winrock.
- Ambler J. S. 1989. "The Influence of Farmer Water Rights on the Design of Water Proportioning Devices." In, *Design Issues in Farmer-Managed Irrigation Systems*. Proceedings of the International Workshop on the Farmer Managed Irrigation Systems Network, Chiang Mai, Thailand.

Shukla A. K., K. P. Gajurel and G. Shivakoti. 1994. "Use of Inventory Methods for Policy Input: Experience from Irrigation Resource Inventory of East Chitwan". In, Sowerine, J, G. Shivakoti, U. Pradhan, A. Shukla and E. Ostrom (eds.), *From Farmers Fields to Data Fields and Back: A Synthesis of Participatory Information Systems for Irrigation and Other Resources*. Kathmandu: IIMI/IAAS.

Inter-Sectoral Water Allocation: A Case Study in Upper Bagmati Basin¹

Ajayu Dixit²

INTRODUCTION

The use, allocation and management of water in the Bagmati Basin occur under the influence of natural, societal and other factors. Population growth, expanding urbanization, growth of polluting industries, rising land prices, ineffective governmental policies, overlapping and often contradictory legislation and policies and declining motivation for collective actions have exacerbated the stress on water use and allocation. Competition among water uses is rising and conflicts have started to emerge, particularly during the dry season. Domestic and industrial wastes are rarely treated; instead they are discharged raw into water bodies. Untreated wastes greatly lower the quality of river water and jeopardize the health of populations living downstream or close to the source of discharge. The cost of water pollution to the environment and to the society is high, with rising cases of water borne diseases. One major consequence is increased stress on the social fabric, including conflicts over the allocation of safe water.

The exact nature of the competition and of the stress that will emerge, however, is not adequately understood. Also the impact cannot be predicted with accuracy as the institutional processes are in different stages of evolution. Generally, the quality and quantity of water supply are on the decline both at local and regional levels. Though the effects are harsher for those at social and economic margins, the impacts pervade across the social spectrum. This situation is an outcome of the complex interplay between the physical nature of the resources, the role of the formal state agencies, government departments and informal farmers and community groups, including the increasing litany of acts and regulations. Though several initiatives on policy formulation have been made, in the current socio-political milieu, they have not been translated into action and have failed to show results. The outcome has been further rising competition over use of water, lack of effective formal management, encroachment of customary norms and the degradation of the quality of water.

An understanding of the processes by which water is allocated to meet various needs is important if improvements are to be made and a decent level of service is to be delivered regularly. The problem of deficient services does not, however, stem from the fact that the quantity of water is lacking or that the technology for tapping water is not available. Rather, the problem is rooted in the absence of a social and institutional framework to ensure that services are delivered. In many cases, the rate of deterioration is fast, and the challenges of improving the services appear to be even more intractable. A solution will come from an approach aimed at setting institutional processes on track rather than one honing purely technological tools.

OBJECTIVES AND METHODOLOGY

The primary objective of this paper is to obtain insight into the society-water interface in Kathmandu Valley which is synonymous with the **Upper Bagmati Basin**, and to offer some explanations of the nature of the emerging competition for water. More specifically the paper will attempt to provide some insights into the issues governing inter-sectoral allocation of water with respect to a) different water **uses**, b) the nature of both formal and customary water rights, and c) the role of institutions with respect to (a) and (b). It aims to describe

- a) the status of different water **uses**;
- b) the nature of the relationship between customary and statutory water rights;
- c) the nature of the competition for, and conflicts over, access to and **use** of water; and
- d) the role of institutions in water management;

The study is based on field study of two sites in the Upper Bagmati Basin, Mahankalphant and Jorpati/Gokarna region northeast of Kathmandu city. a review of “gray literature”³ and on an analysis of secondary information. The study of Mahankalphant aimed to understand how the economic and political strength of the capital city is leading to encroachment of the customary rights of the population in terms of access to water. In Jorpati. the other case study site, efforts were made to explore interface of customary practices with state-led and commercial initiatives. Because decisions about management occur within a complex social context, discussion are made keeping the larger framework in the background. Ethno-ecological methods were used in both case studies. It must be mentioned that sources are disparate and data inconsistent. In this report, the area occupied by Kathmandu Valley will be referred to as the Bagmati basin and the case study region as the sub-basin.⁴ The Gokarna/Jorpati region will be referred to as Jorpati.

This paper first describes the case study sites and the nature of the water resources base. It then dwells on the types of institutions both in the formal and informal sectors that manage water. The analysis of the drinking water sector is done in greater detail because of its increasing dominance. The Acts, Rules and Regulations are discussed next. The description of the nature of the sectoral **uses** is followed by analysis of the changes and impacts in relation to the case studies. Finally, conclusions are drawn. It is hoped that the finding will assist in the identification of options for the management of the inter-sectoral allocation of water.

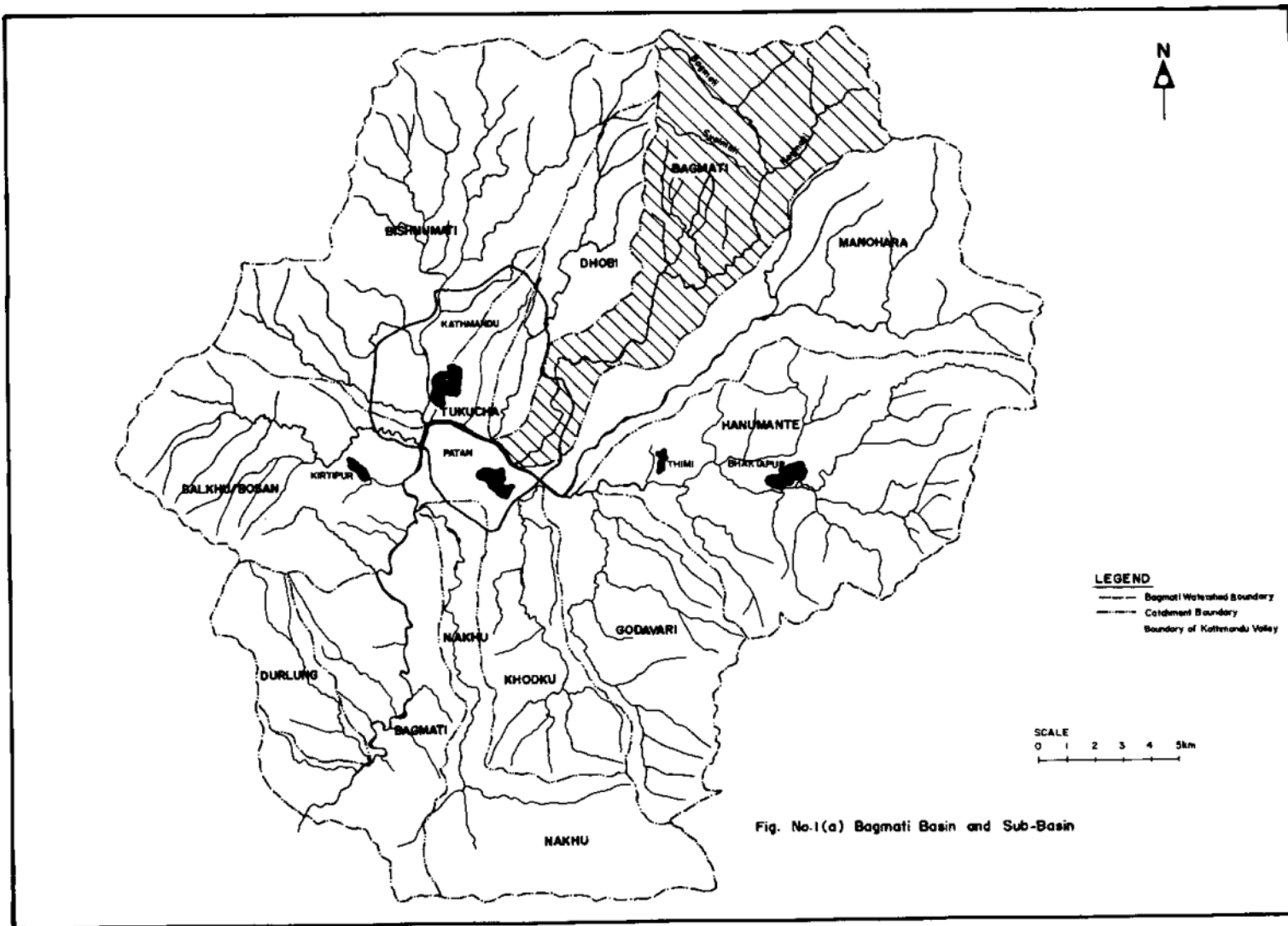
This paper is one part of an on-going study of the changes that are occurring in Kathmandu. It aims at some understanding of the complex social, physical and historical/political factors that are at work shaping water use and availability in the Valley. It is not about comprehensive literature review, elaborate field investigation or exhaustive scientific modeling. If it stimulates further questions to refine the knowledge of the complexity, this effort will have been amply rewarded.

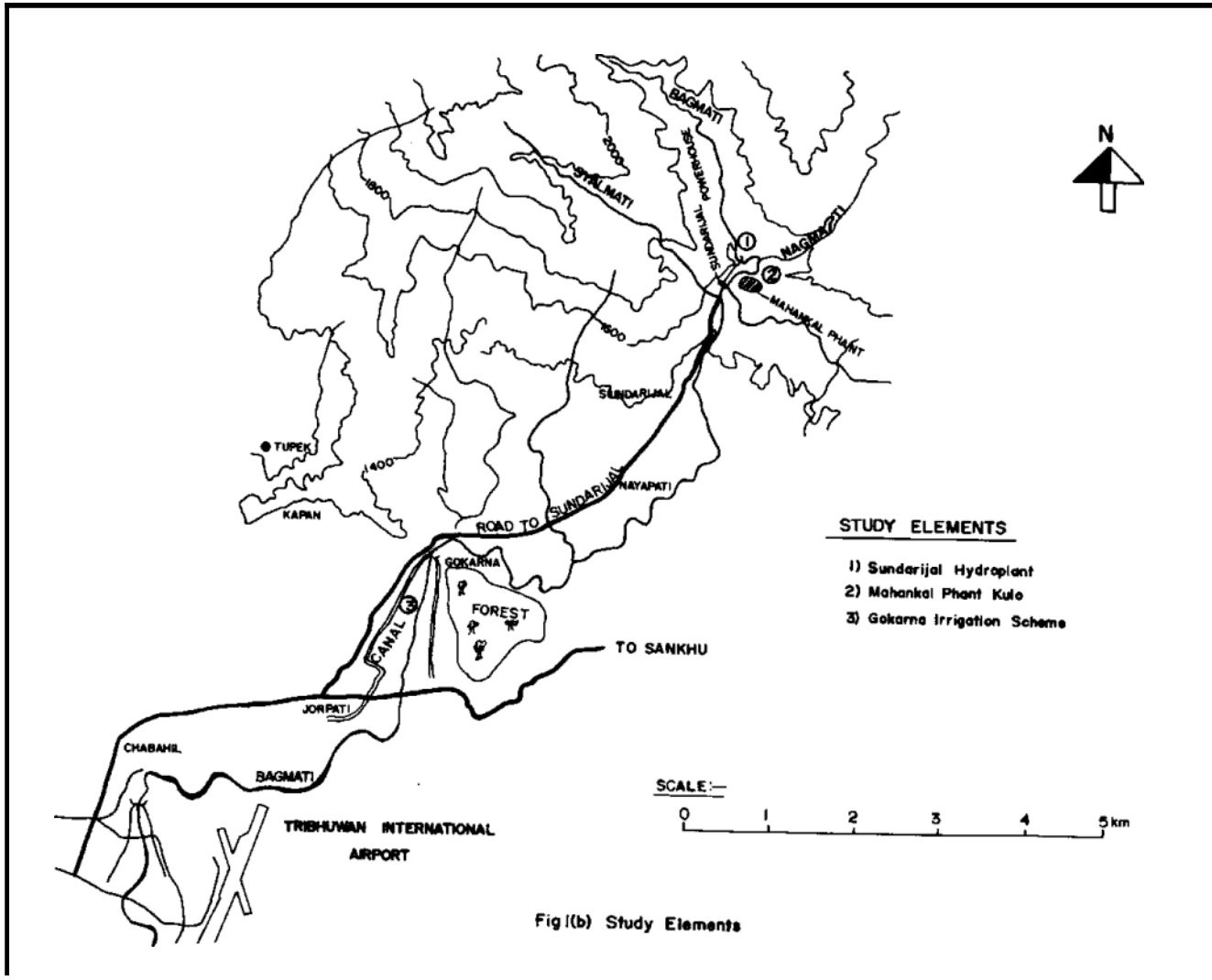
THE RESEARCH AREA

The region analyzed in this research is the Upper Bagmati Basin northeast of Kathmandu city including Mahankalphant and Jorpati villages. This region was selected for study because of its long history of state-led interventions and the current competition between at least four water use sectors: agriculture (irrigation), hydropower, drinking water for urban and rural communities as well as industry (carpet factories). The major water use elements analyzed are the Sundarijal Hydropower Plant; a farmer managed irrigation system at Mahankalphant in Sundarijal; Kathmandu's drinking water production system in the sub-basin: surface water and groundwater systems; an agency developed irrigation system and carpet factories in Jorpati. References are also made to the rural drinking water supply systems in the sub-basin and to riparian uses. The Bagmati basin and sub-basin, the case study areas and the systems elements which were studied are shown in Figure 1(a) and I (b). Water use elements are shown schematically in Figure 2.

In Sundarijal, a hydropower plant has been built and water from its tail race feeds Kathmandu's water supply system. A small patch of irrigated land called Mahankalphant is situated on the eastern bank of the Bagmati, opposite the power plant in Sundarijal. The land supports about **50** families of diverse ethnic composition, though the majority are Tamangs. Mahankalphant is a typical rural community though it is located in the Valley. The other site analyzed in this study is Jorpati, which is closer to Kathmandu and therefore, more influenced by the creeping urbanization. The Jorpati suburban region has registered gradual changes in its land-use pattern as new settlements, particularly along the road corridor have developed. A number of carpet factories, which use the municipal as well as groundwater sources, have been built in the area.

The Jorpati region is served by the irrigation barrage at Gokarna. The barrage, built by the Department of Irrigation (DoI), irrigates farmland on the west and east banks of the Bagmati River. The total command area was 152 ha, **55** ha of which is on the eastern side. The eastern canal is managed by the farmers and operates intermittently, while the western one is no longer functional. The western canal is filled with liquid and solid wastes in several places and has been encroached upon by the road and factories. Besides the eastern canal, other smaller, temporary diversions also extract water from the river and use it for irrigation. The irrigation canal at Jorpati was also used for other purpose. Water powered, cereal grinding mills, known as *ghattas*, were installed in places where the gradient of the canal changed suddenly. In the **1950s** there were 10 or 12 *ghattas* in the canal at Jorpati. With the increasing availability of electricity and ground cereal in the market, the operation of these *ghattas* declined, and has long ceased to operate.





SCHEMATIC OF WATER USERS IN UPPER BAGMATI BASIN

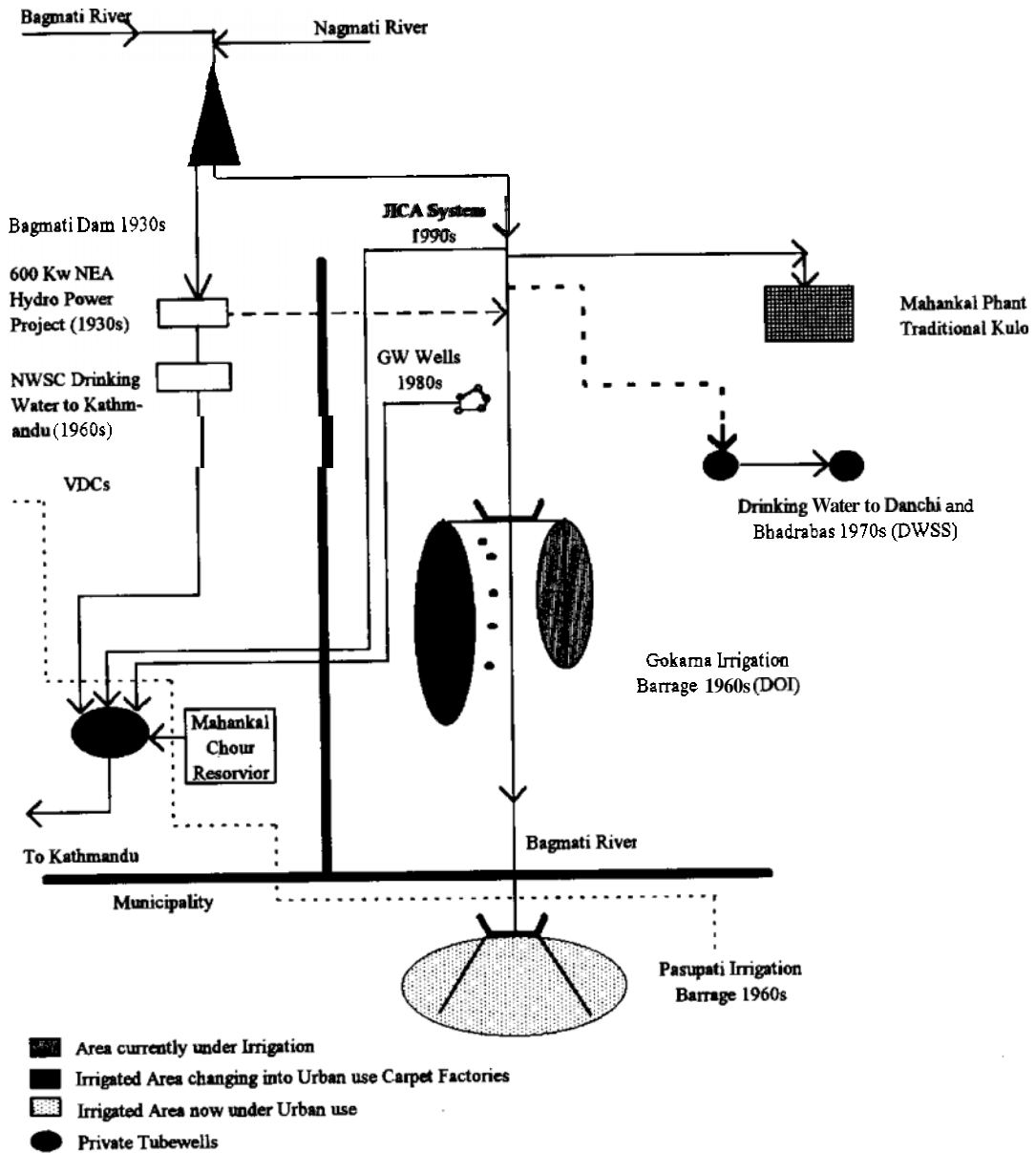


Figure 2. Schematic Drawing of Water Use Elements

The Resource Base

The Bagmati River originates in the south-eastern flanks of Shivapuri Hills which form the part of Mahabharat Hills. Fed by rainfall and base-flow, the river drains a total area of 3710 km² in Nepal, and then joins the Ganga river in India. Its upper basin, where Kathmandu Valley is situated, occupies an area of 662 km² until the river flows out of the valley at Chovar. The valley and its inhabitants are dependent on the rivers of the monsoon-fed basin for meeting all their water needs. Rain falls in the basin during the pre-monsoon months of April and May, during the monsoon months (between June to September), and in winter. Almost 80 percent of the annual rain which falls in the Bagmati Basin occurs during the monsoon months. In a year, Kathmandu Valley receives a mean rainfall of about 1900 mm, but this figure varies between 1100 and 2500 mm from year to year.

The flow of the Bagmati River is directly influenced by the rainfall pattern, and it is during the four months of the monsoon that almost 80 percent of all run-off occurs. At Chovar, the mean annual flow of the Bagmati is about 15.5 m³/s. Run-off is governed by the volume, duration and intensity of rainfall, and evaporation. Even during the monsoon, fluctuations are high and the flow does not show a direct correlation with rainfall. In the dry season, the minimum average flow at Chovar is 0.51 m³/s. The flow at Chovar does not, however, measure actual discharge; upstream extraction takes away some of the flow. Interception of return flow from the tributaries and the main river and reuse of that flow is frequent and widespread. The volume of water thus used depends on how much land can be irrigated and the availability of water. The latter is particularly limiting in the dry months when use exceeds availability. Assessment of actual use of return flow and consequently obtain the estimate of the natural flow is, therefore, complex. Because the volume used is not monitored, and water tax records are not maintained, it is almost impossible to quantify the amount of water used by the irrigation sector.

The floor of the valley has resulted in a geo-hydrological formation with both shallow and deep aquifers. The three deep groundwater aquifer districts are the northern, central and southern. Because only the northern aquifer is hydraulically connected to the surface sources, it exhibits some natural recharge characteristics. The sub-basin investigated in this report includes part of the northern aquifer. In the southern and the central aquifers, which are both overlain by a thick layer of clay, natural recharge is low. The occurrence of shallow groundwater is widespread, but the quality of groundwater fluctuates seasonally and varies by location. In many cases, shallow groundwater is unsuitable for consumption. Since the 1980s, groundwater, from both deep and shallow aquifers has played an important role in fulfilling water requirements in the Bagmati basin.

INSTITUTIONS MANAGING WATER

The formal institution present in the sub-basin is His Majesty's Government of Nepal whose policies and programs are executed through departments and para-statal. The four departments which are directly related to the use of the water resources come under the Ministry of Water Resources: the Water and Energy Commission Secretariat (WECS), the Department of Irrigation

(DoI), the Groundwater Resources Development Board (GWRDB), which monitors groundwater investigation and exploitation, and the Department of Hydrology and Meteorology (DHM), which is in charge of the collection of hydrological and climatological data.

Another organization is the Nepal Electricity Authority (NEA), a para-statal chaired by the Minister of Water Resources and responsible for hydro-power development and electricity supply. NEA owns and operates the hydropower plant at Sundarijal. Though in principle, the DoI is responsible for all irrigation activities within the valley, only a few schemes were built by the department. In practice, most irrigation schemes are built and managed by farmers with little or no linkage with the DoI. These farmer-built systems have existed for centuries and generally did not find salience in formal discourse till the early 1980s.

The agency that has the major role in the use and management of water of the sub-basin is the Nepal Water Supply Corporation (NWSC). It is a para-statal established under the Ministry of Housing and Physical Planning (MHPP) by the Nepal Water Supply Corporation Act of 1989. The previous incarnations of this corporation were the Water Supply and Sewerage Corporation (WSSC), and the Water Supply and Sewerage Board (WSSB) and the Pani Goswara, which was the entity established by the Ranas when the first piped water system was built until the World Bank entered the scene in 1974 and created the WSSB, then the WSSC. At present, the corporation supplies water to 13 municipalities of the country including Kathmandu, Bhaktapur and Lalitpur in the valley. As a para-statal, NWSC has the advantage of having some autonomy over its income but it has problems collecting revenue and devolving management. It has shown a penchant for procuring and disbursing funds through investment in infrastructure rather than water management. The water treatment facility at Sundarijal and the groundwater wells are under the ownership of NWSC.

The Department of Water Supply and Sanitation (DWSS) has the most extensive mandate and handles water supply in rural areas as well as in a number of major urban centers. The responsibility for supplying drinking water to the and to rural villages in the sub-basin out side of NWSC lies with the DWSS. In the ten year period from 1980 to 1990, it was oriented towards the construction of drinking water projects. Before 1980 DWSS was responsible for providing water supplies to all rural communities in the hills and mountains with population in excess of 1500 people, and to develop shallow groundwater potential within the Terai belt.¹⁰ The creation of the Rural Water Supply and Sanitation Fund Development Board in 1996 has emerged as a competitor of the DWSS. The board evolved *Jakapas*, a World-Bank funded pilot initiative, to support water supply to settlements with less than 500 residents.

The Ministry of Agriculture (MoA) and the Ministry for Land Reform will have more prominent roles to play as demographic changes continue in the valley, and competition between urban and rural interests in the use of land and water resources increase. At present, however, there are no links between agricultural development, land zoning and classification, and water management. The Ministry of Local Development (MLD) deals with local development activities including the administration and coordination of local bodies. District, municipal, and Village Development Committees (VDCs) function under the umbrella of the MLD. These committees are empowered by their legislative mandate to develop and manage water supplies and other amenities at the local level. Other agencies active in the Bagmati basin are the municipalities of Kathmandu, Lalitpur and Bhaktapur, which provide urban services at the local level.¹¹ The study region falls under the

jurisdiction of Village Development Committees and the municipality has no legal presence here. Informal farmer's groups and community organizations exist both in Mahankalphant and in Jorpati. But while a healthy collective spirit is maintained at Mahankalphant, particularly in irrigation water application, at Jorpati this spirit is on the verge of becoming extinct. A recent development in the study region is the emergence of registered non-governmental groups. Most of the groups give themselves a broad mandate to support environmental activities and social services rather than just to focus on water management issues.

Formal organizations have not been effective in addressing the question of rising competition, nor in resolving the conflicting demands resulting from the limited supply and diminishing quality of water. The functions of the formal and informal institutions overlap, as there is no dividing line where the duty of one ends, and that of the other starts. The outcome is clear: inability to adjudicate the inter-sectoral allocation of water in the face of rising scarcity due to increasing requirements, changing use and deteriorating quality. Efforts at maintaining water supply have, in fact, led to more stress.

EXPANDING REGULATIONS

The intervention of the state has also occurred indirectly by means of promulgation of laws and policies. The entry of the state through its various organs has been associated with concomitant promulgation of different acts, laws and regulations that support and seek to justify the role of state organizations thus established for harnessing and management of water. Collectively the effect of these laws has been encroachment on customary practices of water management, degeneration of the resource and the resultant accentuation of the dichotomy between the capital city and the rural areas. The state has encroached on customary (local) rights and rules which are also articulated in the country's National Code (*Mulki Ain*).¹² These codes include mechanisms for upholding customary norms and for indirectly governing water management, particularly irrigation systems. Since the early nineteenth century, when the country embarked upon modern development, private land ownership has increased and land tenurial relations have changed, which have also affected the practices of water management and allocation.

A major legislative initiative was the Canal, Electricity, and Related Water Resource Act of 1967. The promulgation of this Act can be explained as an attempt by the state to introduce specific legislation governing utilization of the country's water resources. The Act articulated a new role for the state by initiating the creation of infrastructure in pursuance of the stated development goals. Development activities were undertaken by government departments and bodies such as the Development Boards established under the Act. Though the Act of 1967 recognized the right of individuals and groups to construct irrigation schemes, the right of eminent domain was manifest. The Act stipulated that authority to control irrigation facilities rested with the state once it had invested in the creation of such facilities. The paramount power of the state over existing irrigation systems if they "hindered" government actions was evident in the Act, which also incorporated the concepts of licensing, payment of irrigation service fees, and so on. As a result, the customary rights of the users had meaning only as long as they were legitimized by the state.

This Act, which was never really implemented, was amended and finally replaced for several reasons: the proliferation of development activities, the emergence of competition for the use of water, the availability of new technological options for water extraction, and conflicts over uses. Three new legislations were introduced in the 1990s: the Water Resources Act 1992 (WRA), the Electricity Act 1992 (EA) and the Water Resources Regulation of 1993. The WRA which attempted to cover all aspects of water resource development replaced the Canal, Electricity and Related Water Resources Act of 1967. The WRA aimed to address the rights involved in the hierarchy of water use, privatization, and public interest, and to ensure optimal use of the resources. The WRA also includes groundwater as one of its components.

A flagship act of the Ministry of Water Resources, WRA was the first act in Nepal to stipulate that ownership of all water resources within the kingdom of Nepal is vested with the state. It requires that licenses must be acquired to use water. The Act ensures water right and provides for the prescription of a pollution tolerance limit as well as systems for monitoring pollution. It also allows for water user's groups to be formally registered under it. While the Act is filled with appropriate words, it is actually in conflict with other acts because it duplicates their mandate. There is also a gap in legal coverage particularly because the formal registration of community users' groups is done under the Society Registration Act and not the WRA. The thousands of farmers groups have not found it worthwhile to bring themselves under the umbrella of the Act, as it would mean curtailment of their autonomy.

Under the Act, the allocation of water resources is decided as seen fit by the ministry. Allocation takes the form of permission to make new interventions for development and of right of expropriation of water to agencies, communities, the private sector and individuals. Right to use water is provided through licensing, though free access of water for certain uses "granted". In the case of facilities regulated by public agencies or private developers, the individuals rights are subservient to the terms and conditions imposed by the state through the concerned agencies. Since the right of "ownership" is treated as the paramount right of the state and other rights, such as usufructuary rights, and transfer rights, as derivative or secondary to ownership rights, the difference between "people's rights" and "states rights" have become more apparent than before.¹³

The WRA also stipulates the principle of beneficial use of water by prioritizing uses, presumably according to a hierarchy of needs. The need for drinking water precedes all other needs. The Act also authorizes the government to utilize or develop water resources on its own and stipulates that for purpose of extensive public uses, the state can develop and acquire water resources, land, buildings equipment, and related structures to be utilized under the Act. It makes provisions for conflict resolution; arbitration is to be achieved through a prescribed committee. However, the procedure for appointing the committee and the definition of its mandate are vague. The nature of prescribed right remains unclear. Although the responsibility for discharging the Act lies within its jurisdiction, the Ministry of Water Resources has not yet followed its mandate as stipulated in the Act. The act is enforceable when a gazetted notice "specifies" the area where the provisions of the act is to be implemented, but no such area have been specified or licence issued.

CHANGES IN WATER USES

History

Water was one of the main elements of the *Lichhavi* and *Malla* civilizations in Kathmandu Valley. For its domestic water supply, the urban core had hunched stone spouts built in a depressed rectilinear pit with an ingenious system of water filter and supply hydraulics. Wells were dug and natural springs exploited. These water supply systems were locally managed. For irrigation, stream water was diverted by constructing temporary dams to divert water into earthen canal, and then into fields. The canals were managed using traditional systems with a history of cultural and religious continuity. The operation and management of many irrigation canals received state sanction and support; these canals were called *rajkuḷos* (state canals). Fertile soil and fresh water from the numerous streams and wells made it possible to farm intensively in the valley floor and the surrounding hills.

With the start of Rana rule in 1840 AD, the compact urban form of the earlier era and water management institutions gradually came under stress. Rana rulers occupied agricultural land outside the urban core where they constructed Victorian style stucco palaces. The domestication of water for private use, as opposed to the prevailing communal use, accompanied other changes that started 40 years after the Ranas came to power. During the reign of Bir Shumsher, the third Rana Prime Minister, water sources in the northern Sivapuri hill were tapped and transmitted by pipe networks to the capital. The water system was built primarily to provide water to the Prime Minister's palace but was also available to the ruling elite. When the Rana oligarchy was overthrown in 1951, new lifestyles were disseminated more rapidly among the local inhabitants which resulted in the increased use of piped water for private household activities and other uses.

The deliberate policy of the Ranas to restrict migration into the valley and its inaccessibility had deterred large-scale migration into the valley. After 1950, these restrictions began to ease. Kathmandu became more accessible to other parts of Nepal when the Tribhuvan Highway, which connected Kathmandu Valley to Hetauda in the south, was completed. The completion of other highways linking Kathmandu with other parts of Nepal further improved accessibility to the valley. Improvements in accessibility have resulted in the concentration of administrative, commercial, industrial and educational activities in the valley. People from all over the country began to move to the valley leading to a rapid increase in its population. This, in turn, has induced a positive feedback resulting in the mushrooming of settlements, garment and carpet factories and other manufacturing enterprises in the capital.

The nature, scale and pace of urban expansion since the 1950s generally, but more specifically since the 1980s, have accelerated the breakdown of the religious-cultural milieu of the valley. At the same time, the existing infrastructure facilities have not been able to cope with the changes and have deteriorated. For example, the water supply distribution system in urban Kathmandu is inadequate; it requires major repairs and, in many cases, replacements. The volume of water lost from the system is increasing. Despite substantial resources spent on improving the services, the decline in services has continued.

Sectoral Uses of Water: Current

In Kathmandu Valley, water is used for many purposes. These are (i) irrigation, (ii) drinking water, (iii) hydropower, and (iv) industrial use, (v) house construction and (vi) religion. The Bagmati and its tributaries are important for a variety of both seasonal and perennial religious rituals, ranging from feasting and bathing at auspicious occasions (*Kushe Auncee*) to cremation of the dead and death rituals involving ablution. In this paper we will discuss only the first four uses of water.

In the Upper Bagmati Basin the state has intervened on several occasions by constructing hydropower plants, irrigation barrages, expanding drinking water system and so on (See Table I).

Table I: Sequence of Interventions

Year of Intervention	Nature of Intervention
1936	Hydropower plant
1960s	Drinking water system expansion through tapping of tailrace from hydro-plant diversion of the Bagmati River
1960	Irrigation barrages at Gokarna and Pashupatinath
1970	Drinking water systems upgrading (World Bank project)
1980	Groundwater wells development
1994	Wet season Bagmati flow brought to Mahankalchaur (JIC project)

Hydropower Development

The first state-led intervention in the Bagmati sub-basin was the construction of the 640 kW hydropower plant in the 1930s. The plant diverted water from the Bagmati to generate power. A dam was built in the Bagmati River upstream from its confluence with the Nagmati River above Sundarijal. The dam created a small reservoir from which water was channeled through a penstock pipe to the power house below the reservoir located on the downstream bank of the river. After power was generated the water was released into the Bagmati River via the tail-race of the plant.

Though the power plant made non-consumptive use of water, diversion of the river flow soon started to have a negative impact at the local level. Water flow during the lean season for irrigation at Mahankalphant was reduced. The plant did release the diverted water back into the Bagmati river, but at a point lower than the irrigation intake. Consequently, flow into the intake decreased. Residual flow from the main dam and the flow from Nagmati, a tributary of Bagmati provided a water supply in excess of the requirements of the farmers except during droughts when irrigation needs weren't always met. The flow from the tail-race of the plant, later was diverted to meet drinking water needs of Kathmandu.

Irrigation

Prior to the 1950s, the flood-plain along the Bagmati river was used exclusively for agriculture. Irrigated agriculture was the dominant institution to use and manage water. In terms of volume, even today irrigation is the greatest water user. The locally built irrigation systems consist of *syauli* (brushwood) dams to divert water. After diversion, water is conveyed through an earthen *kulo* (canal) and supplied to a series of terraced fields with diverse ownership. These temporary dams are made of stones, hushes and logs. Generally clay is used to provide a seal. Re-erecting the dam requires that the farmers benefiting from the system come together to perform the needed restorations.

The processes and activities related to the diversion of water and its provision to multiple users are governed by traditional management practices and communal understanding. Water for irrigation is distributed from the head to the end of the canal. The flow from one terrace finds its way into the next, and the next, and finally to the main river where water is used again.¹⁵ The plantation of rice, the major crop, is completed in less than two weeks. Irrigation is required mostly for supplemental applications which serves the interests of all the farmers. These processes in general describe the procedure of water allocation in a farmers managed irrigation systems, which was also evident at Mahankalphant, Only in the dry season when the water flow was naturally lower and in the season of rice seedlings transplantation did the situation tend to become stressful both at Jorpati and Mahankalphant.

The state-led initiative to develop irrigation in the sub-region began in the early 1960's, when two irrigation barrages were constructed replacing the temporary structures. One was built at Gokarna and the other at Tilganga close to the temple of Pasupatinath. After the barrage at Gokarna was completed, the existing farmer built canal was rehabilitated and extended to Boudha, which is currently Ward No.7 of Kathmandu municipality. The barrage at Tilganga irrigated land along the eastern and western banks of the Bagmati river along the track lying south of the present bridge over the Bagmati river near Gaushala at the Ring Road. However, this barrage has no irrigation function presently

The Department of Irrigation (DOI) organized a formal mechanism for the maintenance of the barrage by appointing caretakers ("*dhalpa*"). The *dhalpas* operated the barrage gates, ensured a constant supply of water in the canals, and supervised maintenance. Until 1984, farmers were active in canal maintenance, even though the responsibility rested with the Department of Irrigation. Departmental involvement in canal maintenance gradually declined, and fueled by the increasing challenges of maintenance, the interest of the farmers also declined. The entry of carpet factories into the area propelled land speculation and for many land owners, it has become more profitable to sell or lease land than to maintain its agricultural use. The *dhalpa* arrangement for maintenance was dismantled in 1990 when the new Irrigation Policy came into effect.¹⁶

Drinking Water

Urban Use

Piped drinking water was introduced in Kathmandu as early as the 1880s, when the Bir Dhara system was built. The system tapped the headwaters of the Bishnumati river in the Shivapuri hills.

Later, in the 1930s the Tri-Bhim Dhara system, which utilized the spring water source in Balaju, was built. The third major intervention for improving drinking water systems in the capital, but only the second intervention in the Bagmati sub-basin, was made in the mid-1960s. Water from the tail-race of the Sundarikal Hydropower Plant was tapped in order to supply water to Kathmandu. Raw water from the tail-race was treated in Sundarikal and then transmitted to a reservoir in Mahankalchaur north of Kathmandu city. Almost all of the lean season flow of the Bagmati River upstream of Sundarikal was tapped. Still later, Nagmati and Syalmati, the two tributaries of the Bagmati in the sub-basins, were also tapped.

The early drinking water supply systems served a small percentage of Kathmandu's population, mostly those living in the central core. By 1990, however the reticulation system had expanded into a network that served the population living in an area of 50km² mostly within the Ring Road. At present seven water production systems serve seven major sectors in the distribution area. Though for the purpose of analysis, the supply network may be divided into identifiable sectors, the reticulation is actually a complicated system of mains and distribution pipes that overlap and intermix among the sectors. Pipes that were laid a hundred year ago also constitute part of the reticulation system.

The rapid urban expansion over the last few decades has resulted in haphazard growth and the expansion of drinking water reticulation system has not matched the growth of new settlements.¹⁷ As a result, water supply connection to new households are mainly from one major distribution mains. The result is the widespread incidence of manifold supplies called spaghetti connections.¹⁸ Old pipes and spaghetti connections are some of the reasons for the exceptionally high losses of water that is supplied. Because of high losses in the transmission lines, distribution systems as well as wasteful use, only of 40-60 percent of the supply fed into the system is actually available for consumption.¹⁹ The estimates of unaccounted for water is uncertain and also vary, because bulk water use metering is not done.

In the sub basin, second major intervention to improve the drinking water system was initiated in 1974. Its objective was to provide safe and uninterrupted supply of drinking water to the residents of Kathmandu.²⁰ The initiative came under the program funded by a World Bank loan. All earlier supply systems had used surface sources, which were considered to be inadequate, and rather unreliable for industrial use, particularly during the dry seasons. The exploitation of groundwater started in the early 1980s, again under the third loan package from the World Bank. From virtually nothing, the contribution of groundwater to Kathmandu's drinking water supply had reached between 40 and 50 percent of the total dry season supply by 1995.

In the decade between 1980 and 1990 private pumps in large numbers have been installed at hotels, commercial establishments, industries, government offices and international agencies. Private wells were also installed in the Jorpati region by factory owners. Nayapati, in Gokarna VDC, has five deep pumps which feed water to the Mahankalchaur reservoir. The groundwater extraction rate far surpasses the rate of natural recharge. Thus the resource is mined from the aquifer lenses rather than harvested. **Also**, the groundwater has a high concentration of ammonia, manganese and iron. Since 1995, the NWSC has started to use groundwater only in the dry season when surface flow is insufficient to meet consumers demand by combining surface water and groundwater supplies.²¹

In 1994, a project was undertaken with Japanese assistance to improve the quality of groundwater. The project constructed a treatment facility at Mahankalchaur. A new transmission line parallel to the one existing from Sundarijal to Mahankalchaur was also laid. The purpose of the new line was to tap the wet season flow of the Bagmati River. The new transmission line transfers raw water from the river to Mahankalchaur, where it is treated and supplied to Kathmandu. The new system makes further encroachment on the traditional water rights of the users there.

Despite these efforts and initiatives, the drinking water supply service is deficient both in terms of quality and quantity. Supply is intermittent, available only for 3 hours each in the morning and evening on the average. In several parts of the distribution area, there is no supply for days. The fluctuating flow has resulted in a situation in which contaminated water is sucked into pipes during periods when the supply under pressure is not maintained. This problem is particularly serious in the inner city where drinking water supply pipes and sewer lines are laid almost parallel to one another, but also in the sub-urban regions. Initiatives on maintaining the systems have been delayed, and existing proposals have been bogged down by delays in negotiation of the terms of the loan and other details.²²

Rural Use

The rural population in the sub-basin also use the Bagmati River and its tributaries as its source of drinking water. The population in Danchi, Thali, Bhadrabas and Nayapati use the Bagmati as their source. The water system at Danchi takes water from the Mahankalphant irrigation *kulo* diversion. Its construction was sanctioned by HMG in the early 1980s. When asked why they allowed this water source to be used by others, the farmers of Mahankalphant responded that drinking water is more crucial than irrigation and therefore, it has to be shared. Water in the rural areas is supplied by community tapstands, and the per-capita water demand is rated at 45 liters daily. The actual figure of consumption of water is not very easy to estimate because large number of those living in these villages move daily to Kathmandu to perform wage labour, do marketing or work in government offices where they work. As part of the floating population they also draw on the municipal services there.

Industrial Use

The use of flood plains along the banks of Bagmati and its tributary rivers in the Kathmandu began to change away from agricultural use at a fast rate in the late 1970s. The changes have been more evident as growth of ribbon settlement along the roads in general. The situation was not much different in the Jorpati region in the sub-basin, which saw increasing growth of settlements. Particularly in Jorpati area, carpet factories began to appear around the mid 1980s. The carpet industry was taken up on a large scale and was to become the major foreign exchange earner of the country. Most of the factories are located along the road, while many others are located along the western canal that is fed by the Gokarna irrigation barrage.

There are several reasons why carpet establishments are concentrated in the Jorpati region. One reason was the presence of a Tibetan community who possessed carpet making skills.²³ Other reasons are vehicular access and a reliable water supply due to the proximity of the trunk main from Sundarijal to Mahankalchaur as well as more stable groundwater aquifers. The suburb of Jorpati is in the center of the northern groundwater district of the valley. As carpet manufacturing requires

significant water, it was natural for entrepreneurs to seek a region which ensured a good water supply and thus posed fewer risks to business.

The transmission main that brings treated water from Sundarijal to Mahankalchaur provided a reliable source of water supply. Even those factories located close to the Gokarna canal, further away from the transmission main, used it as their water source. Supply was obtained by tapping directly into the mains in direct violation of the existing regulation of one connection per premise. Some factories were able to obtain between two to five connections. The factories had access to continuous water supply, 24 hours a day even when services in the city became deficient. Many of these connections were freely provided, and larger size pipes than usually installed for domestic supply were used.²⁴

Factories are located within compounds, and include a work area and living quarters for the employees. In Jorpati area, however, factories generally perform weaving, dyeing and washing.²⁵ The population of workers in the factories ranges between 50 to 500. It was reported that, in the 1960s the region had 1300 households and 1700 voters.²⁶ In the decade from 1980 to 1990, the population increased almost by ten fold. The expansion of carpet making activities is another reason for the floating population of migrants in the valley which has further increased pressure on municipal water supply.

Other Changes

Land Use

The continued use of upstream sources for fulfilling drinking water needs of Kathmandu has reduced availability of water in the Bagmati river. Declining flow has meant that water was not sufficient for irrigation, and consequently interest of the farmers at Jorpati for agriculture is on the decline. Availability of a continuous and comparatively reliable water supply at Jorpati — groundwater and piped supply, including some residual flow in Bagmati — has led to the establishment of several carpet factories there. Establishment of factories in turn brought migrants looking for employment opportunities, which in turn impacted the irrigation systems whose operation had been affected by the declining river flow. Factory buildings and new construction activities have made further encroachment on the irrigation canal, particularly on the western side. Not only did the construction directly interfere with the canal, solid and liquid wastes from the factories were also dumped there, which blocked the canal flow. As a result, the Gokarna barrage irrigates only the eastern bank of the Bagmati River west of Gokarna forest.

Blocked canal and pollution have deterred the farmers from irrigation management and cultivation. In the short run, therefore, selling land is seen to be more profitable than cultivation. As the price of land in this area has risen steeply: in Jorpati one *ropani* (0.05 ha) is reported to fetch between five hundred thousand and one million rupees depending upon location of the plot, speculation is high. Many farmers reason that they can support themselves better by selling their land than by farming. To paraphrase the question posed by farmers, “Who would give up 500,000 rupees per *ropani* of land which produced meager agricultural harvests?”. For those farmers who do have the capacity to sustain production, competition from cheaper goods imported from the Tarai has reduced the viability of vegetable farming as an occupation. The agricultural outputs

from the resultant small holdings can not support a family year round. Selling or leasing land has thus become more attractive, and the motivation for collective actions and irrigation management is on the wane.

Speculation on land is also high due to the nature of land ownership. Division of land among inheritors also leads to land fragmentation, and selling. The land in Gokarna phant of the Jorpati region belongs to a *guthi* (trust) of the Pasupatinath temple. Because of the common property characteristics of the *guthi* land, encroachment is on the rise. Consequently, new houses and settlements are mushrooming not just in the Jorpati region, but also on the suburban regions of Kathmandu. The outcome is similar generally. Agricultural lands in the flood plains have changed into settlements. The most dramatic changes is evident at Tilganga. The barrage there no longer serves its original function because its command area is now a compact settlement. Because, these settlements expand without adequate sanitation and water supply provision, there is net negative effects on water resources: deterioration of quality and quantity.

Sand Mining: Low River Bed

One outcome of the growth of settlements in Kathmandu has been an unprecedented demand for sand. Since the 1970s, sand has been mined from stretches along the Bagmati at a much greater rate than it is naturally replenished. While clearly changing the physical character of the river, sand mining also has an impact on local irrigation. Sand extraction affects irrigation two ways. Intensive sand quarrying, has lowered the river bed by between 1 and 2 meters in several sections. Because this has resulted in a lower water level, less water can enter the canals. Due to sand mining the river bed is lower than the irrigable land so the brushwood dams have to be located further upstream. However, since water from further upstream reaches different land parcels, the management of water for agriculture has thus become more intractable.

Pollution and Waste

Pollution of surface water is mostly through biological waste, and is on the rise. Factories which are located along the roads and canals, where workers live, dispose waste directly into rivers, irrigation canals and land parcels. The reduced residual flow resulting from increasing upstream extraction means rivers are less able to assimilate and flush away untreated liquid wastes. The degradation of rivers in Kathmandu is the combined effects of, reduced residual flow due to upstream water extraction, mining of sand and disposal of untreated waste in water bodies.

The extent of biological pollution of groundwater is less pronounced. Deep aquifers, are not yet polluted because groundwater recharge occurs in the northern aquifer which is of good quality. Surface water quality here is comparatively better, but deteriorating. Though biological quality of deep groundwater is not really an issue at present, it will be soon if the trend of pollution of the upper reaches of the Bagmati in the sub-basin continues. In general shallow groundwater is so polluted that it can not be used for drinking, but the situation varies according the location of the aquifers and sub-soil seepage from household septic tanks. Pollution is likely to continue as it is easier and cheaper for industries to dump waste in rivers than to treat it. Lack of standards on housing, water and waste water will lead to further deteriorations. Even if standard are made,

because enforcement is weak, the situation will not change. Pollution mitigative initiatives, therefore, must be more holistic and make a beginning from where waste is generated.

COMPETITION, CONFLICT AND DISPUTE RESOLUTION

Increase in population, urbanization, changing pattern of land-use, river bed mining for sand and increasing pollution are altering the conventional uses of water. Water traditionally used for irrigation, is now allocated for other uses, mostly drinking. The result is that almost all of the flow of the Bagmati River has been diverted and that the amount of water for downstream uses has become inadequate. Since 1994 expropriation of the wet flow as well as the dry reduced water availability even during the wet season. Tapping of the wet season flow was based on the logic that more surface water is available during the monsoon season. Now water is deficient the whole year, whereas in the past, water was short only in the *dry* season. The declining flow and limited supply of water has led to more frequent disputes among farmers. In some extreme cases, scuffles even took place, thus heightening tensions in what had been amicable social relationships.

Pollution has also exacerbated local level conflicts. Farmers in the Jorpati area believe the discharge of effluents from neighbouring carpet factories was the primary reason for damage to crops and reduced crop yields. Waste discharged into irrigated fields is reported to have reduced yields between 2 and 5 times. Farmers reported that instead of rice, the produce was “*bhus*” (husk with no rice kernel inside) or ruined crops: the rice paddy did not mature properly, turned yellow, and died. The effects on both grain and vegetable crops irrigated with contaminated water are reported to be similar. Pollution from one particular factory in Jorpati was the cause of a dispute between farmers and factory owners (see below).²¹

In one case, the VDC filed a case with the district court against the building of some houses in the Jorpati region. The court ruled that VDCs have no authority to prevent construction activities within their administrative jurisdiction.²⁸ Their failure at getting the state to adjudicate has led the farmers to seek alternative forms of conflict resolution. Users seem to prefer non-formal forms of settlement. Industries too seem reluctant to trust the state apparatus for adjudication. This was evident in the conflict between factories and farmers at Jorpati in which case, the presence of a third party — a local NGO, was instrumental in bringing in settlement between the affected farmers and the polluting carpet factory. The negotiation brought compensation to the farmers, and in the process, the NGO also secured benefit for itself.²⁸

There is no statutory mechanism for adjudication either between the departments and the users or among different users. In Jorpati it led to a situation of impasse. Several complaints about the damages in the canal made by farmers to the District Irrigation Office (DIO) went unheeded. Later in consultation with a local club, samples of the polluted soil and water were presented to the DIO and officials from DIO inspected the area. However, no action was taken. The DIO, in fact, refused to enter into any form of arbitration. The farmers were told by the District Irrigation Office, “*There is no procedure for direct action,*” in cases of pollution. The farmers also approached the Gokarna VDC and even met the then Minister for Water Resources, but without success.

The formal sector, including VDCs and departments, have not only been unable to resolve conflicts, but have also failed to respond to the situation of water stress at local levels. In response, farmers have devised ways that bypass official procedures. The need to compete has also been exacerbated by the hydropower plant. During the dry season, the same water used by the plant, though in limited quantities, is claimed by the Mahankalphant users for transplanting rice. Since local water rights are not respected, there is no official practice of releasing water from the plant for limited local use. The particular needs, however, are met by working on the local loayalties overriding the statutory provisions. Fanners approach the operators with their request and the operator in turn releasing the water for aperiod of 2 to 3 hours during the plantation.

Due to the poor level of coordination and the lack of interaction among the state agencies, departments and para-statal, the extent of competition is likely to be exacerbated during the non-monsoon months. Following the promulgation of the Water Resources Act, the state is now the prime adjudicator in resolving water related disputes, but has historically tended to ignore the non-state. In several cases, the state has failed to adjudicate justly. Thus at one level state intervention is expanding. By assuming control over the customary practices of water management, it has exercised resolution of authority. At an other level, however, the state is also weak. There are many instances in which state agencies have succumbed to collective assertions and bargains. When the collective bargaining strength of a local community is strong, such as when farmers organize themselves in a group, state agencies are forced to respond even if it means that the water use priority accorded by Act has to be contradicted upon.³⁰

In a situation of conflict, particularly when the questions of ownership and rights of surface water between the departments, para-statal and informal groups of farmers, the issue of equitable allocation remains unresolved. Such conflict may hinder in meeting drinking/industrial and irrigation water needs. During peak irrigation seasons the same water source may be claimed by farmers asserting prior utilization rights. If left unresolved, transmission lines may be broken and water used for rice transplanting. While affecting the drinking water supply to the target community, issue of unresolved ownership is likely to exacerbate the conflict over equitable allocation of water.

ENCROACHMENT OF CUSTOMARY RIGHTS

At Mahankalphant, in the study region, it was reported that those erecting the brushwood dam had first right to irrigation, and those cleaning the canals had second priority. This practice conforms to customary law: those who erect diversions for irrigation have top priority over the use of the water source. Farmers at the head end of the canal were first to use the water, while those at the tail end last. The customary law is not recognized by the 1992 Water Resources Act, which accords priority to drinking water use of a domestic user or group of users who could claim right over existing use.

The Act accords absolute recognition of the state's ownership and control of water resources. It empowers the government with the authority to issue licenses for water allocation and to resolve conflicts over water use, if and when they arise. Although the Act requires all users to claim their

rights to the water sources they **are** using, no such claims have been expressed either by the state agencies or para-statal organizations that already use water sources. The stipulations of the Act and the customary practices in many cases as evident from the case study are likely to lead to a situation of conflict. The relevance of the **1992** Water Resources Act **vis-à-vis** the customary practices and practical operational requirements need review.

The right of the state to own of water resources which is stipulated in WRA, may not affect the daily activities of farmers using an irrigation system. Also absence of departmental programmes as well as budgetary constraints may limit the role that state agencies have in the management systems. However, the promulgation of each legislation necessitates a reconciling of customary laws and practices with conventional concepts of water development and modern legal system. The result is that **customary rules are gradually eroded**.³¹ Now that the balance of power has shifted in favour of the state, there is a risk that the state's prowess will prevail over the "right" of a community, user or group of users. The chance of eminent domain being exercised is increasing in the face of rising competition, conflict and adjudication over access to water.

In the *Irrigation Policy* of **1992**, **reference is frequently made** to the legal recognition of water users groups as autonomous entities, to the respective rights and duties of the users and the irrigation agency, to placing systems under collective ownership of the users, to handing over full ownership of systems built by agencies to users, to having and the related structures be kept at water users' associations registered by the government, and to give the responsibility for operation and maintenance activities **as well as** for defining of ownership. However, nowhere in the policy is the question of water rights **considered** or the rights and including other operational concerns of owners acknowledged. Under the provisions of the policy, **HMG/N** does not envisage that irrigation development in Nepal will remain exclusively under government ownership, which contradicts the stipulation of the WRA which places all water sources within the jurisdiction of the state.

Thus, right to water **seems** to be assured to those who already have access to services as prescribed by the new Acts. To those who are yet to be provided with the services, the obligation of the state has not been made clear and is a question that remains to be addressed. For example, the existing rights to irrigation water at Mahankalphant was continuously encroached upon to meet drinking water requirements of the capital city. There has been no efforts to prescribe the water right of the community there to a **share** of the river. Though the **1990** Water Resources Act requires that rights for use of water have to be claimed, none has been done by the NWSC or NEA both of which use the Bagmati river's water.

CONCLUSION

The water allocation and management problems in the Upper Bagmati Basin are a result of a complex combination of factors that include not only the availability of water resources and their vulnerability, but also demographic, legal, administrative, commercial, political and behavioral issues. In the past problems were expected to go away when more water was made available. This has not been the case and, in fact, the level of service continues to deteriorate. The deficiencies

result from institutional weaknesses and a lack of clarity about how water use and rights are to be allocated both formally and informally. Segmental operation of government departments and agencies have led to deterioration of the level of services.

Customary water rights are being encroached upon by a configuration of forces which are dominantly urban in character and commercial in orientation. While the current policies mention managing water through decentralized initiatives, the respect for local water rights needed to sustain such a strategy is lukewarm at best. The importance of decentralized management of water resources has not yet been ideologically internalized by mainstream socio-political processes. The usurpation of resources and lack of decentralization initiatives have important implications in the pursuance of the goal of achieving national well-being through providing water for improved health, food, security and energy.

Since water resources themselves are decentralized their management should also have a decentralized framework instead of the centralized bureaucratic approach currently in vogue. Decisions about resource allocation have to be made as close to the source of consumption as possible. At no level, either in local village governments or central departments, has the mandate to issue permits for use and to adjudicate allocations of water been made clear. Who should supervise allocation and using what mechanism to preserve the tolerance limit of water are unanswered issues. In the current decision making structure, the question to answer is: How will the changes to ensure the equitable allocation and management of water occur, and who will bring about these changes?

It is unlikely changes will come from the pyramidal departments which constitutes only one subset of the social environment involved in the management of water. A department is maneuverable by political pressures and itself does not possess an inborn vision to institute change or to consider the broader implications of its activities. Because water utilities have to sustain the purpose for which they have been created, they show inclinations towards rejecting arguments that question their style of functioning. This hostility stems more from the fear of losing legitimacy than from the injustice of the criticisms.

The results are clear. In spite of the huge sums of money spent on delivering water, the supply in Kathmandu is deficient and allocation is unsustainable. The reason has less to do with water supply projects or technical solutions themselves, than with the model of development that has flourished in the capital city. When the size and growth of Kathmandu are juxtaposed with the limit of its in-valley water sources it is clear that expansion of the city is unsustainable. While continuous supply services by interbasin transfer of snow fed river would add to the quantum of water, the population served in Greater Kathmandu is expected to be close to 3 million in 2015 AD, when the project would be completed. One can only guess at the impact of this population in a city in which the social limits on population have already been reached. Limited investigations in Kathmandu show that the social costs are high, especially to the uneducated, those living at the social margins, women, children and, from a broad perspective, the next generation.³²

In summary, the preceding analysis provides following lessons. The competition among different water use sectors is on the rise, but the understanding of the nature of the competition is rather inadequate to allow equitable allocations. The expanding framework of Rules, Acts and Regulations gradually encroach on the customary practices and rights to water of the local community. The

role of the state, through creation of more legislations and Acts, is increasingly becoming dominant in relation to decision on how water resources will be used and allocated. The tendency of the governmental agencies to centralize is concomitantly associated with organisational conservatism, inflexibility and inefficiency. These attributes, at the level of individual organizations, continue to reinforce behaviour that perpetuates propensity towards traditions, caution and protectionism. In managing inter-sectoral allocation of water between the various sectoral agencies, adhocism thus pervades without reconciliation of the strategic mission of equitable management of water allocation with organizational culture. An unintended consequence of this apparent impasse is creation of social space that the communities have used to stake claim and receive their share of water, albeit only during the critical dry periods.

NOTES

- 1 This is a revised version of the paper read at the Workshop on "Water Rights, Conflicts and Policy", Kathmandu, January 22-24, 1996. Research for this paper was done under contract with IIMI/Nepal. The author wishes to thank Rajendra Pradhan, Dipak Gyawali and Sudhirendra Sharma for their comments on the paper at different stages.
- 2 Ajaya Dixit is water resource engineer. He is editor of the journal *Water Nepal* and chairman of Nepal Water Conservation Foundation.
- 3 Unpublished project reports and documents are referred to as "gray literature".
- 4 The (VDC) Village Development Committee is the basic political unit of village administration. VDCs consist of members elected by each of the nine wards in a village. The committee has a chairman and vice-chairman elected by the VDC constituencies. In the VDC, activity plans and budgets are prepared and later approved by the DDC. A District Development Committee (DDC) is composed of representatives indirectly elected by the committee members, chairman and vice-chairman of VDC. The DDC includes Chief District Officer (CDO) appointed by the Home Ministry and local Development Officer (LDO) appointed by the Ministry of Local Development.
- 5 BBWMS 1994.
- 6 Till 1977, farmers in Jorpati area paid Rs 3 as *pani pot* (water tax), they no longer do so. If *pani pot* were still collected and the record had been maintained, the area under irrigation could be worked out as could the amount of water used.
- 7 JICA 1990.
- 8 Estimates of the recharge rate range from 30 to 40 Million Litres/Day (MLD), but even 27 MLD/Day is suggested as a plausible rate. See Binnie 1989. In 1987, HMG commission had questioned the provision of using groundwater on an assumed higher recharge as earlier studies had mentioned rather low recharge rate of 4 MLD/Day. See Pokharel Commission 1987.
- 9 For discussions on the availability and quality of shallow groundwater see Karmacharya and Rao 1990.
- 10 In a review undertaken for UNDP, Gyawali and Dixit 1994 analyzed institutional shortcomings related to the management of water in urban towns of Nepal under the NWS. Many of these recommendations for the decentralization of management to local bodies remain to be implemented. Also see IDA 1993 and Pokharel Commission 1987.
- 11 **MWR** 1981.
- 12 Each municipality is an elected body constituted under the Municipality Act of 2048 (1991) and

- governed by a municipal board comprised of elected ward chairmen. The municipality is presided over by a mayor and assisted by a deputy mayor, both of whom are elected. The functions of a municipality are loosely organized, generally along sectoral lines such as tax and revenue collection, issuance of building construction permits, planning and engineering, sanitation and solid waste management, administration and accounts, litigation, and inspection.
- 13 The customary law as enshrined in the *Mulki Ain* has been ineffective since 1853 (Regmi 1976). Under this provision, the state specifically recognises those who have priority in the use of irrigation water by implying that gains should accrue to those who had, through collective labour mobilisation, invested in the irrigation development first. See Pradhan 1993 for discussions on the nature of property rights in Nepal.
- 14 Pradhan 1993.
- 15 In migration has resulted in a population growth rate within the valley far in excess of the national growth rate of 2.5 percent. In 1991, the valley had a population of 1 million, while that of urban Kathmandu was close to 6 hundred thousand. See BBWMS 1994 for more details. The fact that large portion of the rural population comes to Kathmandu each day and returns to their villages in the evening demonstrate that the rural-urban communities are a continuum rather than distinct entities. See INFRAS 1993 for discussions.
- 16 In some unusual cases waste water from households is diverted for irrigation.
- 17 Once the Irrigation Policy was promulgated the Department of Irrigation (DoI) introduced the concept of joint management by users' committees (*upabokta samiti*) and the department. This policy which was formulated following pilot tests in several regions, was undertaken to offset the financial burden of the cost of operation and maintenance to the government and to facilitate the role of the private sector in the development of irrigation. Under the provision of this policy HMG/DoI does not envisage irrigation development in Nepal to remain exclusively under government ownership.
- 18 Drinking water is supplied to an estimated five hundred and eighty thousand users via private as well as public tap stands by the NWCS. This estimate, however, does not include the large floating population in Kathmandu, which also seems to draw on the same supply of water. Only 80% of the consumers of NWCS are estimated have access to its services. Also, 80% was for domestic purposes (Binnie 1989). Another study by JICA (1990) estimated 81% consumption was for domestic purposes, 12% commercial for use and 5% for industrial use.
- 19 Spaghetti connections are multiplicity of domestic supply lines from a single distributary, and are one of the causes of high losses of water.
- 20 The estimates of unaccounted for water is uncertain and also vary. Studies by Binnie (1989) estimated that the loss was 65%. In another study CES (1991) estimated the loss to be between 40% to 50% while another study (JICA 1990) indicated that losses were perhaps only 30% of the daily production. The uncertainty remains. Officially 40 percent is accepted, but appears to rather be a politically correct figure. See Dixit A. 1992. A recently completed leak detection study concludes similarly about high leak in the system, see IDA 1995.
- 21 The World Bank-supported first Water Supply Project was started in 1974. In 1978 the second loan package was approved, and the third package followed in 1984. See Pokharel Commission 1987.
- 22 BPC 1995.
- 23 Presently the World Bank and the NWCS are engaged in an institutional debate over the approval of a 60 million dollar package loan for the rehabilitation of the Kathmandu's drinking water system. Recommendations for decentralization have not been taken up, but proposals of inter-basin bulk supply of water supply have been revived. The proposal includes, diverting the Melamchi River, a

tributary of the Indrawati basin north of Kathmandu. in order to augment water supply of the valley.

24 Bringing Tibetans to the area was deliberate, according to the ex Pradhan Pancha of Iorpati VDC who said, “ *I tried to bring institutional establishments, important people, factories, etc. to make this place important. I also settled the Tibetan refugees here.*”

25 Allowing industries ~~free connections from the transmission mains~~ have affected the supply to the city area by reducing the flow. As it is an unsound practice in drinking water supply operations, tapping into transmission mains is not recommended in the management of utilities. Only one connection per premise is allowed these days.

26 It is difficult estimate the number of factories as they are scattered. Due to slump in the market, carpet making activities are in recession.

27 Personal communication with Mani Ram Chalise.

28 Effluent discharged from one factory damaged crops for two years in a row.

29 Personal communication with the chairman of Iorpati VDC.

30 Compensation for farmers whose crops were affected by effluent from the carpet factory was negotiated by the Chahari Yuba Club. Twenty percent of the settled amount was contributed to the club to build its premises.

31 An example of such conflict is seen at Pharping in southern Kathmandu during the dry season. The NWSC has had to guarantee a minimum supply of water to farmers to transplant rice. Farmers at Pharping claim prior use of the water sources that long precedes promulgation of the Water Resources Act although this claim contradicts priority accorded to drinking water in the Act. The Nepal Water Supply Corporation issues public notices in national dailies asking urban consumers in certain sections of the supply region to cope with the reduced water supply during the period.

32 In legal parlance, it is implied that as new acts are enacted, the provisions made in the *Mulki Ain* will be repealed (Pradhan 1993)

33 INFRAS 1993

REFERENCES

Butwal Power Company (BPC). 1995. *Melamchi Diversion Scheme Bankable Feasibility Study*. (Unpublished Report). Kathmandu: BPC.

(BBWMS). 1994. *The Bagmati Basin Water Management Strategy and Investment Program*. (Unpublished, Draft Final Report). Kathmandu: The World Bank.

Binne, Southern Water and Multidisciplinary Consultant. 1989. *Service Improvements in Kathmandu, Lalitpur and Bhaktapur and Management Support to NWSC*. (Final Report). Kathmandu: HMG/NWSC/UNDP/IBRD.

CES. 1991. *Water Supply and Sanitation Rehabilitation Project for Kathmandu Valley Towns*. Kathmandu: HMG/NWSC/IDA.

Dixit, A. 1992. “Little Water Dirty Water”. *Himal* Vol. 5 (1).

DWSS. 1991. *Drinking Water Supply and Sanitation Sector Review and Development Plan*

(1991-2000). Kathmandu: UNDP/WHO/World Bank, HMG

Gyawali D. and Dixit A. 1995. *Review and Evaluation of UNDP/NWSC Management Support Project NEP/91/027 and NEP/91/028 (Diagnostic Phase). Principle Findings.* (Unpublished Report). Kathmandu.

INFRAS. 1993. *Rural Urban Interlinkages: A Challenges for Swiss Development Cooperation-IDA case Study Based on Nepalese/Swiss Development Experiences.* Report 3B -321-30. Kathmandu: INFRAS and IDA.

IDA. 1995. *Leak Detection Study on Kathmandu and Pokhara Towns.* Kathmandu: Tata Engineering Consultant.

IDA. 1993. *Nepal, Water Supply and Sanitation.* Sector Issue Paper. Kathmandu: SAI Energy and Infrastructure Operation Division, The World Bank, Report No. 11479-NEP.

Japan International Cooperation Agency (JICA). 1990. *Groundwater Management Project in the Kathmandu Valley.* Main Report. Kathmandu: JICA.

Ministry of Water Resources. 1981. *Water, A Key to Nepal's Development. A Brief Account of the Country's Water Resources Development.* 2nd edition. Kathmandu: HMG.

Pokharel Commission. 1987. *Water Supply and Sewerage Services Situation Study Committee.* Kathmandu: HMG.

Pradhan U. 1993. "Farmers' Water Rights and Their Relation to Data Collection and Management." In Jennifer S., Shivakoti, G., Pradhan U., Shukla A., Ostrom E., (eds.) *From Farmers' Fields to Data Fields and Back: A Synthesis of Participatory Information Systems for Irrigation and other Resources.* Proceeding of the International Workshop held at the Institute of Agriculture and Animal Science. Colombo: IIMI and Rampur: IAAS.

Regmi, M. C. 1976. *Landownership in Nepal.* Berkeley: University of California Press.

Rao G. K. and Karmacharya R. 1991: "Potentials of Shallow Ground Water Aquifer in Kathmandu Valley." *Water Nepal Vol .2* (4).

Local Law and Customary Practices in the Study of Water Rights'

*F. von Benda-Beckmann, K. von Benda-Beckmann,
H.L.J. Spiertz²*

“Science and her generalized statements cannot remove individual responsibility by replacing belief; subjectivity, struggle and guilt. Science can only broaden and clarify the conscience of those engaged in practice, their appreciation for the consequences of their actions and of the meaning of what they are doing” (Baumgarten 1973:xxxv, rephrasing Max Weber 1917).

The quotation from the work of the famous sociologist Max Weber points at the potential tension between scientific research and analysis and their value for pragmatic action. Scientific statements, Weber warns us, will rarely lead directly to a certain course of action; it can only be one of the fundamentals of knowledge upon which political actors - whether they are legislators, NGO activists, consultants or common people - can draw in their attempts to choose a particular course of action. Such choices are inevitable, Weber says, and should not be hidden behind or masked as scientific statements. This tension also colours the studies on water rights in Nepal and India which are presented in the various contributions in this volume. Most of these studies are strongly motivated by some form of activism which aims at changing the current conditions of water rights and water management practices. While differently phrased, the ultimate objectives are shared: a concern for a more efficient use of water, with a more just, equitable, distribution of access to water, as well as for sustainable water use practices. These objectives are based on the observation that the current conditions are lacking in these respects, and that something has to be done about that. The strong future orientation of action research in which the descriptive and teleological orientation dominate brings with it the danger that the explanatory objectives of the research remain under-exposed. Research focused on water rights and water management should not stop at making an inventory of current legal rules, of state and customary laws and the practices of water allocation and distribution; it also needs to analyze the significance of these rules in the processes of social and economic change leading up to the current conditions.

As experiences in other parts of the world has shown, if such questions are not addressed, the starting point for action may be a somewhat distorted conception of the situation one wants to change, and an equally distorted construction of the causes of that perceived situation. In the logic of development intervention, whether from above or from below, policy goals often come first, and the conception of reality is constructed as its negative condition that has to be changed. Hitchcock's remark that "[p]eople rely on their goals to guide their thinking about what already exists. In such circumstances, planners re-invent the traditional as a negative stereotype; they derive it from their goals, rather than the other way round" (Hitchcock 1980:1), aptly characterizes mainstream development intervention planning, with its legal engineering centred perspective.³ In the case of bottom-up activist research, we find almost the opposite position, the negative stereotype being that of the state and state law; the positive, unquestioned one that of 'community' and their customary laws.

The purpose of this paper is to discuss some of these issues and show what a legal anthropological perspective may contribute to the understanding of the water problems the studies in this volume are concerned with. We shall relate our ideas as closely as possible to what we think are the *basic assumptions* which usually are behind action oriented research and which also largely underlie the research presented in this volume and shall refer to cases in this volume to illustrate some of our points. Adopting a legal anthropological perspective means giving primary attention to description and analysis of the current legal situation and trying to understand the significance of that legal situation for the actual forms and practices which water rights and water management assume. It means asking about the interrelations between law and social practice, rather than engaging in conventional doctrinal legal science, stating what the correct interpretations of the law are and how decision making in courts should proceed according to the law.

We shall start our paper by a discussion of the concept of water rights and the laws through which water rights are defined. We then discuss what law means in a context of legal pluralism which we encounter in Nepal and India where we are not simply confronted with a single, unitary legal system but with a complex co-existence of normative systems. Special attention will be given to notions of "customary law" and "customary practices" which play such an important role in ongoing research on water rights. This will bring us to a more general consideration of the relationships between legal complexity and social practices, in which conflicts and disputes, and procedures of dispute management have an important place. Then follows a discussion of the implications of our considerations for water management policies that aim at improving equity, effectivity and sustainability in water management. Finally, we shall venture some ideas about the implications of our analysis for the pragmatics of future policy making.

WATER RIGHTS AND LEGAL PLURALISM

Water has many fundamental functions in human life and social organization: It is both essential as drinking water and as an ingredient for food processing. It is also an important means of production in a variety of enterprises: for irrigation agriculture, for industry, for the generation of hydro-electric power. Water can also be primarily relevant as the habitat of other resources (fish, marine resources) or as a means of transportation. Besides, its many ecological functions are more

and more becoming a subject of scientific and political concern. In situations where water is scarce or over-abundant or if its flow is not properly controlled, it almost inevitably becomes subject of conflicts and disputes. Conflicts due to water shortage tend to bring violent, short term action because water problems often require immediate action. Because of its importance and to limit the number and scope of conflicts, local communities as well as governments have enacted regulations which establish rights to water, i.e. legitimate ways of control, administration, appropriation, use and transfer. The various kinds of regulation are not always congruent; **state regulations may differ** from regulations of local communities. **As** the examples of this volume show, regulations concerning irrigation water are subject to frequent change in Nepal (Shukla et al. in this volume; K. von Benda-Beckmann, Spiertz and F. von Benda-Beckmann 1996). Whenever new canals are built, when existing infrastructure has been destroyed by floods, when new crops are introduced, and when existing systems are rehabilitated and enlarged, new rights are established and new regulations have to be made to accommodate the new situation. These are periods of intense negotiation among the interested parties, situations in which the government may envisage different regulation from the rules proposed by local authorities, and where at least some of the users feel squeezed out of their legitimate interest. The resulting changed allocation, distribution, operation and maintenance systems distribute the burdens and profits in very different ways. Rehabilitation projects in particular are often felt to be imposed upon local communities, in which users do have not a voice, and in which they feel their interests and rights are not being fully taken into account. This is a complaint that is heard in particular from the old users. **As** the Dang case shows (see M. and R. Pradhan in this volume), new users may profit from the projects and from the fact that it is made by the government, because that gives them a legitimation for their use of the system which they did not have previously.

The Physical, Social and Legal Status of Water

Water confronts us in different manifestations, in different functions, beneficial uses as well as nuisances, or even as calamity. To a large extent these can be captured in physical categories that distinguish water according to physical criteria or according to its actual social and economic uses. Thus we can distinguish water in more or less natural states - as water flowing in streams, as surface- or ground water - from water in man-made technological artifacts - water in irrigation canals, in dug or bore-wells, or in artificial lakes. According to its uses, we can distinguish drinking water, irrigation water, hydroelectric water sources, etc. However, when talking about the uses and functions of water, we are confronted with a possible distinction between the *actual* uses which people make of water, and the *normatively defined* functions, which give specific water resources a specific destination: to be used as drinking water or irrigation water, or for industrial production. These *normative* definitions invest such water with a specific legal status. The legal statuses given to water may pertain to the totality of 'one water complex', such as a lake, a river, a well, water in irrigation canals, but it can refer also to a specific volume or a proportion of such totality. Water 'rights' often relate to such legally defined categories of water, and not to the natural resource water as such.

Water and its Environment

Another important aspect in the construction of water rights is the relationship of water and the physical and social environment of which it is part, and of rights pertaining to other elements of that environment. Land, and the water on or under it, may be constructed as one comprehensive category of property rights, or rights to water may be derived from the right to land on which it is, or vice versa. From the cases of irrigation water and drinking water in this volume, it is obvious that the land on which the water stands, or along which it flows, or where the water source is located, is an integral part of peoples' constructions of water rights. Because such rights may vary with the different relations of water to particular plots of land and/or technological artifacts, we will have to ask also questions like: to what extent are water rights conceived of as isolates or related to rights pertaining to its environment; to wells and the land on which the wells are; to rivers or rivulet beds, or to drainage and seeping trajectories or, of course, irrigation canals, weirs, division blocks, tubes etc. (see also U. Pradhan 1994). There appears to be great variety in the construction of water rights. Such differences in legal constructions of water or land rights influence the ways in which conflicts are conceptualized and disputes are framed.

The Range of Water Rights

Given the many different forms and functions of water it is obvious that the concept of water rights can never be more than an "umbrella concept", which includes quite a variety of different rights to different kinds of water. There is a wider range of different types of rights to water, which embody sanctioned social, economic and political powers of different scope and intensity. Legal systems define these different types of rights and lay down the conditions under which a social entity can or must become a right holder. These conditions may tie rights to a specific legal status such as being a "citizen", a member of a village community or an association like a Water Users Association. They may also tie the acquisition and continuation of such right to the fulfilment of specific obligations. This is particularly so in most irrigation systems where rights and participation in labour and monetary contributions to the maintenance and repair of the system are intimately linked. The 'bundle of rights' metaphor is a useful tool for analyzing the different elements summarized by such an umbrella concept (F. von Benda-Beckmann 1995 with further references). Looking at the *total range* of water rights, in all societies there is some differentiation between rights to control, regulate, supervise, represent in outside relations, and regulate and allocate water on the one hand, and rights to use and exploit it economically on the other (see also Schlager and Ostrom 1992, F. von Benda-Beckmann 1995).

Public and Private Rights

Socio-political control rights are usually vested in institutions and positions of socio-political authority which, according to peoples' constitutional theories, represent the community. In state organized societies, it is also embedded in the notion of sovereignty (Beitz 1991: 243). In contemporary states and state legal systems, these dimensions are distinguished and systematized in terms of public and private law. This distinction is, of course, a normative one which not always corresponds to a clear-cut and mutually exclusive division of property rules and rights into public or private ones. In fact, most rights have both public and private aspects. In societies with less hierarchical political organizations than our state organization, there may not be such a sharp

distinction between public and private law spheres; aspects of socio-political authority and of use and exploitation, however, usually are distinguished: 'In many societies, these rights may also be construed in a layered or tiered fashion, with supreme but largely residual rights vested in the highest political authority (the state, the Crown, the King, the chief, the village republic government) and provisional rights derived from the residual right and delegated to public authorities at lower levels of political and administrative organization. 'Communal' or 'common' (supra-individual) property rights in third world societies, to varying extent, have both private and public aspects.

Internal and External Water Rights

Where groups are the holders of water rights, one will always have to look at external and internal water rights. External water rights specify the range of rights of the group (the state, the village community, the family, the Water Users Association) in relation to individuals and groups which are not group-members. Internal water rights specify the rights of the group members vis-à-vis each other and the group or group representative. In the private law sphere, the external unity of water rights - water rights as common or communal property of groups - was translated as group (family) or common ownership, and the group members' rights to the property were constructed in terms of European legal concepts of joint or co-ownership. The interpretation of local property rights as communal, implicitly on the basis of European legal notions of ownership obscured individual rights in local societies (Clammer 1973, F. von Benda-Beckmann 1979, Snyder 1981, K. von Benda-Beckmann 1985, Wiber 1991).

The distinctions between public and private, external and internal property relationships are helpful for our understanding of individual and supra-individual forms of property rights. Failure to make these distinctions has regularly led to grave misunderstandings of property rights in academic comparison, but also in the application of 'customary law' in the colonies or independent states in the third world.

Rules and Principles

Water law and water rights are usually seen as being established by legal rules. However, the legal provisions that indicate the conditions under which individuals or villages have access to water sources are rarely clear-cut rules with which one could determine whether or not such rights exist or must be given. Normative concepts such as "a field closer to the source has a prior right over the fields further away", "first users have priority over newcomers" or "a new intake may not be built in such a way that it lessens the water intake of existing systems; it must be built at a sufficient distance from a downstream intake" rather have the character of principles. These principles provide a repertoire of accepted justifications and options for possible arrangements. But the principles do not lead unequivocally to specific solutions, because they may be mutually exclusive. It is not always certain which principle has priority over another; in fact this is usually subject to contention and negotiation. In the agreements and settlements that are reached in negotiations it is established which of the principles are followed and in which hierarchy. In other words, legal principles require concretisation in terms of decision making processes as water rights in relation to the concrete ecological and socio-political situation.

Principles, Rules and Actual Rights-relationships

When speaking about water rights, another distinction thus has to be made. We need to distinguish the legal constructions of water rights from the actual social relationships that connect concrete right holding individuals, groups or associations with concrete and demarcated resources. Water rights and the legally defined conditions under which certain social entities can acquire such rights are part of water law; the actual constellation of social relationships between concrete social entities and concrete water resources on the other hand are quite different social phenomena. This distinction is important. If it is not made, there is no room for looking at interrelationships between legal forms or types of property relationships and the concrete manifestations of property relationships in social and economic life. Questions concerning the relationship between types of water rights and their distribution cannot be dealt with systematically. For instance, whether certain types of property rights are likely to lead to concentration and accumulation of property by a few (see Berry 1988, Bruce 1988, Sugarman 1983), whether they have stronger or lesser functions for social and economic security (Chambers and Leach 1989, F. von Benda-Beckmann 1990, van de Ven 1994), or are likely to lead to more or less sustainable resource use cannot be answered.

Water Rights Relationships and Other Social Relationships

Water rights in the narrow sense of the word usually are intimately related with other rights as well as with other social relationships. They are related to land rights, to "citizenship" rights, rights that establish who is an original settler and who is a newcomer, kinship, etc. Law thus embodies power positions and power relationships. Merely concentrating on water rights in the narrow sense is not sufficient to understand how water management operates: It is more useful to look at all the rights and social relationships that pertain to water. In other words, an important aspect of water rights is the extent to which they are differentiated from other legal as well as social, political and economic relationships, or to which they are one aspect.

Legal Pluralism

Another complicating factor in the perception of water rights is the condition of "legal pluralism", the situation in which in the same socio-political units there is a plurality of normative ordering. In a plural legal situation, constructions of water rights may be duplicatory with respect to all components of water rights. What water "is", and what kind (drinking water, irrigation water) can be defined differently for legal purposes. Land, groundwater, irrigation water and irrigation infrastructure may be treated as separate property objects in one legal system, and at the same time as one in another. There is also variation in the construction of property holding units, of the legal capacity of individual persons, associations and groups. Of course, there are also differences in the relations, in the types, substantive content and bundling of different rights. In many third world countries, local legal systems in themselves may be plural. Older and newer versions of "traditional" or "customary" property relations may co-exist, and local village versions of customary property law may co-exist with customary law creations of state courts or legal science! In a plural legal system there may be more than one construction of "customary law". Local people are not the only category of actors which thus classify and label rules as belonging to a legal system. "Customary law" in most legal systems is also a category of which the

characteristics and substantive content is defined by law makers, judges or other experts. In legal anthropological literature, therefore, it has become common to distinguish “people’s customary law” from “lawyers’ customary law” (see Clammer 1973; Snyder 1981; Woodman 1987).

CUSTOMARY LAW, LOCAL LAW, AND PRACTICES

Within the context of legal pluralism and water management, the notion of customary law is a problematic one because of three interrelated assumptions. First, many researchers start from the assumption that in every society or ethnic group there exists a coherent set of norms that can be labelled customary or traditional law. These ‘deeply ingrained’ legal systems are supposed to govern local peoples’ behaviour **as** well as their response to outside intervention. Second, all law which is not enacted and applied by state institutions usually is conceived of being “customary” law, that is based upon customary behaviour patterns that find their origin and legitimation in history. Third, in the notion **of** customary law, law and behaviour or practices are considered to be more or less identical. The terms customary law and customary practices are often used interchangeably. **As** some of the studies presented in this volume show, these assumptions are not warranted, and therefore provide a unproductive guide for devising research as well as policy.

Local Law

From the studies carried out **by** the IIMI-FREEDeAL team it has become apparent that all researchers were confronted with the problem that in real life, even in the most isolated villages, different kinds of rules co-exist. Customary or traditional rules **of** behaviour, of allocating and distributing water rights are, and probably always have been, intermingled with norms emanating from other sources **of** power and authority, generated outside local communities, such **as** the state and government agencies, or religious teachings at various levels. If we look at the totality of rules and norms in rural communities, we see that some norms are customary, in the sense of being based upon long-standing and hardly changed traditions. Others have only recently come into existence and are not customary in this sense but also accepted as valid. They may be adaptations of earlier state or customary rules, or new forms **of** self regulation. Yet other norms are derived from the law of the state or government agencies. The same holds true **for** the institutions involved in water management. Some are based in traditional leadership positions and councils, others, like Water Users Associations, are quite recent institutional developments in which state administrative regulation with more traditional ideas over decision making powers are amalgamated. We suggest that this totality of legal regulation in specific local settings be called “local law”.

This local ‘mix’ of legal rules usually does not form a uniform and consistent system. There may be different interpretations of local law and of state law used at the same time. Much of the law consists of very general and abstract principles which allows many different interpretations when applied to a concrete situation. Moreover, original settlers may have different interpretations from newcomers; persons from lower classes have different interpretations than higher classes; full time farmers may have different notions than villagers who work in government service. And some persons expect more protection from the law of the state, however distorted their knowledge of state law may be, than they expect from customary law. They will try to play off state law against

customary law if that suits them. An example of this can be found in the Dang case described by M. and R. Pradhan (in this volume). Villagers who did not have access to irrigation water before the rehabilitation of the system took place claim that the customary first rights of other villagers were extinguished because the authority over the canal was transferred to the Government. They reason that, since the rehabilitation of the canal was a government project, the canal no longer is the property of the existing right holders but of the State. Therefore they should now be given access to the canal according to state law, an access which was denied to them under customary law. Whether or not this was a correct interpretation of state law is not relevant here. In fact, with the help of Panchayat officials, and perhaps some other advisors in the local irrigation offices and other local experts, they appear to have thought up an entirely new legal device, which they attributed to the state legal system, a legal device which, if accepted, becomes part of the repertoire of local law.

Many of researchers have been struck by the ease and frequency with which people move from one kind of law to another and by the fact that different persons give different interpretations of local or customary rights, depending on their social position and the situation at hand. The whole constellation of norms, that are expressed and used at the local level, appears to be far more complex and dynamic than was originally expected.

Customary Law

This emphasis on the existence of local law does not mean, of course, that the notion of customary law could be replaced by the notion of local law, or that customary law would play no role of significance in rural communities. But customary law can be, and often is used in two meanings: The first meaning is a descriptive characterization of rules: One speaks of customary rules because these rules have been accepted and used for a long time. In the second sense, customary law refers to a system of legal rules so named. The use of customary law, without further qualification, thus can be very confusing because not all customary rules in the first sense need to be part of “customary law”; while not all rules said to be part of “customary law” need to be customary. Moreover, as we have mentioned before, there may exist different ideas about “customary law” in villages and court settings (see Spiertz and De Jong 1992).

Thus when we look at the relationship between customary and local law, we can be faced with different situations. Many elements of local law may be customary in the first sense, based upon an (assumed) continuity of local legal tradition. Such rules and principles may, but need not be incorporated into the systemic category of “customary law”. Generally speaking, “customary law”, or different constructions of customary law, is part of the legal pluralism which provides the ingredients from which local law is shaped.

Customary Law and Customary Practices

Another source of possible confusion comes forth from the assumption that customary law and customary practices are identical. The terms are often used synonymously. This can mean two different things.

One would be that a general empirical congruence is postulated between rules or principles of customary law and the type of behaviour to which the rules and principles refer, that is customary behaviour patterns which are in conformity with customary law. Whether or not this is the case can only be determined by empirical research. Such research will have to answer the following questions: (1) what are the relevant behaviours in the field we are interested in? (2) is this behaviour customary, in the sense of continuing historically earlier behavioral patterns?, (3) is this behaviour in conformity with rules and principles that are held to be part of customary law and, moreover, whose customary law? It should be stressed that one certainly cannot simply assume such congruence, and many cases reported in the contributions to this volume show this clearly.

Secondly it can mean that within normative constructions, for instance in court decision making or academic writings, no distinction is made between customary law and practices. This can be the case, as for instance in the case of Yampa Phant - Satrasay Phant case as reported by IIMI/Free Deal in their preliminary report, the court actually says that a dispute should be solved by reference to "previous practices". Here practice patterns are given legal relevance; whether or not these patterns coincide with legal rules or principles is not in debate. This normative statement is a fact by itself; whether such normative statement reflects a corresponding actual congruence is a different question which again can only be answered by empirical research.

LAW, BEHAVIOUR AND DISPUTE MANAGEMENT

The mere existence of legal rules and principles, whether originating from government legislation, tradition or contemporary local law making, do not justify to draw direct conclusions with respect to the behaviour of people. They only become significant when people - farmers, government officials, project managers - orient their behaviour towards these rules when this orientation thus becomes one of the factors which influences their behaviour in matters of water management or indecision making processes. This often is the case **when people quite consciously** follow the ideas embodied in legal rules. However, the plural legal situation complicates matters, because following one rule, state law, often means contravening another, local or customary law. In plural legal contexts we therefore are always confronted with the question of the relative significance of one type of legal rules in relation to others, apart from the question which other, non-legal factors, play a role.

Legal rules and principles do not only become significant in water management if people behave according to the rules. Even when people's practices deviate from legal rules, they may function as a source of positive or negative motivation. And legal rules are used to legitimate claims to water or land when water rights are problematic or contested, and when people negotiate water rights or submit their contradictory claims to an institution with decision making authority. In ordinary life and activities, **ordinary people usually do not reflect much on the legal basis of their right. They** do not specify whether they think they have a right to water according to state law, to customary law or even to religious law and there usually is no need for doing so. **But** this is different when rights become seriously contested in disputing processes. Claims have to be justified, and this usually has to be done by reference to legal rules and principles. People may do so directly on the basis of their own knowledge of the rules involved, but they may also refer to experts or their

authoritative interpretations, which may differ substantially from the knowledge and experience of ordinary people. This is commonly recognized in relation to state law, which is primarily the domain of lawyers and administrators. But for customary law there are also many different kinds of self-proclaimed or recognized experts, among them local wise-men, priests, researchers, administrators or lawyers. Some base their expertise on an intimate knowledge of local conditions, others on sacred texts, yet others on academic or administrative status. In arena's like courts, the government administration, and parliament, but also in irrigation projects, these authoritative expert versions of customary law often become a powerful means of promoting or defending specific interests and constructing rights, quite irrespective of the local law on the ground.

Disputes

Such negotiations often develop into conflicts and lead to disputing. Researchers therefore quite rightly paid much attention to disputes. For a number of reasons, it is an important field of study. First, because disputing may occur frequently in the management and use of water management. Moreover, in disputes legal arguments, rights and obligations become discursive and are most clearly articulated by the contending parties, as well as by a decision making authority. Thirdly, the process of negotiating and decision making shows us which are the relevant dispute processing institutions, which of the often contradictory versions of law are selected as being valid and in which way abstract rules and principles are concretized in a specific problematic situation? Finally, the study of disputes and dispute processing are a rich source of information about the significance of law within and outside the court context. This last point can be illustrated with the case *Lilinath Acharya and Ramhari Archaya vs Durga Prasad Acharya* (Civil registration 34/184 2048/9/23 - 2050/5/9).⁸

Two years before the dispute came to court, the defendant, who had inherited land, started to cultivate rice on his inherited property. Plaintiffs, also relatives of the deceased person, claimed that as a result they had too little water to irrigate their land, and that their crops were damaged as a consequence. They also claimed that their irrigation water came from a reserve that was built upon the land of the deceased person, and accused the defendant of having destroyed the reserve and blocked a rivulet that allegedly conducted water to their fields. They also accused the defendant of illegally turning un-irrigated upland (*pakho*) into irrigated lowland (*khet*) and starting to grow rice, and by doing so taking away water from the neighbours downstream, who then no longer could grow rice.

What comes clear in the case is that what used to be two different fields, with or without a rivulet in between, was later registered as one field. This was a useful way of including the rivulet into the field and that in turn made it possible for the defendant to claim that he legitimately used water because it sprang from his own field. It looks very much like an evasion of water rules which say that you are not allowed to take water upstream if that hinders prior users downstream, and which forbids un-irrigated up-land to be converted into irrigated low-land if there is not enough water for the already existing irrigated low-land. By registering the two plots as one, the water was redefined as water from the own field. This was perhaps not entirely without reason, because on the field were several springs, at least some of the water was from the field itself.

This case illustrates some general points which we want to make about disputing processes and the role of law in disputes. They concern the way in which legally relevant facts are constructed, the transformation processes which disputes undergo when various institutions deal with them, the options available forums of dispute management, and the implementation of authoritative decisions.

Construction of Legally Relevant Facts

Most disagreements in legal disputes (in whatever country) are about matters of evidence, and about questions of whether certain behaviour is or is not in accordance with a specific norm (K. von Benda-Beckmann **1984**). The validity of the general content of a rule or principle **as** such is much less frequently contested. As the Lalinath case shows, all persons involved, parties as well as witnesses, use otherwise uncontested norms to emphasize why certain behaviour **is** or **is not** justified.

In this case, disagreement is not **so** much about the validity of a general rule, but about the question whether certain behaviour or Occurrences fall under the working of a rule. Nobody denies that pahko cannot be turned into khet if downstream khet will not receive sufficient water as a consequence. The question is whether turning a particular field into **khet** does reduce the water of downstream **khet**-fields. And whether levelling out a field means in fact destruction of a reserve and blocking a rivulet, or whether levelling is standard behaviour of a farmer who inherited a piece of land and **starts** cultivation. And whether water used to come from the disputed land onto the land of the plaintiffs. Some witnesses in support of the defendant deny this to be the case, others say that sometimes some water does flow over, but that is merely **surplus** water released from the defendant's land, suggesting that it is not water that was always used by the plaintiffs to irrigate their land, but merely to get rid of the **superfluous** water himself.

Studying the claims and defenses of parties and the testimonies of witnesses thus may reveal a lot about customary norms and about the way ordinary people use these norms to evaluate occurrences or actions for their legal relevance, and in order to justify certain behaviour. Law is a way to construct legally relevant facts, a way of 'imagining the real' as Clifford Geertz has noted (**1983**). It is also a legitimating device, to be used and manipulated in different settings, whether in courts, before government agencies, or village institutions, whether by civil servants, ordinary farmers, village leaders, or water officials. This is one way in which legal rules obtain significance in the dispute processes. However, the claims, counter arguments, testimonies and judgements tell us little about whether and how these norms motivated actual behaviour that is now under scrutiny. Why it is that the two fields were registered as one, or why claimants went to court, cannot be deduced from these rules.

The Transformation of Social Conflicts

The subject matter which is openly disputed in processes of negotiations and decision making, however, is not necessarily the conflict which makes the relationship between parties problematic. In this case it seems that behind the water dispute another dispute is lurking.

This was not the first time the parties were having a dispute. Some time before, the wife of the defendant had been accused by the plaintiffs of theft of jewelry, but it could not be proven. The defendant, a farmer, feels himself and his family harassed by the plaintiff and his wife who have a position as civil servants. One of the witnesses, a 'servant', even qualified the same behaviour as a 'conspiracy', again using a different idiom.

What looks like a mere water dispute, may also be a dispute about social relations and standing among relatives, about inheritance, or village politics, and perhaps much more which the official court material does not reveal. In general it can be said, and Nepal is no exception, that what appears to be the main issue in court is not necessarily the most important point, and may turn out to be only marginally relevant in the village setting.

Such transformation of the underlying social conflict may be due to the way the courts operate. The court may disregard the underlying social conflict and reduce it to its 'legally relevant' aspects. Case material collected in-court usually gives only one part of the whole story and further field research, difficult as it may be, is needed to reveal the full scope of the conflict (Felstiner, Abel, Sarat 1980; K. von Benda-Beckmann 1984). But a transformation of the dispute may be also due to the strategies of the parties who willingly or inadvertently misrepresent the underlying social conflict in court (see Cohn 1967). Thus, a conflict between neighbours may turn into a dispute about theft, brought before the police, a dispute about water stealing, brought before a group of village elders, and perhaps later before the civil court. Conflicts over land rights may be presented as water rights disputes, and vice versa.

Disputes do not always lead to authoritative decisions. Many are resolved through negotiations, ending in compromises between the involved parties. Negotiation and decision making processes over water rights inevitably become involved in wider networks of power relationships and become strongly affected by the relationship between the different power holders. As appears from many case studies in this book, 'good' relationships between zamindars in different systems or villages, if strengthened by relations of common descent or affinity, may facilitate easy negotiations of intricate problems. 'Bad' relationships may make the settlement of trivial disagreements impossible. Water disputes - 'inter system disputes' thus can turn to become disputes between 'rightist' and 'leftist' villages. The stability of compromises therefore is largely determined by the stability of the power network in which negotiations were carried out. Changes in the network, shifts in power balances between jurisdictions and changes in their personal composition, tendentially favour attempts to negate on earlier decisions. The changes in ecological and agricultural developments regularly provide occasions that can be readily taken up by the person intending to change earlier decisions anyway (see Shukla et al, in this volume, K. von Benda-Beckmann, J. Spiertz and F. von Benda-Beckmann 1996).

Choice of Forums for Dispute Settlement

The way disputes are being treated, the forum in which they are processed, and their outcome depends, of course, on the kind of rules that are applied by the institution of dispute management. But it also depends on the type of relationships disputants, witnesses, mediators or adjudicators have in other social settings. For example, one of the witnesses of the Lilinath case, who was equally closely related to both parties, remained very vague in his testimony, while the others were

very vocal and explicit. In general, disputants who have multiple relationships, for example, as cousins, neighbours, and members of a water users' organisation, tend to keep their disputes within the village setting and do not easily go to court (Yngvesson 1985, Nader and Todd 1978, K. von Benda-Beckmann 1981). People having more simplex social relations, tend to go to external institutions more easily. Also differences in political and economic power are crucial for our understanding of the questions whether, by whom and with which success decision making authorities, functionaries of village institutions or state courts, can be mobilized, and what this means for the distribution of water rights. From other legal anthropological research it is known that the powerless have far more difficulty in mobilize law and legal institutions, whether state institutions or other, to defend their interests than for the powerful. The wealthy and powerful are better equipped to bring their disputes before the institution that applies the kind of rules that support their position best. It certainly is not unusual that poor peasants successfully invoke the law of the state against the interests of the powerful landowners, as happened in the Dang case (M. and R. Pradhan in this volume). But that does not mean that they manage to implement a favourable decision (Silliman 1981-1982; Turk 1978; Galanter 1974; Nader and Todd 1978).

The Implementation of Court Decisions

It is generally assumed that court decisions are implemented in the way the court, or another institution authorized to make decisions, has ruled. However, research has shown that many decisions are not implemented at all or in a very different manner (see for Indonesia, for instance, K. von Benda-Beckmann 1985). In order to assess the real impact of courts and other institutions, it is not enough to look at how frequently people turn to a court, it is also necessary to study the 'post-decision stage' of a case. Such a study reveals that courts and other institutions, though they make a decision, may not be very successful in settling a dispute. Court decisions may not be carried out at all and many years after the court has made a decision, a dispute may flare up again, because some of the central actors have come to a powerful position and think they can turn the balance in their favour.

IMPLICATIONS: HOW DOES PLANNING BENEFIT FROM RESEARCH ?

Where do these insights leave us when we try to suggest how improvements of the existing situations could be made, and by which means? In contemporary development policy it is seen as important to involve local people in the process of change and development intervention as well as take their customary institutions and laws seriously into account. Most of the research projects share this development philosophy. and, generally speaking, so do we. However, the above considerations show us that we move in a complex field of problems and dilemmas where no easy general answers can be expected. The expression "to take customary rules and practices into account" is itself ambivalent. In one sense, which we call *the normative sense*, it means that such rules and practices should be recognized as *deserving validity*, as valuable elements in the overall context of water management organization. But to take into account can also mean: seeing them as relevant factors in the multitude of factors that together constitute present reality, independent of any normative or moral evaluation. Obviously, both evaluations must be interrelated, because

the question of whether customary or local rules should officially be recognized should also be based upon an evaluation of its substantive content as well as its social functions. In the following we want to **spell out** some of the implications of our analysis.

Taking Customary Law into Account in the Normative Sense

When one talks about taking customary law and practices into account in the normative sense, one usually does so out of the conviction that these norms **are an expression of the people's own values**, and that intervention and legislation have to avoid measures that would weaken or contradict them. This normative assumption, we think, underlies many of the research and policy objectives of the water rights projects (such as the IIMI/FREEDeAL project) which are reported in this volume. Customary law is often taken to be inherently democratic, egalitarian, equitable and therefore to deserve to be supported, while state law or government regulations are not. Yet there is ample evidence from all research projects that unequal power relationships greatly affect the ways in which water is distributed and managed and the extent to which norms are being followed. All researchers have come across examples of powerful figures who took water before their turn, who chased away poorer people, although they had a right to draw water, who did not participate in the maintenance, who dug a channel without permission or blocked an intake or a rivulet, and who even successfully tried to change the distribution **rules** in their favour. In some instances, this may be an arbitrary (ab)use of power by individuals or groups, breaches of local and/or customary law by powerful people. Upon closer inspection, it turns out that local law establishes and legitimizes many differences in political power and rights over land and water resources. Unequal access to water may be a result of **'legal' unequal land distribution**, which in turn is a result of rules of kinship and inheritance and local forms of social stratification. Since such differences often have a basis in religious rules and categories (such as caste), these legal elements are often not seen as forming part of customary law, and therefore are easily neglected. Yet they are very customary, and they are very significant at local level.

Thus questions that seem not immediately relevant for the study of water rights come into focus such as: Are 'the people', or 'the farmers' a homogeneous category? **Is** there social stratification? How are power positions supported by customary law? Who are the social, economic and political elites? This then leads to questions concerning water rights proper, such as: Are rights to water different for different social classes? Different for men and women? Different for original occupants and newcomers? Different for people of different caste? And, very important, who profits from the existing arrangements? Almost all research projects have shown that there is a fundamental difference between original occupants, settlers, water **users**, and latecomers. Sometimes latecomers have obtained a strong political position, as research by IAAS has shown for some parts of the Terai, and have thus also obtained better water rights than in parts where latecomers belong to the lower classes (see Shukla **et al.** in this volume). The IIMI/FREEDeAL project has also shown that women usually do not have rights to irrigation water on their own account. Widows and divorced women have difficulties obtaining, or keeping access to water. **For** example, widows or divorced women are discriminated against in rotational distribution systems of water allocation. They may get a turn to water, but only at night. **Local** gender inequality is further enhanced by the fact that maintenance of irrigation infrastructure, intimately related to access rights, is very much a male concern. And the research has shown that there may be conflicts between **rights** to drinking water - female domain - and rights to irrigation water - a male domain.

Moreover, in disputes and contacts with outside agencies, women are usually in a weaker position because men tend to function as the main intermediaries and brokers in the communication and interaction channels to these agencies (K. von Benda-Beckmann 1990/91). These differences in political and economic power also play an important role with respect to access to dispute management institutions. Local law thus may not be democratic at all, though it may be more flexible and adjustable than state law. This does not mean that local law is less equitable than the laws of the state or vice versa. In some respects local regulations may be more equitable and in others state regulation. The point is that only a careful examination of both state law and local law as used and applied in actual practice brings out the relative strengths and weaknesses of each kind of law.

What is to be Recognized: Customary Law or Local Law ?

The normative validation of customary rules, rights and principles is problematic also in another respect. When state legislators, judges, or sympathetic researchers are open to give more official recognition and sanction to non-state law, they tend to think of non-state law only in legal categories such as “customary law” or “ancient or previous practices”. Such constructions of customary law and customary rights are dogmatic constructions, usually only validated under the condition that they can be considered to be the historically grown rights at local level, free from interference of outside agencies such as the administrative agencies and if it is sustained by actual practice.⁹ At the same time these constructions are often framed in such language that they can be accommodated in the conceptual framework of the state legal system. In many contexts of rule and decision making of the state apparatus, it is these dogmatic constructions which count, and not the norms and values described in ordinary people’s own terms. Government legislators or judges may have little use for some ‘local’ law, certainly if social practices are not in accordance with these rules. This is nothing they wish to give validity to in the dominant legal framework they are operating in. But even if they wanted to, they may find it almost impossible to take it into account: As we have seen, there may be no generally accepted local law and what there is may not go back to ancient tradition.

This poses a dilemma upon researchers and legal advisors, who sympathize with local law, and who often are the persons who have, and want to produce the necessary evidence on customary law. If they want to make local law relevant in the court and policy contexts, they may have to adapt and thus change and distort their findings, framing them in a language which will be more readily accepted by policy makers. If not, they may risk that policy makers and judges will not find their research evidence relevant in their own framework of ‘customary law’ relevance.¹⁰ The researcher is thus easily attempted to change roles from academic scholar to an advocate for customary law, and risks becoming a bad scholar; or he remains a research scholar and risks becoming an unsuccessful advocate. The decision will usually be a pragmatic and political one; social science cannot help making this choice.

Customary or Local Law as Significant Factors

But whatever choice one makes in this dilemma, and however one may value local law and practices, they have to be taken into account as part of the elements which constitute reality. In

one's attempts to understand and explain this reality, they have to be taken into account **as** explanatory factors. Caste differences as normative principles, in combination with differences in economic wealth and political power, still largely determine access to water and the distribution of water and maintenance activities. Differences in land ownership determine differences in access to water. We may all wish these factors were irrelevant and we may not want to take them into account in the sense of accepting or legitimating their normative validity. Yet it is a factor not likely to disappear if 'not recognized', a factor that very likely will influence the consequences of whatever intervention is proposed."

This leads **us** back to re-examine what the reality to be changed is in our conceptualization of the problems and questions of research, and how local or customary law is seen as a factor influencing this reality. Do research questions aim at explanation in addition to description? For instance, the overall goal of the IIML/Free Deal project is 'enhancing local management ...and bring about equitable and productive development of water resource use'. It also assumes that 'customary practices must be taken account in legislation; otherwise practical problems will arise'. This seems to imply that, if local management is enhanced, equitable and productive development of water resources will be possible. Or that, if laws were formulated with the proper understanding of customary practices, **less** practical problems will arise. Implicit in these statements is the assumption that most problems are a result of government intervention that did not follow existing regulations. While government regulation undoubtedly can be blamed for a lot of problems, it does not seem entirely warranted to put all the blame there. What *then is* the assumed influence of customary rights and practices on local conditions? A positive one under which water management is more equitable and efficient? Or a negative one, causing the conditions to be changed? How have local laws changed, and why?

It seems to us that these questions must be answered before policy options are envisaged. Even where research is action and future oriented, historical and explanatory research must be carried out. For only such insights make it possible to work out feasible future scenarios. The explanatory questions become especially important when we look at the policy objectives which we all share, a concern for a just, sustainable and efficient management and use of water. Thinking through realistic possibilities for future developments, we need an understanding of what the role of local law and practices has been in these respects. A somewhat romantic picture of local affairs - if only left in peace to unfold their creative possibilities - on closer examination may turn out to be unrealistic **as far as** the nature and functioning of customary law with respect to these objectives is concerned. To be sure, such an attitude may not be entirely without ground. The researches carried out by IAAS researchers and their colleagues from Indiana University have shown, for example, that in general farmer managed irrigation systems function technically better than government operated systems (Lam, Lee and Ostrom 1994). This seems to suggest that customary law in this realm deserves support. But the research that has been done gives **us** also ground for doubt, for it does not mean that farmer managed systems are good in equal distribution. Could it be that these systems function better than agency managed systems, precisely because of the political and economic power differences shaped by **local**, or customary law? In the heat of the defense of suppressed people, it is easily forgotten that they may be **as** much suppressed by their own elites as by government agencies, and that efficiency **does** not necessarily imply equity.

This poses another dilemma which can only be solved by a political choice and for which social sciences do not provide a solution. Are we primarily interested in sustainable management **of**

water, or is equal access to water equally or more important? How do we resolve the in sometimes contradictory concerns for equity, sustainability, and national economic growth? Wishing to attain all three objectives in a well-balanced way will not remove the actual constraints. Depending on the choice we make, the kind of intervention would be different. The equity issue is particularly difficult because rights to water, as we have seen, are so intimately related to wider sociopolitical organization. If, therefore, to bring about equity would require far more fundamental changes than seems feasible, a further choice has to be made, leading into the direction of redistribution of water, and, given the close connection of water rights with land rights, probably also of land. But we may take the local social-political constellation and the ways a local community is embedded in wider social and political networks for granted and make improvements within these margins. Even if the actual improvements would perhaps remain rather marginal, they could still be very significant if we would base our goals and expectations on a realistic analysis of the local situations, including the complexity of the interrelations between law and practices.

CONCLUSION

The complexity that emerges from research, and in particular from the research in this volume, cannot be directly applied or fully incorporated into restatements or changes of the law by policy makers or, in individual cases, by judges. But such research does provide a more adequate picture of local reality and provide some valuable explanatory insight into the reasons and causes which have led to the current situation. It will also provide some indications about the probable course of events in the future if no specific intervention would take place. And it will help forming a realistic assessment of the most likely outcomes of newly planned interventionist measures. All these are important preconditions for responsible policy making. While research does not contain clear directives for policy, and while it cannot provide guarantees for success, it allows for a realistic consideration of policy alternatives and their probable intended and unintended consequences. These considerations may be pretty pessimistic ones, for they may point to necessary changes that are politically nearly impossible to achieve. But this is pessimistic only if one compares a more realistic assessment with too optimistic expectations of social science and policy making. Thus, at the end, we come back again to Weber's warning mentioned in the beginning of the introduction to this volume: Science is in the position to show what people could reasonably wish to do, and what wereasonably can expect to be the consequences of their actions. But it cannot tell them, *what* they have to wish and to do. Decision and action is left to (individual) choice and decision making (Baumgarten 1973:xxxv, rephrasing Max Weber 1917). But in order to be able to make such choices, it is necessary that planning and research are continuing, and mutually dependent activities. It cannot be that research is a one time activity, after which one knows customary or local law for ever. Local law is dynamic and so are the interrelationships between law and social practices. Every time new policies are being proposed, new research is needed. This is not a message planners want to hear, but it is a necessary conclusion from the research.

NOTES

- 1 This paper is a revised version of the one presented at the IIMI-FREEDeAL-WAU-EUR-workshop on Water Rights. Conflict and Policy, Kathmandu, January 22-24, 1996.
- 2 F. von Benda-Beckmann is professor of law in developing countries at the Department of Agrarian Law of the Agricultural University Wageningen, The Netherlands. J. Spiertz also teaches law in developing countries in the same department. K. von Benda-Beckmann is senior lecturer in anthropology of law at the Sanders Institute, Faculty of Law, of Erasmus University Rotterdam, The Netherlands.
- 3 Hitchcock says this to characterize the Botswana grazing land policy. but it has a far more general validity, see also Dove 1986 with respect to Indonesia's agricultural policy, Bowen 1986 speaks of 'motivated *misrecognition*'.
- 4 See F. von Benda-Beckmann 1979:43. This distinction is not new, and most anthropologists report empirical manifestations in the societies they study. For further references see F. von Benda-Beckmann 1995.
- 5 There is a multitude of literature, both empirically and/or conceptually and analytically oriented. See F. von Benda-Beckmann 1979.1992. For systematic treatments of the conceptual questions. see Vanderlinden 1971.1989. Griffiths 1986, Merry 1988.
- 6 See K. von Benda-Beckmann 1984, Woodman 1987.
- 7 This is the main reason why decision making processes in disputes have become an important subject in the (legal anthropological) study of unwritten local laws; unwritten law even was defined as those rules and principles that could be observed as 'showing their teeth' in decision making. We should add, though. that lawyers and anthropologists interested in law tended to overemphasize the importance of disputes, neglecting the significance of legal rules and principles in other. not conflictive contexts. It is therefore certainly one of the virtues of the research projects that come together here, that they all include both disputes and ordinary social life in their research (see Hoebel 1954. Pospisil 1971; Epstein 1967. For critiques of the trouble-less approach see Holleman 1973; F. von Benda-Beckmann 1979; K. van Benda-Beckmann 1984, with further references.
- 8 This case was collected and translated for us by our colleagues from the Free Deal/IIMI project.
- 9 In Uttar Pradesh, the problem is ~~more complicated because of the settlements that were documented~~ in the late 19th century. Today, these are considered to be 'the' customary law, although, as the DCAP project has shown, they have little to do with presently valid local norms and values. The Nepal situation ~~seems~~ to be different. since ~~there are no settlements~~. In Nepal the term "ancient or previous practices" seems to be used by state agencies. However, in both concepts references to the past are crucial.
- 10 The anthropologist Ken Maddock has discussed this dilemma in a very vivid manner with respect to the land-rights question of Australian Aborigines (Maddock 1986).
- 11 The sketched dilemma also suggests that researchers should be careful to frame their findings in such a way that chances are as small as possible that their own work will be used as a kind of settlement. This has happened in various parts of the world. Anthropologists such as Isaac Shapira and Hans Holleman who worked in southern Africa noted to their surprise that their book was used in court as a standard description of customary law as if it were a law book, instead of a book about law. This cannot be avoided, of course. Once a book is out, there is no way that its use can be controlled, fortunately not. But it does mean that one has to be extremely careful in pointing out that the report refers to one place and one time and that local law changes all the time.

REFERENCES

- Baumgarten, E. 1973. "Einleitung". In Max Weber *Soziologie-Universalgeschichtliche Analysen-Politik*. Stuttgart: A. Kroener. pp xi-xxxvi.
- Beitz, Ch. R. 1991. "Sovereignty and morality in international affairs". In D. Held (ed.), *Political Theory Today*. Oxford: Polity Press. pp 236-254.
- Benda-Beckmann, F. von . 1979. *Property in Social Continuity: Continuity and Change in the Maintenance of Property Relationships Through Time in Minangkabau, West Sumatra* The Hague: M. Nijhoff.
- Benda-Beckmann, F. von. 1989. "Scape-goat and Magic Charm: Law in Development Theory and Practice". *Journal of Legal Pluralism* 28: 129-148.
- Benda-Beckmann, F. von. 1990. "Sago, Law and Food Security on Ambon". In J.I.H. Bakker (ed.), *The World Food Crisis: Food Security in Comparative Perspective* Toronto, Ontario, Canada: Canadian Scholars' Press Inc. pp 157-199.
- Benda-Beckmann, F. von. 1992. "Introduction: Understanding agrarian law in society". In F. von Benda-Beckmann and M. van der Velde (eds.), *Law as a Resource in Agrarian Struggles*. Wageningen: Pudoc. pp 1-22.
- Benda-Beckmann, F. von. 1995. "Anthropological approaches to property law and economics". *European Journal of Law and Economics* 2: 309-336.
- Benda-Beckmann, K. von. 1981. "Forum shopping and shopping forums". *Journal of Legal Pluralism* 19: 117-159.
- Benda-Beckmann, K. von. 1984. *The Broken Stairways to Consensus: Village Justice and State Courts in Minangkabau* Dordrecht: Foris.
- Benda-Beckmann, K. von. 1985. "The social significance of Minangkabau state courts decisions". *Journal of Legal Pluralism* 25: 1- 68.
- Benda-Beckmann, K. von. 1990/1991. "Development, Law and Gender-Skewing: An examination of the impact of development on the socio-legal position of Indonesian women, with special reference to Minangkabau". *Journal of Legal Pluralism* 30/31: 87-120.
- Benda-Beckmann, K. von, J. Spiertz and F. von Benda-Beckmann. 1996. Contesting rights to water in Nepal irrigation: A legal anthropological perspective. (forthcoming)
- Bergh, G. van den. 1986. "The concept of folk law in historical context: a brief outline". In K. von Benda-Beckmann and F. Strijbosch (eds.), *Anthropology of Law in the Netherlands*. Dordrecht: Foris. pp 67-89.

- Berry, S. 1988. "Concentration without Privatization? Some Consequences of Changing Patterns of Rural Land Control". In R.E. Downs and S.P. Reyna (eds.), *Land and Society in Contemporary Africa*. Hanover and London: University Press of New England. pp 53-75.
- Bruce, J.W. 1988. "A perspective on indigenous land tenure systems and land concentration". In Downs, R.E. and Reyna, S.P. (eds.), *Land and Society in Contemporary Africa* London: University Press of New England. pp 23-53.
- Chambers, R. and M. Leach. 1989. "Trees as savings and security *for* the rural *poor*". *World Development* 17: 329-342.
- Clammer, J. 1973. "Colonialism and the perception of tradition in Fiji". In T. Asad (ed.) *Anthropology and the Colonial Encounter*. Atlantic Highlands: Humanities Press. pp 199-220.
- Cohn, B. 1967. "Some notes on law and change in North India". In P. Bohannan (ed.), *Law and Warfare; Studies in the Anthropology of Conflict*. Garden City: The Natural History Press. pp 139-159.
- Dove, M. 1986. "The Ideology of Agricultural Development in Indonesia". In C. McAndrews (ed.), *Central Government and Local Development in Indonesia*, Singapore: Oxford University Press. pp 221-247.
- Epstein, A.L. (1967) "The case method in the field of law". In A.L. Epstein (ed.), *The Craft of Social Anthropology*. London: Tavistock Publications. pp 205-231.
- Felstiner, W., R. Abel and A. Sarat. 1980-81. "The emergence and transformation of disputes: naming, blaming, claiming." *Law and Society Review* 15: 631-654.
- Galanter, M. 1974. "Why the 'haves' come out ahead: Speculations on the limits of legal change". *Law and Society Review* 9: 65-160.
- Geertz, C. 1983. *Local Knowledge*. New York: Basic Books.
- Griffiths, J. 1986. "What is legal pluralism?" *Journal of Legal Pluralism* 24: 1-50.
- Hitchcock, R.K. 1980. "Tradition, social justice and land reform in Central Botswana" *Journal of African Law* 24: 1-34.
- Hoebel, E.A. 1954. *The Law of Primitive Man* Cambridge: Harvard University Press
- Holleman, J.F. 1973. "Trouble-cases and trouble-less cases in the study of customary law and legal reform". *Law and Society Review* 7: 585-609.
- Lam, Wai Fung, M. Lee and E. Ostrom. 1994. "An institutional analysis approach: Findings from the NIS on irrigation performance". In J. Sowerwife et al (eds.), *From Farmers' Fields and Back: A Synthesis of Participatory Information Systems for Irrigation and Other Resources* Colombo: IIMI, and Rampur: IAAS. pp 69-93.

- Maddock, K. 1986. "Asking for Utopia: A study in aboriginal land rights". In K. von Benda-Beckmann and F. Strijbosch (eds.), *Anthropology of Law in the Netherlands* Dodrecht: Foris. pp 240-259.
- Merry, S.E. 1988. "Legal Pluralism". *Law and Society Review* 22: 869-896.
- Moore, S.F. 1978. *Law as Process*. London: Routledge and Kegan Paul,
- Nader, L. and H. Todd (eds.). 1978. *The Disputing Process - Law in Ten Societies* New York Columbia University Press.
- Pospisil, L. 1971. *Anthropology of Law*. New York: Harper and Row
- Pradhan, Ujjwal (1994) "Farmers' water rights and their relation to data collection and management". In J. Sowerwife et al. (eds.) *From Farmers' Fields and Back: A Synthesis of Participatory Information Systems for Irrigation and Other Resources* Colombo: IIMI, and Rampur: IAAS. pp 187-198.
- Schlager, E. and Ostrom, E. 1992. "Property-rights regimes and natural resources: a conceptual analysis". *Land Economics* 68(3): 249-62.
- Silliman, S. 1981-82. "Dispute processing by the Philippine agrarian court". *Law and Society Review* 16:89-113.
- Snyder, F. 1981. "Colonialism and legal form: The creation of 'customary law' in Senegal". *Journal of Legal Pluralism* 19:49-90.
- Spiertz, H.L.J. 1991. "The transformation of traditional law: a tale of people's participation in irrigation management on Bali". *Landscape and Urban Planning* 20:189-196.
- Spiertz, H.L.J. and IJ. H. de Jong. 1992. "Traditional law and irrigation management: The case of Bethma". In G. Diemer and J. Slabbers (eds.), *Irrigators and engineers: Essays in honour of Lucas Horst*. Amsterdam: Thesis Publishers. pp 185-202.
- Sugarman, D. 1983. "Law, economy and the state in England, 1750-1914: Some major issues". In D. Sugarman (ed.), *Legality, ideology and the state*. New York: Academic Press. pp 213-265.
- Turk, A. 1978 "Law as a weapon in social conflict". Pp. 213-232 in Ch. Reasons and M.M. Rich (eds.), *The Sociology of Law: A Conflict Perspective* Toronto: Butterworth.
- Vanderlinden, J. 1971. "Le pluralisme juridique: essai de synthèse". in J. Gillissen (ed.), *Le Pluralisme Juridique*. Brussels: Université libre de Bruxelles. pp 19-56.

- Vanderlinden, J. 1989. "Return to legal pluralism". *Journal of Legal Pluralism* 28:149-157.
- Ven, I. van de. 1994. "Members only: time-sharing rice fields and food security in a Sumatran valley". In F. and K. von Benda-Beckmann and H. Marks (eds.), ***Coping with Insecurity: An 'Underall' Perspective on Social Security in the Third World*** Special issue *Focaal* 22/23: 85-96.
- Weber, M. 1973[1917]. "Der Sinn der "Wertfreiheit" der Sozialwissenschaften". In *Soziologie, Universalgeschichtliche Analysen, Politik. Mit einer Einleitung von E. Baumgarten. Herausgegeben und erläutert von J. Winckelmann*. 5. überarbeitete Auflage. Stuttgart: Alfred Kroner Verlag. pp 263-310.
- Wiber, M. 1991. "Levels of Property Rights, Levels of Law: A Case Study From the Northern Philippines". *Man* 26: 469-492.
- Woodman, G.R. 1987. "How state courts create customary law in Ghana and Nigeria". In B. Morse and G. Woodman (eds.), ***Indigenous Law and the State***. Dordrecht: Foris. pp 181-220.
- Yngvesson, B. 1985. "Re-examining continuing relations and the law". *Wisconsin Law Review* Volume 1985, 3: 623-646.

ANNEXURE I

Programme Schedule

Workshopon

Water Rights, Conflict and Policy

January 22-24, 1996, Kathmandu.

DAY I: JANUARY 22

9:15 - 10:00 Registration

10:00 - 1030 OPENING CEREMONY

Chairperson: Kanak Thapa, President, FREEDeAL

- * Welcome Address by Ajaya Dixit, Nepal Water Conservation Foundation
- * Objectives of the Workshop by Dr. K. A. Haq, Acting Head, IIMI/Nepal
- * Speech by the Chief Guest Mr. Ratneshwor Lal Kayastha, Joint Secretary, MOWR
- * Speech by Dr. Ujjwal Pradhan, Program Officer, Ford Foundation
- * Vote of Thanks by Dr. Rajendra Pradhan, Consultant, IIMI/Nepal

1030 - 11:00 TEA BREAK

THEME I: WATER RIGHTS: STATE, LAW AND POLICY

11:00 - 1:00 SESSION I: Law, Policy, Rights

Chairperson: Surya Nath Upadhaya, Secretary, (M E & P)

Discussant: Rajendra Kishore Khatri, Under Secretary, Ministry of Water Resources

- * Water Use and Water Rights in Nepal: Legal Perspective
Shantam S. Khadka (FREEDeAL)
- * Water Rights
Bharath Jairaj (CEL WWF - India)

Floor Discussion

1:00 - 2:30 LUNCH BREAK

2:30 - 5:00 **SESSION II:** **State, Policy and Rights**

Chairperson: Dr. Binayak Bhadra (CEDA)

Discussant: Dr. Ujjwal Pradhan (Ford Foundation)

* Inter-Sectoral Water Allocation and Competition: Nature of Emerging Stress in the Upper Bagmati Basin.
Ajaya Dixit (Nepal Water Conservation Foundation)

* Delhi's Groundwater: Rights and Policy
Bharath Jairaj (CEL WWF - India)

3:30 - 3:45 **TEA BREAK**

Discussant: Nasiruddin Ansari, Deputy Team Leader, ILC

* Laws, Rights and Equity: Implications of State Intervention in Farmer Managed Irrigation Systems.
Rajendra Pradhan (IIMI), K. Azharul Haq (IIMI) and Ujjwal Pradhan (Ford Foundation)

Floor Discussion

DAY 2: JANUARY 23

9:30 - 12:00 **SESSION III: Customary Laws and Rights**

Chairperson: Mr. Govinda Das Shrestha

Discussant: Prof. Franz von Benda-Beckmann, Dept. of Agrarian Law (WAU)

* Customary Water Rights in Current Water Resources Administration in Kumaon and Garhwal, Uttar Pradesh.
M.S. Vani, DCAP, India

* Customary Water Law of Lianghai Naga in West District of Manipur.
Liangsi Niumai, New Delhi

10:30 - 10:45 **TEA BREAK**

Discussant: Dr. K. Azharul Haq (IIMI)

* Local Law and Customary Practices in the Study of Water Rights
Prof. Franz von Benda-Beckmann (WUA), Dr. Keebet von Benda-Beckmann (EUR),
Dr. Joep Spiertz (WUA)

Floor Discussion

12:00 - 1:30

LUNCH BREAK

**THEME II:
RESOLUTION**

WATER RIGHTS: CONFLICT AND CONFLICT

1.30 - 3.15

SESSION IV: Conflicts In Irrigation Systems

Chairperson: M. M. Shrestha (DDG, DOI)

Discussant: Dr. Khem Raj Sharma, (Chief, RTDB, DOI)

- * Water Management, Conflict and Conflict Management: Water Rights in a Farmer-Managed Irrigation System in Tanahu
Durga K.C. and Rajendra Pradhan (IIMI)
- * Conflict as a Means of Acquiring and Protecting Water Rights: Case Study of Conflicts in Dang.
Mahesh Pradhan and Rajendra Pradhan (IIMI)

Floor Discussion

3:15 - 3:30

TEA BREAK

3.30 - 5:15

SESSION V: The Judicial Process

Chairperson: Hon'ble Justice Om Subedi, Appellate Court

Discussant: Ganesh Raj Sharma, Senior Advocate

- * The Court System in Nepal
Ram Chandra Bhattarai (FREEDEAL)
- * Water Related Cases in the Supreme Court (1980-1990)
Bishal Khanal (FREEDEAL)
- * Judicial Trends in Water **Law**: A Case Study
Veers Kaul Singh and Bharath Jairaj (CEL WWF- India)

Floor Discussion

DAY 3 : JANUARY 24

9:30 - 12:00 SESSION VI: Conflict Resolution Mechanisms

Chairperson: Prof. Kailash Nath Pyakuryal (T.U.)

Discussant: Dr. Jagdish Pokharel (CADR)

- * Fanners Managed Irrigation Systems and Dispute Resolution Practices in Nepal
- * Gehendra Malla and Shantam S. Khadka (FREEDEAL)
- * Formal and Informal Institutions for Arbitration on Water Right Issues: Cases from East Chitwan
A. Shukla, G. Shivakoti, N.R. Joshi (**IAAS**, Rampur)

10: 30 - 10: 45 TEA BREAK

Discussant Dr. Jagdish Pokhrel

246* Conflict Resolution in Natural Resources Management
Ruchi Pant, New Delhi

Floor Discussion

1230 - 1:30 LUNCH BREAK

1:30 - 3 3 SESSION VII: Panel Discussion

Topic: **The Significance of Water Rights Study for Water Resource Management**

Moderator: Dr. Ujjwal Pradhan, Ford Foundation

Speakers:

1. Mr. Chitra Deo Bhatta, National Planning Commission
2. Dr. Upendra Gautam, Consolidated Management Services
3. Mr. Bhuvanesh K. Pradhan, Consultant (ARMS)
4. Prof. Kailash Nath Pyakuryal, Dept. of Sociology and Anthropology, T.U.
5. Dr. Khem Raj Sharma, Research and Technology Development Branch, DoI
6. Mr. Govinda Das Shrestha, Consultant,
7. Dr. Joep Spiertz, Wageningen Agriculture University
8. M.S. Vani, Development Center for Alternative Policy

3:30 - 3:45 TEA Break

3:45 - 4:15 Closing Remarks:

Dr. Ujjwal Pradhao (Ford Foundation) & Dr K. A. Haq (IIMI/Nepal)
Vote of Thanks: Kanak Bikram Thapa (FREEDEAL)

ANNEXURE II

List of Participants

Participant	Institution\Organisation
Acharya, Anup Kumar	Water and Energy Commission
Ansari, Nasiruddin	Irrigation Line of Credit
Benda-Beckmann, F. von	Wageningen Agriculture University
Benda-Beckmann, K. von	Erasmus University
Bhadra, Binayak	Centre for Economic Development & Administration (CEDA)
Bhatta, Chitra Deo	National Planning Commission
Bhattarai, Damodar	Water and Energy Commission (WECS)
Bhattarai, Matrika	Legal Research and Development Forum (FREEDEAL)
Bhattarai, R.C.	FREEDEAL
Chapagain, Devendra	International Union for Conservation of Nature (IUCN)
Dhungana, Shamshu Pd.	NGO-Forum Nepal
Dixit, Ajaya	Nepal Water Conservation Foundation
Feeley, Jennifer	Cornell University-Nepal, Study Program
Gautam, Upendra	Consolidated Management Services
Gurung, B.B	CARE/Nepal

Haq, K. Azharul	International Irrigation Management Institute (IIMI) Nepal
Jairaj. Bharath	Center for Environmental Law, New Delhi
Joshi, Narayan R.	IAAS, Rampur
Joshi, Neeraj	IAAS, Rampur
Kandel, Krishna	Dept. of Sales, Tax & Excise, Lazimpat
Kaphle, Shanti	FREED DEAL
Kassenberg, Lex	ILO/DIDP Pokhara
Kayastha, R. L.	Ministry of Water Resources
K. C., Durga	IIMI-Nepal
K. C., Santosh	FREED DEAL
Khadga, Shantam S	FREED DEAL
Khanal, Bishal	FREED DEAL
Khatri. Rajendra K.	Ministry of Water Resources
Malla, Gehendra	FREED DEAL
Niumai, Liangsi	WWF-India
Pandey, Kumar	Butwal Power Company
Pant, Mahesh	GPO Box:7731 Kathmandu
Pant, Ruchi	WWF-India
Phuyal Hari	Pioneer Law Associates
Pokharel, Jagdish	Center for Alternative Dispute Resolution
Poudel, M.S.	Irrigation Line of Credit
Poudel, Madhav	Ministry of Law
Poudel. Rabi	IAAS, Rampur Campus

Poudel, S.N.	Department of Irrigation
Pradhan, Bhubanesh K.	Association for Research and Management Services (ARMS)
Pradhan, Mahesh	IIMI-Nepal
Pradhan, Naresh	Ministry of Agricultural (Planning Section)
Pradhan, Rajendra	IIMI-Nepal
Pradhan, Ujjwal	Ford Foundation, New Delhi
Pyakuryal, Kailash Nath	Dept. of Sociology and Anthropology, T.U.
Sainju, Mohan Man	Institute for Integrated Development Studies (IIDS)
Satyal, R.P.	System Management Branch, RTDB/DoI
Sharma, Durga Shankar	Irrigation Sector Project
Sharma, Khem Raj	Research and Technology Development Branch (DOI)
Sherchan, Sanjaya	IIDS
Shivakoti, Ganesh	IAAS, Rampur
Singh, Veera Kaul	WWF-India, Delhi
Shrestha, Anil	IIDS
Shrestha, Govinda Das	Development Associate Nepal
Shrestha, Kumod	Ministry of Forestry
Shrestha, Mahesh Man	Department of Irrigation
Shrestha, Narayan	IAAS, Rampur
Shrestha, Ramesh Bdr.	Agriculture Development Bank
Shrestha, Sangeeta	Irrigation Line of Credit (ILC)
Shrestha, Surendra Lal	National Planning Commission
Shukla, Ashutosh	IAAS, Rampur

Spiertz, Joep	Wageningen Agriculture University
Subedi, Om	Appelate Court, Patan
Thapa, Duman	United Mission to Nepal (UMN)
Thapa, Kanak Bikram	FREED DEAL
Thapa, Sita Maiya Singh	Faculty of Law, T.U.
Tuladhar, Sidhartha Man	NEW ERA
Upadhyaya, Surya Nath	Ministry of Population & Environment
Vaidya, Yadav Lal	Department of Irrigation
Vani, M. S.	Development Centre for Alternative Policies, Delhi