ROLE OF COGNITIVE SOCIAL CAPITAL IN SUSTAINABLE IRRIGATION MANAGEMENT: SOME OBSERVATIONS FROM WESTERN TARAI, NEPAL

Laya Prasad Uprety

Prelude
The specific objective of this paper is to analyze and discuss the role of panoply of cognitive or normative social capital for managing water for irrigation as a common property resource in a western Tarai village, Nepal. Such capital is also widely known as “social subjectivity” in the literature of contemporary development. Though the analysis and discussion of such cognitive or normative capital or social subjectivity have to be seen and considered in relation to the “structural social capital” (i.e organizational and institutional arrangements) because of their contributory role in yielding the synergistic impact (the sustained irrigation management), the scope of this paper is to analyze and discuss only the role of cognitive or normative social capital for the sustainable irrigation management. Based on the empirical data and observations, I argue that though “organizations” and “institutions” are the necessary conditions for the sustained management of irrigation, they are not the sufficient conditions. I further argue that the equal focus on the subjective variables would, to a large extent, trigger the sufficient conditions for the sustained irrigation management. Conversely, the non-inclusion of these cognitive or normative or subjective variables in the analysis of the sustained management of water for irrigation as a common property resource merely presents a fragmentary picture. More specifically, the post-Newtonian social science perspective has been tested in the specific context of data collected from the field about the social subjectivity or cognitive or normative capital and its role for sustainable irrigation management by being effortful for making the match or good linkage between the concepts of the theory and realities observed.

Epistemological Stance for the Analysis and Discussion of the Role of Cognitive or Normative Social Capital
In this paper, I have drawn the theoretical referents for my epistemological stance mainly from post-Newtonian social science perspective developed by Norman Uphoff (1996) embedded with the intention of analyzing the facts because it has amply demonstrated that these subjective dimensions are of paramount importance for the analysis of the sociological and cultural phenomena leading to the sustainable development of common property resources. Candidly admitting, the analysis and discussion in this paper, which have been heavily influenced by post-Newtonian theoretical
perspective of Norman Uphoff, do have closer affinity with the cognitive anthropology and phenomenology in sociology. Anthropologists have posited the strong opinion that the production of knowledge hinges on the adoption of the type of theoretical approach applied while undertaking a research endeavor. However, Milton (1997:477) notes that, “as in all disciplines, the knowledge produced by anthropology has been shaped by the theoretical approaches employed by its practitioners. These approaches have changed from time to time in response to developments in the wider field of social science...”. Therefore, the study of the role of cognitive or normative capital or social subjectivity in the sustainable irrigation management is very much related to the domain of anthropology and this is primarily so because the disciplinary principal units of analysis of anthropology ubiquitously comprise the facets of human cultures (such as the systems of shared beliefs, values, norms together with institutions) and human societies which are the groups of people bound together by the shared cultural traits.

Anthropology as an academic discipline has traditionally analyzed the cognitive dimensions of the local communities. Contextually, Milton (1997:484) states:

Anthropologists from around 1960 onwards became increasingly interested in understanding people’s own perceptions and interpretations of the world, partly in their own right, as diverse cultures, and partly because they form the appropriate context in which to analyze people’s actions and decision-making processes... Anthropologists who followed this route were more interested in what generates human activities (goals, motivations, assumptions, and beliefs), and in the social and cultural consequences of actions, than in their ecological impacts. Thus, the focus on people’s own conceptual models of the world created the field known as cognitive anthropology.

Unambiguously, cognitive anthropology focuses on the emic perspective on the communities’ actions/decision-making processes. Jary and Jary (1991) view that emic analyses stress the subjective meanings shared by a social group and culturally specific model of experience. Milton (1997) also notes that the aim of anthropology is not simply to describe human cultures, but to explain why they are as they are. The present paper also explores the rationale of the existence of cognitive or normative capital or social subjectivities that have their bearing on sustainable water management for irrigation as a common property resource. Although anthropologists began to look into the cognitive dimensions in their classical researches of the primitive tribal communities of the Third World, the contemporary
development anthropologists have largely ignored their value in most of their analyses of the participatory irrigation management.

Escobar (1997) distinguishes between development anthropology and anthropology of development. This distinction would, in the final analysis, be instrumental to prop up the anthropology of development vis-à-vis this research. According to Escobar, development anthropologists are those who favor an active engagement with development institutions on behalf of the poor with the aim of transforming development practice from within. People including himself belonging to anthropology of development prescribe a radical critique of, and distances from the development establishment and in so doing, he is of the view that anthropology, like the discourse of development, has also the western historical and epistemological dominance which is now critiqued. The early post-war development strategy emphasized on the replications of industrialization, urbanization, technification of agriculture and widespread adoption of the values and principles of modernity, including particular forms of order, rationality and individual orientation (achievement) in most of Asia, Africa and Latin America. The archaic and cultural values were considered as the impediments for development and emphasis was on their obliteration.

Escobar (1997) also asserts that given the fact that the theory and practice of development have been greatly shaped by neoclassical economists, earlier anthropologists labeled the development as "econocentric" and "technocentric". When there was the failure of top-down economically-oriented approaches, there was the realization for the revaluation of the cultural and social aspects of development in the early 1970s. It followed as a corollary that in mid-1970s, the development organizations began the consideration of the social and cultural factors in development activities and there was the emphasis on putting people first. Projects, which were socially relevant and culturally appropriate, were designed and there was direct involvement of the beneficiaries in the design and implementation. Anthropologists began working as cultural intermediaries (brokers) between the worlds of development and communities; collecting the local knowledge and point of view; placing local communities and projects in larger context of political economy; and viewing culture holistically. Thus, they made and have been making the anthropological contributions to the development processes. This is basically how the development anthropologists worked and have been working. But they did not and do not question the epistemological dominance of western conception of development and practice. People belonging to the anthropology of development have tried for the demystification of the western-centric conceptions of development by being based on post-structural and post-modern approaches (because there has always been the
dominance of western knowledge through the marginalization and disqualification of the non-western knowledge).

In fact, Escobar (1997) basically underscores the development processes rooted in the society’s history and culture of the Third World. And this paper also agrees with the Escobarian epistemological stance in the analysis, that is, indigenous development models in the regime of natural resources management cannot and must not be disqualified to pave the path for the dominance of western so-called “rational” development systems. Rather, these indigenous development models of the “Third World” countries backed by the subjective/normative/cognitive dimensions (together with structural variables) have now demonstrated the potentials (through empirical researches) that they are sustainable. By doing so, they have now helped the research scholars and development professionals to initiate and intensify the “development discourse” from the “Third World” countries also which has been singularly dominated to date. The ripe time has now arrived for overall reorientation of the mainstream international development thinking and in this regard, the action research for the participatory irrigation development conducted by Norman Uphoff in Sri Lanka, a Third World country, has been a milestone.

Uphoff (1996) holds the notion that there is the need to have the major reorientation of thinking for achieving the goal of participatory development because if we only focus on the mechanistic and deterministic ideas, the objectives of achieving economic and social objectives may be impeded. This demonstrates the need to reconsider the mental underpinnings of our actions. He basically discusses about the inextricability of the objective and subjective realms. He demonstrates the penchant for avoiding the propensities of social scientists who regard personal values as epiphenomenal as aberrations. His intention is to avoid reductionism as a dominating mode of thought in social science shaped by Newtonian concepts of mechanistic cause and effect. He adds that the post-Newtonian social science looks beyond reductionist thinking to tap the social energy to be found in collective action and non-material realities. The methods and assumptions of positivist social science do not do justice to values, ideas, and motive forces like human solidarity. Being convinced in the inspiring possibilities for the social and participatory development, he argues that the social subjectivities deserve more attention than received within reductionist frameworks for modeling our social universe.

Discussing the lacuna of previous theories of structural analysis for the sustainability of the development of irrigation, Uphoff (1996) further clarifies that he is not suggesting to abandon previous theories but only their reductionist claims to a monopoly of explanatory power. He also discusses that there is a need to analyze more qualitative dimensions of sociological and cultural phenomena and also proposes the need for recasting social
science. He is also of the opinion that the philosophical school that best formulates post-Newtonian thought is broadly known as “phenomenology”. Its motivating concern is to overcome the split between physicalist objectivism and transcendental subjectivism (Husserl, 1970, quoted in Uphoff, 1996, p.404). Uphoff is of the opinion that the world has to be analyzed as a field of possibilities.

In this paper, I would critique the development approach adopted and practiced in Nepal by Nepalese anthropologists through their focus only on objective (structural) variables (organization and institution-building) in the regime of participatory management of common property resources by discarding the subjective/cognitive variables embedded in the cultures of the resource appropriators or users.

Research Methods
Substantial amount of the necessary data used in this research have been collected by conducting the ethnographic fieldwork in the Sorah-Chhattis Mauja irrigation systems of Rupandehi district of Western Nepal. Traditionally, Mauja corresponds to a village in the Tarai. Fieldwork was conducted between February and July, 2003. Ethnographic method in this research involved the direct and participant observation and key informant interviews as the principal data-gathering tools. The informants selected for garnering in the qualitative information comprised all the 11 members of the joint management committee (for the mega-system), independent executive committees of both irrigation systems (i.e. 11 members of the Sorah and 15 of the Chhattis at the macro-level) and regional representatives/chairmen of the sample pocket locations (i.e. 3 from Sorah out of 6 and 3 from Chhattis out of 9 at the meso-level) and the chairman or Gaum Mukhiya (village chief) of each village-level irrigation committee from the nine sample locations of both systems (i.e. 3 in Sorah out of 30 and 6 in Chhattis out of 56). Hence, the total number of these informants comes to be 52. These informants also furnished a limited amount of quantitative information.

Research Sites
As indicated above, the command areas of Sorah and Chhattis Mauja indigenous irrigation systems located in the plains of Rupandehi district of western Tarai have been selected as the research sites. The Sorah and Chhattis Mauja irrigation systems have the command areas of about 1,500 and 3,500 hectares of land, respectively. These were originally constructed by the Tarai autochthonous Tharu people. Initially, the Sorah Mauja irrigation system served a total of 16 Maujas (villages) and Chhattis Mauja irrigation system served a total 36 Maujas (villages). But the command areas of both the irrigation systems later expanded-- a function of the population growth triggered by the Hill to Tarai migration particularly after 1960.
During the period of fieldwork, the Sorah Mauja irrigation system had a total of 30 Maujas under its command area. It was also reported by the key informants that a couple of years back, it had a total of 33 Maujas. Similarly, Chhattis Mauja had a total of 56 Maujas under its command area during the period of the fieldwork. Like in Sorah Mauja, it had a total of 62 Maujas a few years back. It is suffice to say here that the right to use the water for irrigation as a common property by water users of a particular Mauja is entirely dependent on whether or not they have contributed labor and financial resources to the repair and maintenance as well as operation of the irrigation systems every year. During the fieldwork period, a total of six Maujas from the Chhattis and three from Sorah have been selected as the sample sites for the in-depth study.

Despite the fact that both systems were originally developed in two different locations by the autochthonous Tharu people acquiring water from the same source (that is, Tianu river), they have been sharing water from a single mega-canal since 1964/65. Since then, the mega-canal has been jointly managed up to the point of bifurcation from where water has been divided between the two systems proportionately to the size of their respective command areas.

The command areas have had a mosaic of cultural and caste/ethnic diversity, particularly since 1960s, when the influx of hill migrants got its momentum. Despite the heterogeneity in the social structure of the beneficiary farmers of the command areas, both irrigation systems have been effectively functioning for a relatively long period of history and have become the often-cited references of the participatory and sustainable irrigation systems in Nepal.

Discussions
Discussion sections include the cultural dimensions, ideas, friendship, leadership, trust, and attitudes and their roles for the sustainability of indigenous irrigation systems.

Cultural Dimensions: An effort has been made to analyze the role of traditional social norms, values and beliefs promoting mutual co-operation, collaboration and obligation and their bearing on the social solidarity of water users. Pretty and Ward (2001) have asserted that norms and values in the society are very important cultural phenomena for the regulation of the behavior of its members. Norms are mutually agreed that place group interests above those of individuals. They give the individuals the confidence to invest in collective or group activities, knowing that others will do so too. Individuals can take responsibility and ensure their rights are not infringed. Generally, the norms and values also cement social relations of the members of society. There are norms of equity in sharing costs and benefits and
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participation as well as the values of co-operation and mutual assistance. They also emphasize on the relations of trust and reciprocity as well as norms as subjective factors. They emphasize that the social norms are an important part of the basis for sustainable livelihoods.

Anthropologically speaking, there has been no focus on the importance of altruistic value in the management of the mutually beneficial collective action in the regime of natural resources management. Of late, Uphoff (1996) has found the role of altruism in the sustainable management of irrigation resource in the Gal Oya irrigation system in Sri Lanka. In fact, he rejects such reductionistic interpretation of sociological phenomena and argues that normative orientation also explains the probability distribution in the behavior of the resource users that can contribute to ensuring the sustainability of the mutually beneficial collective action. Uphoff and Wijayaranta (2000) also explicate the demonstrated benefits from social capital (including that of normative social capital) and make the reference of “Pareto-optimality” in their analysis of the very importance of altruism. According to this concept, the total welfare is considered to be increased unambiguously if some or many persons can gain while nobody is made worse off than before”. They have made the reference of the Sinhalese giving water to the downstream Tamil farmers. By doing so, the total welfare of water users of the Gal Oya irrigation system of Sri Lanka increased – a synergistic function of the structural and normative social capital.

There can also be the centrality of the anthropological analysis of norms and values appertaining to the irrigation management particularly in the farmer-managed irrigation systems (FMISs). Coward (2004) states that FMISs are the quintessential local entities created and managed by farmers themselves or by villages which anthropologists have found to be socially closely-knit by the traditional culture. Given the fact that irrigation is both the physical and social commodity, the social dimension (relational) is predominantly influenced by the normative dimensions to govern the behavior of water users. And hence, the novelty of such analysis of the cultural norms and values is that it has the utilitarian values to uncover the knots and bolts of the inter- and intra-community cooperation/collaboration/mutuality impinging upon the collective action. The local institutional and organizational dimensions of the irrigation collective action can only be fully grasped in a socio-cultural context for harnessing them provided the normative dimension is also duly recognized.

The sample Maujas of both irrigation systems have heterogeneous social composition of water users—a function of hill to Terai migration. However, it has been revealed from key informants that there were only the autochthonous Tharu water users in both irrigation systems prior to 1940. The field aggregate data from both irrigation systems have shown that majority of water users are the Brahmins (60.9%) followed by Chhetris (13.4%), Tharus
(9.8%), Magars (9.6%), and others (6.2%) which comprise traditional low castes, Gurungs, Newars, Thakurs, Ahirs, etc (see Table 1 below). If the data are disaggregated by the irrigation systems, these caste/ethnic groups have similar distribution pattern with minor variations. However, the percentage of distribution of Magars and Tharus is slightly higher in the sample Maujas of Sorah (see Table 1).

### Table 1: Distribution of Water User Households by Caste/Ethnicity in the Sample Maujas of the Irrigation Systems

<table>
<thead>
<tr>
<th>Location</th>
<th>Sample Maujas</th>
<th>No. of Households of Caste/Ethnic Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Chhattis Mauja</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>Sample Maujas</td>
<td>No. of Households</td>
</tr>
<tr>
<td>Head</td>
<td>Naya Shankar Nagar</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Pashupati Tole</td>
<td>18</td>
</tr>
<tr>
<td>Middle</td>
<td>Tin Number</td>
<td>238</td>
</tr>
<tr>
<td></td>
<td>Pande Tole</td>
<td>30</td>
</tr>
<tr>
<td>Tail</td>
<td>Kumari</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>West Jamuha</td>
<td>37</td>
</tr>
<tr>
<td>Sub-total</td>
<td></td>
<td>367</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Sorah Mauja</th>
<th>No. of Households of Caste/Ethnic Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Sample Maujas</td>
</tr>
<tr>
<td>Head</td>
<td>Dinger Nagar</td>
</tr>
<tr>
<td>Middle</td>
<td>Anandaban Madhuban</td>
</tr>
<tr>
<td>Tail</td>
<td>Semari</td>
</tr>
<tr>
<td>Sub-total</td>
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</tr>
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Source: Field Survey, February-July, 2003

* Others comprise traditional low caste, Gurungs, Newars, Thakurs, Ahirs, etc.

Despite the heterogeneity of water users in terms of caste/ethnicity and cultural background in the sample locations of the command areas of both irrigation systems, they have the social norm of co-operation, which has been
handed down from one generation to the next. Each individual member of the heterogeneous community is socially expected to contribute to the numerous community development works such as irrigation canal construction and maintenance as well as improvement, construction of temples, public resting places, community trail construction and improvement, construction and improvement of the schools, etc, if he/she wants to stay in community with social respect/prestige. The rationale of offering a brief discussion on social norms and values is to demonstrate academically that the irrigation rule compliance has to be analyzed within the broader socio-cultural normative system of co-operation in a particular community of water users. In other words, irrigation rule compliance is not an exception. It is an example of how people collaborate in a community, which is basically governed by a myriad of cultural norms, values and beliefs.

The hill migrant Brahmins, Chhetris and other traditional occupational caste people have maintained a “norm of co-operation” like in their villages of origin in neighboring hill districts. Water users who do not co-operate in their social settings are publicly “ridiculed” and fellow water users do not lend helping hand for the “Parma” (labor exchange) during peak period of agricultural activities. They also have the traditional norm of helping one another during the period of social ceremonies (such as marriage, religious rituals, mortuary rites, etc.) by providing the materials needed (if they have) and also working (such as cooking food, distributing invitations, fetching firewood from the forest, showing hospitality to the guests, managing other necessary paraphernalia, etc.) to complete the social events.

Like caste groups, water users belonging to other migrant and authochthonous ethnic groups have also the traditional norms and values of co-operation. For instance, the migrant Magars have the traditional norms of co-operation through their time-honored informal socio-cultural institution called Bheja. Dhakal (1996) asserts that it is a strategic cultural convention, which regulates all the community functions, feasts, and festivals. It coordinates various rituals of the community and helps to establish and maintain the community. Each and every household of the cluster is supposed to be a member of the Bheja. It has a number of functions such as religious, agricultural, resource management, dispute resolution, integrative, and other community development works such as construction and repair of irrigation canals, roads, and trails.

The Gurungs had also a very strong social norm of co-operation in their villages of origin. For instance, they had a tradition of youth associations called Rodi. Messerschmidt (1976, pp. 49-66) has called it as an association of young people who used to work and have fun together—entertainment in the evenings (mostly singing and dancing) and during the daytime they used to form the nuclei of organized fieldwork parties. In fact, it is the economic, social, and ritual organization of the village people. The Gurungs had also a
system of social and cultural/religious celebrations (such as Dashain, Ghanto-Gurung dance drama organized on village, ethnic and clan bases used to be held each year). Each social/cultural ceremony used to involve members of the community in their villages of origin. Though the culture of having Rodi institution in the sample location has now disappeared (as a function of the inter-mixing of the diverse other migrant communities), they have largely retained their norm of co-operation in the social, economic and cultural aspects of their lives by helping one another in the communities of water users.

The local Tharus have the traditional norm of co-operation called “Sakhlalahara” (helping each other during the peak period of agricultural activities such as paddy transplantation and harvesting) and “Hari Hari” (help offered during the period of sorrowful event or hardship in a particular household). If such assistance is provided, the work is over in one-day time. The fellow farmers and their family members working in the farms under “Sakhlalahara” are provided Khaja (light daytime meal) and one full meal in the evening. However, all this depends on the economic status of the households.

Among the Tharus, there has been the communal norm to help each other for building and repairing houses (mainly the roofing). Likewise, communal labor is also used for constructing community temples/shrines. During the social ceremonies (such as marriage and death rituals), there has been a social norm to help each other. For instance, during marriage ceremonies, the neighbors help for the distribution of invitations, doing necessary preparatory household chores, bringing a bundle of faggot from forest, helping to offer the hospitality to the guests, etc. Analogously, “Hari Harai” is basically a system of reciprocity of support during the period of hardship. The nature of support could be of any type depending upon the need of household. Sharing the similar empirical observations in the culture of the Tharus of Dang district of western Nepal and also referring to the work of Rajurea (1984), Krauskoff (1999, p.53) writes that, “Sakhlaara is an assistance, voluntary help provided by the villagers to common villagers having no authority. Rajurea (Drone) insists on the sense of assistance and moral notion of Dharam (religion) to assist a fellow villager in need…” In fact, the local communal labor emphasizes the strong village unity among the Tharus. But gradual modernization has the energizing effect on the traditional communal assistance. A Tharu Badghar (headman), who is also the water user in the middle sample Mauja of Chhaits, shared the implication of their traditional norms and values of their co-operation on irrigation management. He remarked:

Our Tharu society has survived for long because we have the traditional norm and value of supporting each other during the critical period. Given the fact that we are small subsistence
farmers, hiring the laborers for our agricultural operations is almost inconceivable. In my view, our traditional norm and value of co-operation/reciprocity has its direct bearing on the irrigation management. Given the fact that we always work in co-operation for our survival, we have traditionally taken irrigation management also as a form of co-operative endeavor which is done for the sustained livelihood of the community people. For us, irrigation is not only such thing which requires co-operation and what is important for us is the existence of traditional culture that underscores community co-operation in every social, cultural and economic aspect of our lives.

A few Newar farmers have had the experience of tradition of “Guthi” system- an informal institution of co-operation but the Newars’ Guthiyars (members of the Guthis) are far away—a function of migration from the villages of origin. As a matter of fact, these few Newar households have already established good relationships with the locals for the community co-operation. Thus, the ethnic groups have the predominance of the “communitarian feeling” which, in fact, pushes them towards making their attitude more co-operative.

Key informants have also revealed that water users make “donations” of cash for the construction of public places such as temples (which have been used as public gathering places of late) and school buildings. A few have also contributed furniture to the schools with the anticipation of earning high “social reputation”. By and large, water users have a norm to work for the social service despite the fact that there are no material incentives for it.

Key informants have revealed that water users belonging to different caste and ethnic backgrounds have been socialized to help people/households in neighborhood in times of their existential crises with the anticipation of earning the “Punya”, meaning “merit”. The community of water users does have traditional altruistic value that attaches the welfare of other people who are generally less fortunate or have had less equitable distribution of benefits. For instance, migrant water users belonging to Brahmin and Chhettri communities have the altruistic social value in their culture. They have a saying that “Sewa nai param dharma ho” (social service is the principal duty). Explicit is the recognition that the social service helps to earn ‘Punya’. Traditionally, they do not calculate the material benefits from the social service. So do other migrant and indigenous ethnic groups—a function of a strong sense of communitarianism.

The traditional social norms and values have also the implications on water resource management. In the case of irrigation, if a water user does not co-operate for the larger common interest, that is, repair and maintenance and operation of the systems, he/she is, of course, fined as per the operational
rule. If he/she does not comply with the operational penalty rule, he/she is deprived of the irrigation facility and is also publicly ridiculed and at the worst case, is socially ostracized. Explicit is the recognition that the social norm of the community of water users requires everyone to work for the larger community interest/welfare and irrigation is one of these spheres. In fact, these norms have also encouraged/inspired/guided/led water users to work for sustained management of irrigation systems for collective benefits. It is understood that the systems cannot be managed without community cooperation.

Given the fact that the livelihood of water users hinges on the sustained irrigation with the collective support, the self-centered propensities are publicly ridiculed. For instance, in Shankhar Nagar Mauja of Chhattis, a water user proposed to divide the existing Mauja into two thinking that it would help him to get more water, but other resisted it by ridiculing and warning him for the possible expulsion from the system if such behavior is demonstrated again. In fact, the co-users held the notion that division does not solve the problem of equitable distribution of benefits; rather it weakens their unity for working to gain the equity of benefits. This view is the function of their experience of their united fight in the past for the water right to the newly settled Maujas (the old Maujas in both systems resisted for not giving water rights to new Maujas with their stand that water would be inadequate for them). Water users have an understanding that the united fight for water right was feasible because of their traditional culture of working in a co-operative way.

In the local context, water users not only think of their own benefits accrued from the irrigation but also of other fellow-water users’ needs and therefore, they largely comply with the operational norms of water distribution and do not generally use water at the cost of others. People are aware of the common property nature of irrigation water and it can only be made available to use in croplands through collective contribution to the operation and maintenance of the irrigation systems. If any water user does not comply with the rules of labor/cash contribution, his motive is questioned and can be excused only on the basis of reasonable explanation. There is no toleration of any community irrigation rule infraction by the mass. The mass also discourages or penalizes the self-interest maximizing individuals. The traditional social value (i.e. work for the community welfare) helps maintain the balance between the self-interest and interest of others.

Farmers have demonstrated the altruistic practice in sample locations of both irrigation systems. For example, when water user’s own paddy seed has germinated in the nursery bed and has still his/her rotational turn for water use, he/she gives the turn to another user whose seed has not germinated and is in dire need of water. Generally, one has to irrigate the land in his/her own rotational turn but often water users also consider the problem of fellow-
water users of the neighborhood if their need is more urgent. Sometimes, a water user whose need of irrigation is not that urgent (may be the soil has retained water and is still full of moisture) gives water to other user in his/her rotational schedule whose paddy nursery bed is destroyed by the scorching sun or whose paddy seedlings transplanted are dying due to the inadequacy of water. However, farmers also revealed that water users do not give water to others at their own cost.

In fact, the altruistic value inspires water users (who need water badly at times) to contribute regularly to the systemic maintenance because they feel that they are not getting worse (a sense of relatively fair distribution of benefits even at times of dire need). It also keeps water users socially united, which has its positive bearing on the collective management of the irrigation systems. Thus, we cannot articulate that individuals are only self-maximizing all the times. The altruistic social value has, in one way or another, helped to maintain irrigation systems for ensuring social equity of benefits.

Closely associated with the altruistic value is the traditional belief of community of water users on the equity of benefit sharing in the regime of common property resources management. The belief in equitable benefit sharing has been the inducement to water users to work collectively for the irrigation management. In this regard, Uphoff (1996, p.876) writes, "Beliefs in fairness creates and maintains an environment in which mutually beneficial collective action becomes expected and those more likely..."

Given the fact that the effort of an individual or a group of individuals cannot acquire water from the river, the larger social collectivity has to make a united effort (a form of social solidarity) to make colossal amount of labor/cash contribution to make the irrigation systems operational. Water users have a "we-feeling" in each Mauja and in each system which has helped to manage the irrigation systems efficiently in their respective command areas through timely mobilization of internal labor and cash resources for repair and maintenance as well as improvement which is largely guided by their beliefs in the fair distribution of benefits between and among themselves.

**Ideas:** Ideas or ideals or principles, being the cognitive dimensions, have the potential of impacting upon the sustainability of the management of common property resources. Uphoff (1996) states that ideas evoke principles of choice and action transcending narrow individualism, which might be the potent force in social relations because things by themselves unrepresented by ideas, lack value. He further shares that ideals are a special kind of idea, expressing values of community welfare and common interest. In fact, ideals are positive-sum, being ideas that have as their object some collective interest or common good. Ideas shape material reality in many ways, just as
the material realm influences them. For him, ideas are sources of social energy.

Idea has also the tremendous impact on the sustained management of irrigation systems. In this section of the paper, an attempt has been made to analyze how water users belonging to different mainstream political parties backed by particular idea or political ideology have played a neutral role in the organizations for the sustainability of irrigation management. Given the fact that there is no other source of water for irrigation and water users have to depend on these irrigation systems solely for the subsistence/livelihood, they do not want party-bound politics to be played within their organizations. In a democratic environment, water users definitely have an informal culture of preparing a panel of candidates along the party lines/ideologies during the period of election for the Mauja level and regional level committee structures and system level executive committees. For instance, for the last 14 years, the system level executive committee of Chhatis Mauja irrigation system had a total of 100 functionaries/members elected to it. Out of 100, 58 percent functionaries/members had been close to Communist Party of Nepal-United Marxist and Leninist (CPN-UML) followed by 29 percent to Nepali Congress (NC). An insignificant number had also been selected from Rastriya Prajatantrik Party (RPP) and the United Front (UF) (see Table 2).

Interestingly, barring an exception to the 2003 election, the CPN-UML has gained majority in all the past elections of Chhatis Mauja. In 2003, a dramatic electoral event took place. Informants revealed that like in the past, there was stiff competition for the position of the chairman between UML and NC stalwarts (who had been the chairmen for a couple of tenures in the past). But being antagonized by their ever-present competitiveness for the top leadership of the irrigation organization, the representatives of different Maujas and local opinion leaders proposed emphatically that it would be better if they could elect someone as the chairman not belonging to NC or UML. And eventually, the majority of the electorate seconded this proposal and the chairmanship went consensually (despite the short-lived grudging position of NC and UML stalwarts) to an elderly water user belonging to RPP- a party which has only very few adherents and cadres in the command area of both systems after 1990. Then, the secretary was consensually selected from NC. Thus, not a single influential position of the functionary was bagged by CPN-UML in 2003 election for the system level executive committee. NC captured the majority of seats of the functionaries/members in an unprecedented way. In the dramatic turn, when the influential positions could not be grabbed by CPN-UML, it did not show any interest for other positions of lesser importance. Definitely, there was politics of NC which succeeded in convincing the electorate clandestinely to muster the support for its majority of candidates in the executive committee. But all this has had no negative bearing on the management of the irrigation system. Every water
user, irrespective of his political affiliation or ideological leaning, is contributing the labor/cash to the repair and maintenance of irrigation system and is complying with the irrigation rules. Even the aspirant of the position of the chairman from CPN-UML has been fully and whole-heartedly supportive to the new leadership and has always been extending his helping hand to it. The leadership that has been selected has also not played any partisan politics within the organization. The only intention of the new leadership, like that in the past, is to contribute to the irrigation system selflessly for its efficient functioning with the support of the leaders/staff of all levels of organizational nested enterprises.

Table 2: Distribution of the Functionaries/Members of the Executive Committee of Chhattis Mauja Irrigation Systems Along the Political Party Lines by Years

<table>
<thead>
<tr>
<th>Year</th>
<th>Members from</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NC</td>
<td>CPN-UML</td>
<td>UF</td>
<td>RRP/N</td>
</tr>
<tr>
<td>1991/92</td>
<td>3</td>
<td>9</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1993/94</td>
<td>2</td>
<td>9</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1995/96</td>
<td>2</td>
<td>9</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>1997/98</td>
<td>4</td>
<td>10</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1999/2000</td>
<td>4</td>
<td>9</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2001/2002</td>
<td>4</td>
<td>9</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2003-2004</td>
<td>10</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>58</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

Source: Field Survey, February-July, 2003

Note: NC=Nepali Congress, CPN-UML=Communist Party of Nepal-United Marxist and Leninist, UF= United Front, RPP=Rastriya Prajatantrik Party and N= Neutral

Similarly, for the last 14 years, a total of 75 functionaries/members had been elected to the system level executive committee of Sorah Mauja of which 32 (42.6%) had the political party affiliation with the CPN-UML followed by 28 (37.3%) belonging to NC and 11 (14.6%) to UF. However, an insignificant number (i.e. 5.3%) had also the affiliation to the RPP /neutral position (see Table 3). If the data are longitudinally analyzed, NC had captured majority of the seats in the system level executive committee in the election of early 1990s but CPN-UML began capturing the generality of seats from the beginning of 2001. Like in Chhattis Mauja, the functioning of the Sorah Mauja irrigation has remained unaffected despite the change of leadership in terms of political party affiliation or ideologicalleanings.
Finally, during the past 14 years, the system level executive committees of both irrigation systems nominated a total of 88 functionaries/members to the Sorah-Chhattis joint management committee. The data demonstrate that out of 88 functionaries/members, 46 (52.3%) had their political affiliation to CPN-UML followed by 32 (36.4%) to NC. However, a sizeable number (i.e. 9%) had also been neutral (see Table 4). Though the political nature of the composition of joint management committee also hinges on which major mainstream political party captures most seats in the election to the system level executive committees, it has not always been the case. For example, the executive committee of Chhattis Mauja had been dominated by the persons for many years having political party affiliation with CPN-UML but there was the numerical dominance of NC in the joint management committee during the period between 1991 and 1993. This suggests the fact that both executive committees nominate the representatives by considering their potentials to contribute to pull the external resources badly needed for repair and maintenance and improvement of the headwork and jointly operated section of the main canal. The data also reveal that the persons having political affiliation with CPN-UML have had the numerical dominance in the joint management committee since 1994 but a NC stalwart (who worked as the Chairman of the VDC and has also been working in the sector of social service) has been unanimously selected as the chairman. He was selected in 1992, 1999, and 2001.The factors for his selection were: commitment to better management of the irrigation system, transparent and accountable behavior, non-partisan dealing of all the organizational issues, and social connections at the central government for mobilizing the governmental resources. With respect to the social connections, he is the NC stalwart and a
seasoned local level politician. There was NC in power at the center for most of the post-1990 era. There was general anticipation among the functionaries/members that he would use his NC connection to influence the central government for mobilizing the governmental resources. This is indicative of the fact that though partisan politics is eschewed within the organization, political connections have been sometimes used as the social capital (softer aspects of software) for the irrigation systemic improvement by pulling the resources (whenever and wherever possible) through request or persuasion.

Table 4: Distribution of the Functionaries/Members of the Executive Committee of Sorah-Chhattis Joint Management Committee by Years

<table>
<thead>
<tr>
<th>Year</th>
<th>Members from</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NC</td>
</tr>
<tr>
<td>1989-90 (for two years)</td>
<td>7</td>
</tr>
<tr>
<td>1991 (for one year)</td>
<td>4</td>
</tr>
<tr>
<td>1992 (for one year)</td>
<td>7</td>
</tr>
<tr>
<td>1993 (for one year)</td>
<td>5</td>
</tr>
<tr>
<td>1994 (for two years)</td>
<td>1</td>
</tr>
<tr>
<td>1997 (for two years)</td>
<td>2</td>
</tr>
<tr>
<td>1999 (for two years)</td>
<td>3</td>
</tr>
<tr>
<td>2001 (for two years)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>32</td>
</tr>
</tbody>
</table>

Source: Field Survey, February-July, 2003

- Members inclined towards the political parties after the resurgence of multi-party system in 1990 even though they were elected a little earlier.

Based on the above data, it can safely be concluded that in both irrigation systems, partisan politics largely influences the electoral process but once the election is over, the elected leadership works whole-heartedly by jettisoning the partisan politics within the organization for the effective functioning of the irrigation systems and thereby ensures sustained management for the equitable distribution of irrigation benefits among water users. If the elected leadership is partial in its role performance and diametrically fails to ensure benefits among water users, it is rejected in the next election. Giving the personal perception about the possible negative effects of the party politics within the irrigation organization, an elderly literate migrant woman water user of Chhattis from the head sample Mauja remarked:

The function of the committees at all levels is to assist water users for the regular irrigation in their farmlands, not to play the party or personal politics. They can play their personal or party politics outside the organization. For me, functionaries of the committees
must work to organize all water users and co-ordinate their tasks/activities for the better and effective irrigation management which has ultimately its bearing on the rise of the household income through the increase of the farm yields. And all this is possible in our irrigation system because the functionaries do not generally play their party or personal politics after their election to the organization so that every water user supports their organizational activities for the irrigation management. Had they played the party politics within the organization, it would have been ineffectual by now and the system would have been on the verge of its collapse.

It is revealed that water users have also been effortful to make their organizations apolitical based on the “social learning process”. They admitted that in the beginning of 1990s when the practice of multi-party politics began at the grassroots level, it had some influence in the internal working pattern of the organizations. This was primarily so because the panel mustering bigger support and thereby bagging more seats in the executive committees demonstrated a propensity of a real winner and it followed as a corollary that the panel with fewer seats was minimally involved in the decision-making and managerial activities. The defeated panel was found relatively despondent and slothful throughout the year albeit they fulfilled their constitutional obligations perfunctorily (by attending meetings and discharging the assigned duty if any). For instance, the NC winners of the executive committee of Sorah Mauja neither gave due recognition to other party members nor encouraged them in the overall decision-making and governance process. The CPN-UML winners of the executive committee of Chhattis Mauja did the same thing. By and large, winners and losers along with common water users of both systems began to realize that the exclusionary tendency in the democratic decision-making and governance process would be detrimental to the sustained management of the irrigation systems (because the despondency and slothfulness of the defeated panel and their minimal involvement in the governance process as planned by the winner were the bad omen of the initial days). This timely realization was laudable because they thought that only the inclusionary approach would contribute to sustain the organizations by discouraging the fissiparous tendencies.

Based on the “social learning”, they have tried to make the organization apolitical in the sense that party politics may work to create social rift among water users which, in turn, can work as the impediment for the promotion of community interest such as the collective contribution to irrigation management. Water users have a uniform understanding that politicization leads to the spoil of irrigation systems and have a strong conviction that water has “no color/creed”. They have evolved a system that all water users of the
command areas should get united to manage irrigation systems irrespective of the affiliation with a political party or adherence to a particular political ideology. There is no ethnic chauvinism to stir communal feelings within organizations. But organizations have the political agenda, that is, empowerment of the community of water users by involving them in the decision-making, implementation, and monitoring processes for the management of the irrigation system to ensure the equitable benefits to the community.

Generally, water users of both irrigation systems belonging to different socio-economic standing have agreed to the general principle (because of their relative oldness in the existence and operation), that is, "every right holder (high or low) should have access to water for the livelihood and survival". Uphoff (1996) had also found similar operational principle among water users of Gal Oya in Sri Lanka. He found that improving the situation of the disadvantaged had very high legitimacy—nobody could speak against it.

Friendship: Friendship is a strong cognitive/normative social capital that has the potential to contribute to better functioning of irrigation systems. Social scientists working in the field of participatory and sustainable development have also begun to look at the contributory role of friendship factor in sustainable development. Uphoff (1996) considers friendship as a positive-sum relationship because it leads people to mutually value each other's welfare. In fact, friendship is better understood as solidarity. The positive-sum relationships among friends are called the "interdependence of utility functions". Friendship provides the strong bonds of mutual appreciation and support and the climate of mutual acceptance and assistance, which contributes to the emergence of co-operation and energization among the community people. For Uphoff, the social solidarity represents a generalized expression of friendship extended towards others.

As elsewhere in the peasant communities of Nepal, the traditional form of friendship is the ubiquitous sociological phenomenon in the communities of water users of Sorah-Chattis Mauja irrigation systems. Friendship—a form of dyadic relationship— in the study areas can be categorized into two forms, namely, Sathibhai—dyadic relationship with the acquaintances and ordinary friends and the Miteri-fictive kin ties (see Messerschmidt, 1982). The former is predominant form of social relationship than the latter. However, the fictive kin ties are no less important in a multi-caste and multi-ethnic society of water users in maintaining social cohesion or integration.

Many of the migrant water users in different Maujas were friends and acquaintances in their villages of origin in the neighboring hill districts and their friendship has continued hitherto in the villages of destination. Similarly, there is no less importance of friends and acquaintances among indigenous Tharu water users. Such ordinary friendship has generally been
based on a number of important variables such as caste/ethnicity, class, sex, age, geographic location, similarity in the ideological orientations, political party affiliations, etc. Though such friendship predominantly exists between and among people of similar caste/ethnic background, it also transcends the boundary of caste/ethnicity. For instance, a Tharu youth has the friendship with the migrant Magar or a Chhetri and vice versa.

Generally, friendship is initiated and maintained among people belonging to similar social class status and same sex. But in isolated cases, water users of different economic standing can also have some sort of friendship. Likewise, water users living in the same geographical location or in a Mauja and its vicinity have also more friendship. However, there is also some degree of friendship between and among water users of head, middle and tail-end locations and between and among users of two irrigation systems. Analogously, there is also the friendship between and among leaders of head, middle and tail-end locations of one irrigation system and between and among leaders of executive committees of two irrigation systems. No doubt, the number of friends of each water user depends on his/her gregarious nature.

In the past, some of the influential hill migrants living in the command Maujas had good friendship, which contributed to expand the command area of irrigation systems in the reclaimed areas, improving the irrigation systems and managing them effectively by electing the accountable leadership. Some of the water users, being friends in the villages of origin, have bought the land together and settled together. The importance of friendship has further been enhanced in the new social settings. And capitalizing the old friendship, some water users have even established the affinal relationship. Some of the migrants had been together in India as friends where they worked as the laborers and later came back to Nepal and bought land together. Some of the migrant water users were the classmates in the villages of origin. The friendship as the dyadic relationship is also ubiquitous among the Tharu water users. The Tharu Jimidars/Chaudhars (local land revenue collection functionaries before 1964) of different Maujas had also strong bond of friendship, which contributed to the better management of the irrigation systems through regular consultations and constructive agreements for improving the irrigation systems and managing them effectively and sustainably.

Friendship is not only confined among adult male water users but also among the adolescents of both sexes and adult female water users. There is friendship between and among leaders of the main committee, regional committee structures and Mauja level committees in both irrigation systems. Though partisan politics is not played within organizations after election, friendship has also developed along the line of similar ideological orientations and political party affiliations during the last 14 years after the
resurgence of multiparty democracy in 1990. In isolated cases, people having different ideological orientations and party affiliations can also have the friendship and hold positive attitude towards each other. Thus, each water user has a few friends, be they in the same Maujā or different ones in command areas. Generally, friendship is based on mutual trust and reciprocity. If the friendship is established for the vested interest, it exists ephemerally. Conclusively, there is inter-systemic, inter-Maujā and intra-Maujā friendship between and among water users, which is based on mutual interest/reciprocity, trust and empathy.

To a lesser extent, there is also the existence of “fictive kin ties”. According to Messerschmidt (1982), these ties have been variously called such as “forms of ritual” or “fictive bonded kinship” or “ritual brotherhood” or “artificial brotherhood/sisterhood” or “ceremonial friendship” or “fictitious brotherhood” or “ritualized friendship” in the literature of anthropology. Messerschmidt considers these fictive kin ties as the pan-Nepalese institutions, which are made and maintained with some ones outside one’s own clans or caste/ethnicity. These ties are made between persons of the same sex.

Following Messerschmidt (1982), I argue that both the ordinary friendship called Sathibhai, in the local parlance and the ritualized friendship called Miteri by the hill migrants and Mita by the indigenous Tharus have two reasons for their existence, namely, instrumental and affective. Instrumental reasons are basically the practical ones and affective reasons incorporate the dimensions of emotional attachment. Helping one another financially and materially during the period of dire need to resolve the existential crises of households and supporting one another in the celebration of social ceremonies fall within the domain of instrumental reasons. They comprise social norm of reciprocity and pragmatic calculation of net utility. The affective bonds comprise the emotional support (sympathy) during the period of happiness and sorrow of each other’s lives and empathy as well as trust. For example, an elderly Tharu key informant, highlighting the significance of fictive kinship, remarked:

My Mita culture transcends my ethnic boundary. I believe that the problems faced by my Mita are also my problems. My Mita is expected not to be dishonest in mutual dealing and we are mutually supportive to each other during the time of hardship.

The reason of introducing the “friendship” variable in the present study is for investigating its implications on the sustainable irrigation management. Friendship of both types is the integrative and cohesive social force because a sense of mutual obligation and shared social, ritual and economic commitments is inherent in it. Breaking the bonds of friendship whether ordinary or ritualized is generally inconceivable in predominantly peasant
societies because these are founded on trust, which are built over a relatively long span of time.

Ubiquitous is the fact that rule compliance for irrigation system operation and maintenance, resource mobilization, and water distribution by water users is the necessary pre-condition for the sustained irrigation management and for materializing it. The friendship factor among water users of both irrigation systems has exerted moral pressure on them to follow the institutions - the rules-in-use. It has helped them to be united for the mutually beneficial collective actions mainly for contributing the financial, material, and labor resources to the systemic operation, repair and maintenance, resource mobilization and equitable water distribution by offering the positive advice/suggestion and persuading water users to comply with the institutions who demonstrate the propensity for their non-compliance. More specifically, if any water user does not comply with the rules-in-use to maximize his/her benefits, his friends knowledgeable of the situation exert social/moral pressure for the immediate compliance and offer him the advice for not repeating the same mistake in future. Given the fact that there are rules to be complied with by water users, failing to comply automatically results in the deprivation of irrigation facilities. Apropos of the moral pressure from the friends for rule compliance, an elderly key informant from the tail-end sample location of Chhattis Mauja aptly remarked:

If any water user breaks the rules, it spreads like the wind in the Mauja and sometimes in the whole of the command area. Then, the friends who are the well-wishers of the person responsible for the rule infraction feel moral obligation to persuade him/ her for not doing it and not repeating it. Generally, friendly suggestions are accepted and this has happened several times in our Mauja.

Water users have the uniform understanding as well as perception that the rule compliance and bringing the social order have also been influenced to some extent by the social solidarity-the generalized expression of friendship. They argue that the influence of friendship always helps to come to the negotiating table to sort out the problems for the larger benefit of all water users. During the time of fieldwork in 2003, the chairman of the executive committee of Sorah Mauja, highlighting the significance of friendship factor, remarked:

I have special sort of friendship with the ex-chairman of Chhattis Mauja who is very influential both in the community of water users of the command areas and the government as well as civil society sectors. We also belong to same political party and have the experience of running the local governments. Therefore, if any major problem arises in the joint management of two irrigation systems, we can easily sort out amicable solutions by building the consensus in both sides.
It can be concluded that friendship has not only functioned to promote individual benefits but also contributed to transform social relations for holding water users together. Friendship has a role for sustaining the mutually beneficial collective action and therefore, rule compliance cannot be analyzed by disembedding from the larger social context. Rational water users, while maximizing their individual interests, are always mindful of the influence of friendship as an important sociological factor—a dyadic cohesive relationship.

**Leadership:** Leadership has an important role in sustaining the collective action in the communities of water users. In the contemporary world of participatory development, there has been an increasing emphasis on the facilitative (against the bureaucratic) leadership, which has to have commitment to lead the communities for their sustained development efforts. Church (2002), in her action research of the networks of organizations, has also focused on the facilitative and shared leadership. She argues that leadership helps participation happen in the communities and also builds the relationships with the different social groups. The leadership plays an instrumental role in acknowledging the primacy of the relationships among different groups within the communities. Leaders with empowering attitudes can break people’s exclusions in the communities and encourage participation (which is democratizing by enabling members to contribute to and participate in the decision-making processes). There is always a need of facilitative leadership that emphasizes on the quality of inputs (co-operation in their contribution as well as creating an ambience to solicit suggestions/ideas to run the organizations effectively and efficiently) rather than the mere control in the governance of communities. In addition to it, community leaders have to be dynamic, good in interpersonal relationships, creative, responsive, transparent, accountable, flexible and innovative.

Leaders who are capable of defining the organizational vision and articulating the goals, generating consensus among member water users, understanding the dynamics of conflict and transforming relations between and among water users, and promoting regular participatory monitoring can substantially contribute to galvanize water users for the irrigation management. Based on the observations made on the leadership factor and its role in transforming the Gal Oya in Sri Lanka into the relatively equitable and sustainable irrigation system, Uphoff (1996) argues that leaders manipulate many other resources—funds, force, status, and the like but it is often forgotten that they especially produce and exchange ideas, like “water has no color” (implying that politics should be kept out of irrigation management).

Generally, the people in the leadership positions in the organizations of both irrigation systems are relatively experienced and socially reputed. Often, the chairmen of the joint management committees and executive committees
of both irrigation systems have the experience of running the local
governments/co-operative movements and other community development
and social works and hence, command the respect considerably from the
fellow water users. Barring a few exceptions, leaders' articulations/decisions
generally make water users to comply with the irrigation rules/regulations. At
times, they also coax and cajole water users into complying operational
rules/norms, if need be. The leadership supported by committed staff has
hitherto worked to inspire the community of water users with the powerful
message that "the internal resource mobilization is the only factor that can
keep the systems functioning". Conversely, they give the explicit message
that "organizational inability for the mobilization of internal financial
resources and labor for the repair and maintenance of the irrigation systems
results in their doomsdays". Such positional statements of the leaders
definitely help to underscore the very importance of the potential role of
water users.

The leaders try to remind water users' representatives formally during the
general meetings and general assemblies about the importance of norms of
internal resource mobilization. They also do the same informally with general
water users whenever they meet. Thus, whoever lead the systems are
institutionally effortful for motivating water users. As a consequence, the
internal resource mobilization has no problems. Mobilization of the laborers
and collection of annual irrigation service fee and fines for absentees is
possible in both irrigation systems due to the commitment of the leaders to
enforce rules stringently (that is, immediate imposing of fines for the
non-compliance and eventual deprivation of water rights).

Analogously, it is generally the reputation of leaders of the joint
management committee and the system level executive committees earned
locally, regionally and nationally based on their relatively good performance
for sustaining the irrigation systems that has helped them to receive the
resources (material, technical and financial) from the governmental and non-
governmental organizations for repair and maintenance as well as
improvement of headwork and jointly-managed section of the canal. The
accountability of leaders to the community of water users has also been a
motivating factor for them to contribute to manage the systems. Generally,
the personal factor of leaders has been a motivating factor for the
mobilization of resources because they have given the impression that they
do not practice nepotism/favoritism/cronyism while treating fellow water
users vis-à-vis resource mobilization and water distribution. They function
only as per the mandate of the general meeting/general assembly. They
justify actions for the larger interest of the community and failing to do so
would penalize them in the next election. Generally, the neutral and impartial
leaders have earned the trust from fellow water users. Therefore, water users
have a general perception that their leaders have been maintaining the unity
amongst themselves by working for the larger collective interests with the adoption of neutral as well as non-partisan approach at all the nested enterprises. And impartiality is always looked for and the command of the partial leaders is never taken care of.

As indicated above, water users comply with the organizational norms if leaders are fully accountable and transparent to the communities of water users. Therefore, if a water user does not comply with the norms, leaders can ask him to do so or face the eventual deprivation. Generally, the system level and Mauja level leaders who have the minute knowledge of the structural and operational aspects of irrigation systems are very much respected by the community of water users and they are found to have influence on water users to comply with the rules. In some isolated cases, the ethnicity-based leadership factor also inspires water users to comply with irrigation norms. For instance, the predominant Tharus of the tail-end location of Chhattis Mauja generally comply with their Tharu local leaders' order/request who have assumed the leadership at the Mauja level committee.

Non-transparent leaders who have a propensity to fiddle and fudge are immediately dismissed. For instance, a treasurer of a sample Mauja (Naya Shanker Nagar of Chhattis Mauja) was about to be dismissed on grounds of financial impropriety during the period of fieldwork in the first quarter of 2003. Likewise, leaders seen incapable of mobilizing the resources are also dismissed. For instance, the Muktiyar (village level chief of the canal) of a sample Mauja (i.e Pashupati Tole of Chhattis Mauja) could not collect the Kharas (fines) in the year preceding the fieldwork (in 2002) and was dismissed by the general assembly on the ground of incompetence and replaced by another. The leaders of all the nested enterprises also work for bringing the disputing parties to the negotiating table who are generally uncompromising and help them to settle disputes through mediation (by hearing the grievances) responsibly which enhances their credibility among water users.

Besides the elected leaders at the system level, the Meth Muktiyar (chief appointed official to oversee the canal operations) of joint management committee and system level Meth Muktiyars also play the facilitative role to help leaders to fulfill their roles by asking water users about the difficulties they have faced in the course of the implementation of the organizational decisions. For instance, if there is a problem in the rotational water distribution on hourly basis for a particular Mauja, they can facilitate discussion among water users to solicit their opinions and suggestions in the local mass meetings (where the problems are seen more) and communicate the feedback to the elected leadership for the decision-making. Similarly, the Meth Muktiyar of joint management committee can also facilitate the discussions of water users of both irrigation systems in the field where they have faced any major difficulty in the process of labor mobilization for the
repair and maintenance of headwork and jointly-operated canal system and subsequently, communicate the feedback of water users to the committee leadership for immediate decision-making. Together with the leaders, they also make water users accept the rules and regulations framed by them. Like the leaders, they should also be accountable and transparent to the communities of water users.

The leaders, with the support of the staff, are also found to have played a crucial role in providing the direction to water users during the period of labor mobilization. Failing to do so results in the directionlessness of the work of hundreds of laborers and the consequent non-completion of work on time. And hence, they are mobilized for the most indispensable work as assessed in advance (which can be desilting, removing the debris, repairing the section, etc.) in the headwork and each section of the canal and its distributories.

Impartial strict implementation of the labor mobilization rule by the leaders is also crucially important for winning the trust of water users. For instance, timely arrival for the Kukahai (labor contribution to repair and maintain) is the required norm to be followed. Generally, people have a propensity to come late and cheat the work. If any water user does so, the early comers vehemently protest such propensity and demand leaders for taking the appropriate actions. Under such clamorous condition, leaders ask such late comers to contribute labor to complete the same amount of assigned work as that of the early comers or pay the due amount of fine.

Given the fact that the leadership of joint management committee is more responsible for the mobilization of external resources, leadership is expected to be more dynamic (should be able to maintain the contact with outside agencies as per the need of support to the system and the critical time such as flooding period). For instance, if there is the urgent need of the gabion wire during the flooding season, they are immediately expected to maintain the contact with the concerned government agency (such as the irrigation office) for demanding it and procuring it on time. Failing to do so on time severely affects the irrigation systems and livelihood is consequently affected. Therefore, dynamism of the leader is a must. Generally, water users have a perception that the leadership is dynamic during the time of emergency for system operation.

Similarly, the leadership of joint management committee is also expected to be innovative, that is, to be effortful to think in a new way to develop institutional collaboration with external agencies. Given the resource-crunch situation of the committee, it has already decided unanimously and begun the implementation to generate financial resources by auctioning natural resources such as stones/boulders, pebbles and sand abundantly available along the alignment of the jointly-operated canal section and headwork. The income generated from this source has been used in meeting the regular
management cost of the committee. Had the leadership not been innovative for generating the financial resources by the sale of such natural resources lying unutilized for years, it would have been facing the cash-crunch situation. Given the fact that the chairman and other functionaries of the committee were also the elected officials of the local governments, they had been innovative to capitalize their political connection to demand the support from other agencies such as irrigation department, road department, general administration and District Development Committee for the repair and maintenance as well as the improvement of headwork and jointly-managed section of the canal. Though in the isolated case, the local leadership of Semari of Sorah Mauja has innovatively formed a separate resource mobilization sub-committee for the collection of Khara and Bighatti (irrigation fee collection based on the amount of land irrigated) with a view to supporting the Mauja Muktiyar for the timely mobilization of financial resources and it has succeeded in doing so.

Leaders who are also the fellow water users are reported to have emphasized on the idea that “water has no color (political)” or “there should be no partisan politics within the organization”. Not only have they emphasized this idea but also practiced maximally. Generally, there is a culture of creating an impartial environment in the systems so that fellow water users have no feeling of favoritism from the dealing of leaders. Leaders of all the nested enterprises, who are guided by a specific ideology and have the political party affiliations, are generally aware of differences of the ideological orientations and political party affiliations of water users and they are always effortful to maintain the neutral, positive and constructive perspective in dealing with systemic problems. They make optimum efforts to mobilize fellow users to make their required contributions (cash, labor or material) for the larger benefit of the irrigation systems with high degree of their efficiency, meeting the irrigation needs of all and thereby augmenting the agricultural productions.

Leaders justify their actions and in doing this, there is a norm of being based on the decisions/mandates of the committees and the general meetings/general assemblies and the constitutional and operational rules. They cannot favor even their own relatives in the case of mobilization of labor for systemic maintenance. They are always effortful to maintain the neutrality in the discharge of duties. Otherwise, water users question their actions. And as a result, they cannot motivate water users to contribute to the irrigation systems. Generally, leaders try to be the “example” of complying with all the organizational rules which is followed by the water users. Regarding the organizational norm to justify their actions, an octogenarian literate migrant Brahmin farmer from the sample middle Mauja of Sorah remarked:
The leaders of our irrigation organization work according to the main decisions made by the committee as well as general assembly at all the levels of the organization. This has been our established tradition for long and the procedures of their work are also reflected in the present constitution. Given the fact that all the general water users take the leaders as their role models and if the leaders fail to work to get the decisions implemented in a given time for the larger benefit of water users, they have no or slim chance of being elected in the future. Therefore, leaders of our system are generally effortful to execute the decisions made by the committee and the general assembly in their given tenure.

Leaders are also fully responsible for generating and enhancing the understanding of the very importance of “collective action” through the coordination and communication and motivation so that water users are gathered for their contributions to keep the systems functioning through the proper maintenance. This is indicative of the fact that personal factors of leadership do have the legitimacy for motivating water users to be united for the operation and maintenance. Generally, personal factors assume the paramount importance for leaders because they are basically selected or elected if water users have the impression that they are honest, committed to the systemic sustainability, transparent, accountable, democratic, creative, innovative, responsive, good in interpersonal relations and communication, impartial, etc. Leaders also live in the same community and water users are generally cognizant of their demeanor. Election or selection or reelection of a leader whose personality has been mired in the financial improprieties, personal aggrandizement and tyrannical demeanor and is wishy-washy in running the organizations is utterly inconceivable. Notwithstanding this fact, it cannot be prevaricated that a few disingenuous leaders cannot be accidentally chosen in the rare circumstance but the tenure of such leaders are either short-lived (because the general meeting/assembly decides to sack them) or their re-selection is almost impossible. These empirical observations have amply demonstrated that leadership is an important subjective variable that has its direct bearing on the sustainable management of irrigation collective action.

Trust: Trust is another important variable, which can have an important bearing on the sustained mutually beneficial collective irrigation action. Trust between leaders and water users and between and among leaders at all levels of the organization is also of paramount importance in building and cementing social relationship. In this regard, Powell (1996) argues that trust is a resource that must be used and reflected upon, monitored and revisited in order to keep it going. It is a form of moral resource that operates in
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fundamentally different manner than physical capital. Regular contact, dialogue and monitoring contribute to sustain trust. Analogously, there are scholars who have emphasized that collaborative/co-operative effort helps generate and sustain the trust as the social capital. On the other hand, Church (2002) argues that trust is the key in the organization of peers which takes a long time to build. It has to have a component of personal contact. But once built it operates like a glue. It is also sustained by the very act of collaborating together. The co-operative act is not simply a result of trust already built, it is also a method for generating trust. Trust can be a product of the very business of co-operating.

Pretty and Ward (2001) are of the opinion that trust has a multiplicity of functions such as lubrication of the co-operation, reduction of the transaction costs between people, saving of time and money, creation of the social obligations, engendering reciprocal trust (by trusting someone), etc. They also argue that people can have trust both in individuals who we know and who we do not know which is the function of our confidence in a known social structure. They conclude that pervasiveness of distrust makes co-operative arrangements unlikely.

‘Trust’ in the study communities can be analyzed by looking at the relationships of the following: (i) between and among water users of a system; (ii) between water users and leaders of all the nested enterprises of irrigation organization; (iii) between and among functionaries of all the nested enterprises of irrigation organization of a system; (iii) between water users of both irrigation systems; (iv) between functionaries of the executive committees of both systems, and (v) between functionaries of the executive committees of both systems and functionaries of Sorah-Chhattis joint management committee.

In fact, the ‘trust’ variable has been seen and analyzed in the context of relativity. The degree and nature of trust varies between and among these various types of stakeholders in the study areas. The interaction with the diverse key informants and participant observation of the group meetings/committee meetings and labor mobilization activities have revealed that generally there is trust between and among water users of a system (both within and between Maujas), that is, they have a belief or confidence in their own honesty in complying with the operational norms/rules vis-a-vis the equitable water distribution and resource mobilization. In other words, there is relative absence of mistrust. This is the function of socialization of water users in the local social settings, which has patterned their behavior to have confidence in the compliance of rules by others as they themselves comply with. It follows as a corollary that the relationship between and among water users within a system is relatively less problematic and there is relatively high degree of collaboration/co-operation between and among them for the
resource mobilization for repair and maintenance of irrigation systems. Unequivocally, there is always an exception to what has been said above.

The next level of trust is in the relationship between water users and leaders of all the nested enterprises of the irrigation organization. Given the fact that water users of both systems have collectively nurtured a norm of transparency and accountability to be maintained by functionaries during their tenure, the former generally trust the latter—a function of the internalization by functionaries about their expected roles and observation of the pattern of role performance by their predecessors in the past. The isolated cases narrated in the leadership section also demonstrate that the lack of trust in the working approach and incompetence trigger the immediate dismissal of functionaries.

The trust in the relationships between and among functionaries of all the nested enterprises of irrigation organizations of both systems is also noteworthy in the sense that they have been immensely successful in coordinating the organizational activities (mainly resource mobilization and distribution of water). Once the executive committees at the system level make decisions, they are communicated to the lower tiers of organizations. System level functionaries have the full confidence on functionaries of lower tiers on the timely performance of the expected roles. Hitherto, there has been no experience of the non-performance of the expected roles. In the same fashion, functionaries of lower tiers of organizations have the confidence on the honest decision-making by functionaries of system level executive committees for the larger/collective interests of water users and hence, they have no hesitation for getting them implemented. With respect to the trust in the relationships between and among the functionaries of all the nested enterprises, a Tharu ex-Mauja Muktiyar of the sample tail-end Mauja of Chhattis, sharing the experience of his tenure, remarked:

We had a complete trust with the functionaries of the executive committee because they always used to make decisions for the larger benefit of all the water users of the system and therefore, the functionaries of the Maujas also used to work to implement their decisions in their respective constituencies. When I was the Mauja Muktiyar, myself and my other colleagues of the committee were also trusted by the functionaries of the executive committee and as result of it, our genuine concerns regarding the water distribution in an equitable manner to the tail-end farmers by strictly maintaining the water schedule were also carefully listened to.

Equally important has been the trust between water users of both irrigation systems for the last nearly four decades, which has been capitalized in sustaining mutually beneficial collective action, that is, the regular repair and maintenance as well as improvement of headwork and jointly-operated section of the canal. Once functionaries of joint management committee
make decision for the mobilization of resources (particularly the labor), water users contribute the labor to complete their respective assigned works by trusting each other in their honest role performance. Had there been no trust between them, the colossal amount of labor mobilization would have been impossible.

Similarly, there is also the trust in the collaborative working relationship between functionaries of the executive committees of both irrigation systems though there is occasional implicit sense of senior and junior water right holders among a few functionaries, particularly at the back-door. Once joint management committee makes any decision with respect to the internal resource mobilization for repair and maintenance and improvement of headwork and jointly-operated section of main canal system, functionaries of both executive committees begin working independently within their respective irrigation systems to implement joint decision (which could be about the collection of cash or mobilizing labor colossally) with the trust that other stakeholders are also similarly working for the eventual collective action.

The elderly key informants have revealed that ever since the mutual agreement concluded in the mid-60s to share water, there has been no serious crisis in the trust in the regime of collective action between water users of two irrigation systems. Finally, given the fact that the nominated representatives of the executive committees of both systems are functionaries and members of Sorah-Chhattis joint management committee (as indicated above), the trust between and among functionaries of these two tiers of organizations has contributed to cementing their relationships which are, in turn, capitalized for sustaining the mutually beneficial collective action. In brief, the ‘trust’ variable has really been a lubricant factor in cementing the social relationships between and among water users and their relationships with leaders and vice versa. And as a result, there is generally absence of distrust between and among key primary stakeholders.

**Attitudes:** Attitude is also equally important cognitive variable, which has the potential of impacting upon the development efforts. Brief (1998) shares that attitudes people bring with them to the workplace affect thoughts, feelings and actions in the organizations and the attitudes of those around an organization are affected by the organization. He also emphasizes that attitudes influence the interpersonal attractions. For instance, people are attracted to others whom they perceive as holding similar attitudes. He argues that the social scientists have to look at the attitude-behavior relationships.

Attitudes of both the community and leaders are of crucial importance. Church (2002) holds the opinion that it is important to know individual attitudes to authority and leadership (whether positive or negative). For instance, many do not confront the personality issue openly. People may be
expecting, encouraging leaders to take charge, enjoying the privilege of disowning the unpleasant decisions and enjoying the role of uninvolved critical bystander. Individual personalities and their attitudes to power, decision-making, and control are critical factors in whether trust grows or withers.

Based on the above literature, "attitude" has the potential of being the crucial cognitive social capital for the development of any society. If all the community people have very negative "attitude" with respect to the developmental effort, its success may be unachievable and sustainability may be questioned. Conversely, the positive attitude of people creates social energy, which can potentially be harnessed for the development of any sector of the community.

The empirical data from the field have amply demonstrated that water users of both systems have extremely positive attitudes towards their irrigation management. Affectively, they feel that these systems are theirs – a function of their labor and resource investment to keep them operational. In other words, given the fact that they have to invest a lot of human labor and financial resources every year for the regular, periodic and emergency maintenance of both systems for their livelihood, they have a high degree of sense of ownership. It follows as a corollary that if anything happens to the operation of the system due to the work of other free-riders, they take it very seriously to eliminate such problem. Cognitively, almost all water users of both irrigation systems have nurtured an ideological orientation. For instance, "there should be no partisan politics within the organization once the election is over because it is detrimental to the smooth functioning of the organizations" and there has also been the focus on "the idea of equity both in the regime of resource mobilization and water distribution for reaping the irrigation benefits". These ideological orientations have the bearing on shaping their participatory attitude to a large extent because they think that their age-old systems have not been the victims of politicization and the equitable distribution of benefits has always encouraged to be participative to sustain the systems. Sharing the participatory positive attitude, a middle-aged farmer of the head-end sample Mauja of Sorah remarked:

Given the fact that the system was built by our ancestors and we have been contributing labor and cash (whenever needed) to maintain it, we consider it as our own system. Therefore, we are always ready to solve any construction or management-related problem by working collaboratively. We have no local culture to wait for others for the solution of our internal systemic problems. The day water users of this system begin waiting for the external people/organizations for the solution of all its internal systemic problems, they will definitely see its doomsday anon.
Behaviorally, they have a practice to follow the institutions (rules-in-use) for the sustained management of the systems by curbing the rule infraction and discouraging the free-riders by imposing fines and graduated sanctions. All this can be referred to as the utilitarian function of the positive and participatory attitude.

The cognitive dimension of attitude has always given the meanings to water users of the ideas they have upheld to date. For instance, their idea, that is, “no partisan politics in the organizations after the election”, means that the party politics embedded with diverse ideological orientations triggers the fissiparous tendencies within the organizations which may have again the negative “domino effect” or “ripple effect” in spoiling ordered systemic functions to be geared for maximizing the irrigation benefits because it may trigger the chaos (if everyone works as per their party interests). Given the fact that water users are proud of their better performing farmer-managed irrigation systems in Nepal and many leader farmers from the different parts of country, foreign and Nepali students, policy-makers and national research professionals visit the systems every year with a view to learn about the participatory irrigation management (this is more so in Chhatis Mauja), water users are in no mood to spoil this image—a hard-won national and international recognition and esteem. It has also been observed that water users express their personal values (vis-à-vis irrigation) as being tied to collective values, which are instrumental for maximizing the mutually beneficial collective actions. Conclusively, water users of the irrigation systems have a very co-operative attitude in the community vis-a-vis management of the irrigation system. They have the clear understanding that these systems can function only if they have a positive and participatory attitude to contribute to repair and maintain and operate systems for the larger benefits of the community.

Conclusions
Based on the analysis and discussion, a number of conclusions/generalizations with policy implications have been developed.
1. In the traditional societies like Sora-Chhatis Mauja, social norms, values and beliefs promoting mutual co-operation, collaboration and obligation do have their bearings on the social solidarity of water users in the given society, which, in turn, has its influence on the irrigation rule conformance. Given the fact that the society is a moral order and the normative prescriptions operate at every level of society, they have the implications on social control because they work as the positive or negative means of ensuring conformity of the social or community rules of the community resource management and applying sanctions to deviant behavior. In both irrigation systems, there are also norms of equity in sharing cost and benefits and participation as well as the values of co-operation and mutual
assistance. The belief in equitable benefit sharing can work as the inducement to water users to work collectively for the irrigation management. Given the fact that “belief system” (as the ideological factor or worldview) influences the individuals and groups of people (i.e. organizations), it can have its role in the control of deviance/infractions of the community norms. There can be the importance of altruistic values, which emphasize on generosity, compassion, a sense of justice or hope for a better world, which may have implications in the development planning with mutual beneficial collective action. Therefore, water users should not be understood as the self-maximizing individuals as we do in an isolated context.

2. Given the fact that ideas can usually evoke the principles/values for the community welfare and collective interest or common good, conscious water users can get united for the efficient and sustainable irrigation management by being inculcated with the ideas such as the one that “party politics that emphasizes on fissiparous tendency in a fledgling democracy should be jettisoned within the irrigation organization”. Given the fact that the party politics is generally divisive in a fledgling democracy (a function of the lack of long democratic culture), the idea of jettisoning it looks functional in the traditional societies where there is a culture of working together harmoniously with little or no difference of opinion apropos of community development. However, the irrigation organizations (by jettisoning the divisive party politics in their day to day functioning) can also have the political agenda, that is, empowerment of the community of water users by involving them in the decision-making, implementation, and monitoring processes for the management of irrigation system to ensure equitable benefits of the community.

3. “Friendship”, a cognitive variable based on both instrumental and affective reason, can have its implications on the sustainable irrigation management (particularly for the irrigation rule compliance) because it is the integrative or cohesive social force (embedded with a sense of mutual obligation and shared social, ritual and economic commitments). Breaking the bonds of friendship whether ordinary or ritualized is generally inconceivable in predominantly peasant societies because these are founded on trust, which is built over a relatively long span of time. In other words, it can help water users to be united for the mutually beneficial collective actions mainly to contributing the financial, material and labor resources to the systemic operation, repair and maintenance, resource mobilization and equitable water distribution by offering the positive advice/suggestion and persuading water users to comply with the institutions who demonstrate the propensity for their non-compliance.

4. Facilitative leadership (instead of bureaucratic one) can have an important role in sustaining the collective action in the communities of water users
because it helps participation happen in the communities and also builds relationships with different social groups. It can emphasize on the quality of inputs (co-operation in their contribution as well as creating an ambience to solicit suggestions/ideas to run the organizations effectively and efficiently) rather than the mere control in the governance of the communities. In addition, dynamic, good in interpersonal relationships, creative, responsive, transparent, accountable, flexible and innovative attributes of leaders can also help them to define the organizational vision and articulate the goals, generate consensus among member water users, understand the dynamics of conflict and transform relations between and among water users, and promote regular participatory monitoring to galvanize water users for irrigation management.

5. Trust, an important cognitive variable embedded with moral pressure, can have a bearing on the sustained collective irrigation action because it can contribute to building and cementing social relationships between leaders and water users and between and among leaders at all levels of the organization as analyzed in both irrigation systems.

6. Attitude influences action. It can work as the crucial cognitive social capital for the sustained management of any common property resource. If all the community people have very negative “attitude” with respect to the developmental effort, its success may be unachievable and sustainability may be questioned. Conversely, the positive attitude of the people can create the social energy, which can potentially be harnessed for the development of any sector of the community, including the common property resource regime. Once the people have the positive/co-operative/participatory attitude, they follow the institutions (rules-in-use) for the sustained management of the resource system by curbing the rule infractions and discouraging the free-riders through the imposition of fines and graduated sanctions.

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