

## **Power, social capital and differential vulnerabilities: A study of water access in a peri-urban village of Haryana**

**Aman Dewan**

This article deals with the subject of water access in a peri-urban village of Haryana. It describes how power and social capital influence the flow of water. It argues that political power is a significant determinant influencing water security and those communities which lack the power to access water use social capital as an adaptive tool to enhance their water security.

The paper is organized as follows: Section 1 focuses on the introduction to the concept and theme; it gives an introduction to the place of study and briefly states the methodology used to conduct the research. Section 2 takes a historical perspective; it focuses on alienation suffered by lower castes; it discusses the plight of the lower castes in earlier times and also mentions the ways through which the upper caste communities dominated and influenced the access to water of the dalits. Section 3 discusses the current water supply situation of the village, especially focusing on the role of village politics in influencing water supply, followed by adaptive responses of the social groups which are not satisfied with the water supply situation. Section 4 highlights the role of social capital in shaping adaptation to water related problems, for drinking as well as water use in irrigation. It describes the types of social capital that exist in the field and the influence of this in mediating water scarcity. Lastly, in section 5 the paper presents a set of conclusions, that can be drawn and a few recommendations that shall be helpful to policy makers, researchers and academicians.



## Water Security in Peri-Urban South Asia

*Adapting to Climate Change & Urbanization*

This is one of a series of Discussion Papers from the Peri Urban Project of SaciWATERS.

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**Citation:** Dewan, A., 2013. 'Power, social capital and differential vulnerabilities: a study of water access in a peri-urban village of Haryana', Peri Urban Water Security Discussion Paper Series, Paper No. 12, SaciWATERS.

First published in 2013

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## **Power, social capital and differential vulnerabilities: A study of water access in a peri-urban village of Haryana**

Aman Dewan

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This article deals with the subject of water access in a peri-urban village of Haryana. It describes how power and social capital influence the flow of water. It argues that political power is a significant determinant influencing water security and those communities which lack the power to access water use social capital as an adaptive tool to enhance their water security.

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### **1. INTRODUCTION**

#### **1.1. Power and Social capital: an introduction to the theme of the paper**

Different social groups, depending on their resources adapt to uncertainty in water availability in different ways. Here we shall concern ourselves with the role that political power plays in accessing water and the role that social relations play in shaping water security. Although to a certain extent, the paper does attempt to move away from the narrative of caste based hierarchy, and move towards an understanding of hierarchy on the bases of political power, it in no means denounces caste as an institution that shapes adaptive capacity. A political ecology perspective helps in analyzing social relations of power and the effect they have in control over natural resources (Paulson, Watts, & Gezon, 2005). Borrowing from this perspective, at this stage, it is imperative to understand what we mean by power in our present context. For this article, the ability to exercise opinion in matters related to village administration shall be considered power. Power as a concept has been interesting for the social sciences due to the multitudes of meanings and contexts attached to it. Here Giddens' approach to power works well; according to Anthony Giddens (1984), 'power' is seen to be a 'transformative capacity'; any and every action that has the ability to make a difference in the world is power according to him. All social actions have an aspect of power. Social actions according to him are actions behind which there are certain intentions, but what is important is that as we carry out social actions, we all have power. People are not always aware of their power and a social action may go against many other individuals' vested interests (Giddens, 1984). However, the amount of power an individual has is related to 'resources'. Giddens outlines two distinct types of resources: 'allocative resources – which refer to controlling and owning physical resources, e.g. a factory and authoritative resources – control over the activities of people, like civil services, or politics. In Budheda we see that pundits are able to adapt to their water insecurity by the means of controlling the resources, like land or temple donations. Being economically powerful is the key to their adaptation strategy. The Harijans in Budheda, on the other hand, display power through authoritative resources; their sheer size in numbers within the village, along with the government's decision to block the Panchayat seat under the reserved category, has made village politics their domain.

Thus we can see that power can arise out of political affiliation or the influence can be due to wealth or other

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2 Caste is a form of social stratification based on endogamy, hereditary transmission of a style of life which often includes an occupation, ritual status in a hierarchy, and customary social interaction and exclusion based on cultural notions of purity and pollution (Scott 2005).

3 Adaptive capacity in the social context is the 'process of change in response to a change in the physical environment or a change in internal stimuli, such as demography, economics and organization' (Denevan 1983); thus Denevan broadens the concept of adaptive capacity beyond purely the bio-physical realm.

relevant criteria. Although caste hierarchy does play a role in shaping modern day village politics, it has been noted that access to water in current times is not directly related with caste hierarchy in the village. The institutional legitimacy of the caste system has started being questioned in this community. We may ask what gave rise to this shift, and how did these multiple hierarchies come into play? A part of the answer may lie in the 73<sup>rd</sup> Amendment Act of the Indian constitution, which introduced caste based reservations for promoting the elevation of the scheduled castes and tribes (Government of India, 1992). The village in our study falls in this reserved category. What shall follow in this paper are tensions and conflicts related to water access due to the formation of a newer power structure and the effect it has on the communities, their vulnerabilities as well as adaptation.

Going beyond the aspect of leveraging political power to gain water access, it is imperative to understand social capital, which is a significant determinant of adaptation abilities. Social capital is an important aspect in understanding community governance (Bowels & Gintis, 2002). Pierre Bourdieu considers social capital to be a collective phenomenon. According to him social capital allows differential access to resources, and he claims that social capital is the key to why different degrees of profit can be yielded by actors with the same economic and cultural capital (Bourdieu, 1986). For the community, building links with others in the village and leveraging these relations are an integral part of forming people's adaptive responses under the conditions of neglect from Government authorities, and further heightened by uncertainty, due to climate change and urbanization.

## 1.2. Village Background

Budheda is located on the main Farukhnagar highway and is at an approximate distance of 15 km from Gurgaon city. Budheda consists approximately of 900 households. Its population is about 5800 people. Numerically the Harijans are the most prominent group staying in Budheda. Currently they are the most politically active group too. Of the 900 households, about half of the households are of Harijans, and the rest is divided amongst the Pundits, Yadavs, Rajputs, and a few households of Balmeeks and it also has three households of Punjabis settled post-partition. Pundits are a landowning majority along with the Yadavs. Budheda could be termed a "land acquisition Village". It has given land for the Gurgaon water supply channel, the NCR channel, and the Budheda-Chandu water treatment plant, which shall be a primary water treatment center for the NCR.

## 1.3. Methodology

This study uses an ethnographic approach; it is primarily qualitative in nature and uses a political ecology perspective as its base. The major techniques that were employed were semi-structured interviews, group discussions, and direct observation. For the purpose of this study, different communities were interviewed separately, so that their individual voices could be heard. Water and women have a very close relation as collection and use in multiple activities falls under women's domain and thus they were interviewed separately. Quotations have been used, where and when it has been possible to do so; the idea behind this is that the community's lived experiences are captured.

The method of sampling used was snowball sampling; in this approach, interviews with respondents lead to other respondents. Berg (1988) mentions that snowball sampling is created by a series of referrals made within a circle of people who know each other. The cross referrals that are made become an interesting source of study, especially when it is descriptive and ethnographic in nature.

## 2. HISTORICAL SUFFERING AND THE BIRTH OF AN ALTERNATE POWER STRUCTURE

### 2.1. The hierarchical caste structure and its effect on water availability

Historically, Budheda had a very rigid caste structure; it can be seen to exist in minor forms even today, but its importance in guiding social relations has gone down. Historically, drinking water access was directly related to the wells in the village. Each community had its own personal well and inter-caste use of wells was not permitted. More wells were placed in areas of upper-caste domination and the lower castes did not have sufficient access to these wells. The community in Budheda used to draw water from five main wells, they were (i) Bodiya, (ii) Pyau (iii) Dungawala, (iv) Lal Kuan and (v) Harijan Kuan. These wells were named after the ancestors of the social groups who used them. These wells were located in different clusters and the lower castes could only access the Harijan Kuan. Lal Kuan was meant exclusively for the Pundits, and the rest were used by all other castes like Rajputs and Yadavs. Harijans being the most dominant caste, only had access to one well, whereas upper castes numerically being in a minority in Budheda, enjoyed water access from four wells. The maintenance of common resources like wells and temples was done by the collection of "Dharamada". Money used to be collected by the patriarch of the family in whose house either a son was

<sup>4</sup> Also called Rao Saab in Local dialect

<sup>5</sup> National Capital Region

born or marriage was going to take place. The amount currently is at Rs 51 but village elders remember it to have been Re. 1 during their childhood days. After collection of the Dharmada, the patriarch is supposed to consult with the panchayat on the most pressing issue that needs to be addressed. Around 15 years ago, Dalit families also started to take part in this activity, which was not the case earlier; thus social mobility can be seen in Budheda in very explicit terms. Today as there are no functional wells left, most of this collection is used up in the village temples. This leads to many agitations amongst different social groups as the finances of the temple are said to be in exclusive control of the Pundits of Budheda.

In the early 90's drinking water wells started to lose functionality and shared hand-pumps became the norm for accessing water. Shared hand-pumps imply that the whole village community can access this source of water, but the installation of this hand-pump was done by an individual. Providing a source of water is considered a noble act on religious grounds in this area; these hand-pumps were installed to celebrate either the birth of a son, or a marriage within the household. Most families could not afford to install new structures; they contributed towards upkeep and maintenance of the hand-pumps. It is important to note that although these hand-pumps are installed by individuals as a measure of philanthropy, their upkeep is done by the collection of Dharmada and is a community process. This change in water access also maintained a very rigid caste structure in terms of water use. The lower castes would often have to wait in line for hours before they were allowed to fill their share. At times when they did fill water before an upper caste, the upper caste would clean the hand-pump before progressing on to fill water, leading to a long waiting period for filling water by other community members. The touch of the lower caste was considered to be unclean and was to be avoided under all circumstances. The dalit women claim that a few years ago, the upper caste women virtually had full control over the shared water sources and exercised their power over the shared handpumps.

The upper caste women did not let dalit women access the hand-pumps; the way the system worked was that they had to take their pots and the upper-caste women would fill water in it for them; in this system sufficient water was not made available to the dalits, as the quantity of water they should take back home was decided arbitrarily by upper caste women. Hints of such phenomena, till date, exist in Budheda, although the practice of making the lower caste wait is not the most rampant now. Tau Magan Ram, a prominent pundit from Budheda, mentions " woh zamana alag tha, bachpan se sikhaya gaya tha ki dalit se door raho, saath khana aur milna uchit nahi hai, par ab baat kuch aur hai, ab chalta hai, par ab hum boodhe log abhi bhi puri tarah se nahi milte julte, itni saalo ki seekh , ek minute mein toh nahi mit ti"( Those times were different, we were as kids taught to avoid dalits, and were told that it was not appropriate to mingle and eat in their company, but now things have changed, the new generation openly mingles, but old people like me still are not very comfortable with proximity to dalits, we have believed this for far too many years to change our opinion now).

## 2.2. Land and its effect on water

In 1962 Budheda underwent land consolidation which in local parlance is known as "Chakbandi". In those times, the Patwaris (local land record keepers) held absolute power over land records. During land consolidation of 1962, these Patwaris in synergy with the upper caste elite, manipulated land rates in exchange for bribes. This significantly reduced land holding of many Harijan Families, in terms of physical size. Let us see how this is done; suppose Land A is for Rs 3 per acre, as it has the availability of sweet water or in general is good for irrigation. Land B is for Rs 1 per acre as it does not have any water source. Now many Harijans claim that their B class land was exchanged with B quality land, but the new lands were marked under category A; thus they were compensated with only  $\frac{1}{3}^{rd}$  of their previous landholding. In this tricky method of land evaluation which was very arbitrary, and decisions were made without the requisite proper evaluation, same quality of lands was marked under several different categories; this led to gross inequities post the land consolidation. The upper castes increased land holding multifold. A key informant informed that this was an important aspect for the boost of live stock rearing in Budheda as over generations certain people have been manipulated into becoming landless. From our perspective, it is imperative to understand that land holding and water rights in the Indian context are related; significantly reducing land holding size also had implications for the Harijans' losing access to potential water sources.

The lower castes after being manipulated out of their fair share of land started to depend on livestock rearing as a coping strategy. Today these people are set to lose that source of income too. In 2008 the Government of India started to develop the Budheda Chandu water treatment plant; this plant, spread over nearly 360 acres, has taken away most of the grazing land present in the village's proximity. The new

6 The name implies Dharma which is an ancient Hindu term to describe righteousness.

7 Name changed

8 It is an administrative position under the Government of India.

generation in this area is looking for jobs in the cities, as they know that their traditional occupation patterns have forever been destroyed. For the elderly and the middle aged, who are not ready to relocate, the vulnerability is higher. The workload of women has also drastically gone up. The lower caste women have to collect "hara chara"(green fodder) for their livestock as an added responsibility. The effect of losing their land resources is seen most significantly on the plight of women, whose already burdened schedule due to water collection duties faces further stress through additional tasks for fodder collection.

### 3. A NEW REGIME

Budheda, like many other villages in the surrounding area, has developed a cluster system of living. This means that particular communities live in particular places; thus the houses of Harijans shall be found in one area while that of Pundits and Rajputs etc. would be in another place. The year 2009 saw a Harijan Sarpanch come into power in Budheda; this led to wide spread resentment among the upper castes; a direct result of this was that far more people started taking their conflicts to the courts; many respondents expressed that a Harijan Sarpanch was not at first considered legitimate by the other castes. The lower castes on the other hand responded that the Harijans having faced decades of resentment at the hands of the upper-castes, were now focused on trying to improve their living conditions. Durga jia Harijan lady exclaimed "humara samay aaya, phir paani aaya."(Now it's our time, now we get water)

Today Budheda gets water supply through three main tube-wells; out of these two are presently in functioning condition. The tube-wells are operated by the Public Health Engineering Department (PHED) of Gurgaon. These tube-wells transfer the water in to two overhead storage tanks. These tanks in local parlance are known as the "Double Tanky". The quality of water supplied in Budheda is in general deteriorating. Failure of tube-wells is a key reason for this. Out of the three present, only one tube-well has the presence of sweet water. In response to this the Government has started to supply water from the Gurgaon water supply channel. This is a canal built through the agricultural lands of Budheda, it was and is still meant for supplying water to Gurgaon city to quench its thirst. It is interesting to note that although only one-tube well has sweet water left, the Panchayat in Budheda operates two tube-wells due to the quantities required.

The water after reaching the storage tanks is supplied throughout the village, using a network of pipes and valves. These pipes are installed with the help of the PHED. The local government officials claim that the quality of water being supplied passes all the regulations but this does not get translated to clean water in the field. Thus although the overall picture of good quality water might be deteriorating in Budheda, we do notice that certain pockets in the village are accessing good quality water in acceptable quantities. It becomes imperative for us to question, why do these internal inequities exist?

The flow of water is determined by power relations in the village; those having a say in the Panchayat are able to have their interests protected. This observation is supported by the analytical construct of hydro-social cycle. In this view water flow is seen to be a part of a social and political process rather than purely an aspect of natural flow (Linton 2011). Erik Swyngedouw states that "True scarcity does not reside in the physical absence of water in most cases, but in the lack of monetary resources and political and economic clout" (Swyngedouw, 2009a, p. 58). Further we see how this plays out in the field.

As the quantity of water available is a constraint in these areas, a junior engineer of the PHED in consultation with the Sarpanch gives duties to a village man to be responsible for operating the valves. These valves help in diverting the water towards different clusters at different points in time. Budheda has three main pipelines; the first caters to the Yadavs, a few lohars and the politically powerful Harijans. The second pipeline is meant exclusively for Harijans. And the third is meant for Om Nagar Dhani. A key respondent informs that water from both these tube-wells is not mixed to make a common pool; rather the water is transferred separately to the two different tanks and distributed as per will. Thus the Yadavs by virtue of staying in the same line as the Harijan Sarpanch are entitled to get good quality water. Unfortunately for the Pundits, they are served by the Om-Nagar Dhani line, the water transferred here is both insufficient as well as of extremely low quality. The line which serves Harijan areas exclusively also does not have a constant supply of sweet water, depending on the availability; either of the tanks is used to give water to this area. Thus we see that although a Harijan is in political power in Budheda, all Harijans are not treated equally, but compared to the water supplied to the Dhani, they are comparatively blessed. Interviews within the PHED reveal that a comprehensive check during pipe laying activities and further investigations of the ongoing

# 4

9 Name Changed

10 Reasons are not clear for this, it could be due to over exploitation of ground-water source.

11 This power is considered temporary as fresh elections are due in 2014.

12 A settlement on the outskirts of the village, within its Lal Dora or boundary.

water distribution are not always followed, the plans are shared with the Sarpanch, and if budgeting is approved the work is 'given a go ahead'. Regular grievances about the water supply are also mostly routed through the Sarpanch; thus it becomes difficult to know about the struggle of the communities in different parts of the villages. This lack of open communication leads to further water issues. We see that information is a powerful tool for change in peri-urban areas but the control of information is tightly guarded by the political elite of Budheda.

In the absence of good quality water supply, the people of Budheda have to make do with two hand-pumps available to them. In summers these hand-pumps become places of conflict and tension, as people have to wait long hours to fill their share; patience is at best fickle. "Dimag ghoom jata hai garmi mein" as a lady puts it (Tempers flare in such heat). The vulnerability of the people dependent on the hand-pump is high, as they have no other option for collection of good quality water fit for drinking purposes.

In terms of vulnerability, the highest risk group is migrant muslims, who have come to Budheda for a period of nearly three years. This community has arrived from Assam, and work as waste collectors for a local business man; dealing in plastic scrap is their main occupation. As these people live in makeshift tents, there is no official government water supply for them.

For them the water arrangement is done by the "Malik" (Boss); they can access water from his house, but there is a lot of arbitrariness in this. The amount of water they are allowed to fill depends upon the day, as many times due to lack of electricity the bore does not work. In days where only a limited amount of water is pumped, the Malik's family has first right to access the water. As an adaptation, this community stores water in plastic containers, whenever they get the opportunity to fill water, as they do not know, when their turn will come next. Sometimes they have not been able to access for three days, then they have to depend on the Balmiks who live close by, and are not very stringent about religious or caste norms. Their vulnerability is heightened because they do not use the shared hand-pumps as they feel it will lead to problems in the village. According to them, they have not tried using them either, as they had been warned by the Malik for not hurting local sentiments. We infer that when inter-caste use of resources is also frowned upon by the elders, inter-religious use of resources is far more serious in the hierarchy of offences in the village of Budheda.

Some people in Budheda adapt using the hand-pump, but the community of the Pundits living in the centre of the village, finds it extremely difficult to fill from the hand-pump along the canal due to distance. Even then the vulnerability of the Pundits is lower on account of the economic powers. A key respondent divulges that for a month or so around November 2013, Pundits got excellent water supply, as they paid the local government official. They had done this as their submersible hand-pump had needed repairs. They have currently stopped the arrangement. We see that both political power and economic prosperity shape the flow of water.

Pundits in Budheda are one large extended family. The water they drink is from personal submersibles and social capital plays an important role amongst the Pundits. Group discussions have led to the understanding that Pundits here were never dependent on water supply. Water sharing amongst their clan is historically rooted. Many members of the Pundit community paid for a personal boring and submersible handset in a particular pundit household on the premise that they shall all share the water. This is how Pundits in Budheda have adapted to water insecurity in terms of drinking water supply. In other words, Pundits pooled in financial resources so as to collectively install a submersible on one family's plot of land. The inability of the Government to enforce equity in the field leads to adaptation strategies shaped by mobilizing social capital.

#### 4. "BHAICHARA"<sup>14</sup> - SOCIAL CAPITAL IN THE FIELD

In the last section, we saw how the Pundits in Budheda have used social capital to overcome problems of water scarcity. Coleman (2000) notes that social capital is productive; it makes it possible to achieve certain ends that in its absence would not be possible to achieve ; it is the positive leverage of close ties. Building from this we see that social capital in Budheda works in three ways. Firstly it works as an institution of pooling in resources for the good of the community; secondly it works as a system of sharing based on criteria like kinship, location of houses, family agreements and promises; thirdly, social capital does not necessarily entail pooling of resources or sharing but can be considered as an institution of trust. The first type of social capital is seen in the way the Pundits have pooled in capital for the installation of a shared

13 Chambers (1989) defines vulnerability as the exposure to contingencies and stress, and difficulty in coping with them. Vulnerability has thus two sides: an external side of risks, shocks, and stress to which an individual or household is subject: and an internal side which is defenselessness, meaning a lack of means to cope without damaging loss

14 Brotherhood

submersible pump. The second is seen in terms of preferential pricing that is followed in the sale of groundwater, the third can be seen in the way borings are carried out in the village, and how most people rather than just looking away when a boring is done, actively hide the activity also. The last aspect can be seen as a measure of survival, as the government authorities fail to provide adequate water to the whole of the village, boring becomes a norm; thus reciprocity is expected between the neighbors, that they both shall keep quiet, while a bore is dug.

We must now introduce the concept of "boring entrepreneurs". In Haryana extraction of groundwater is banned under order of the High court. This has led to a new breed of businessmen, who take a charge, which includes the whole setup including the motor and the bribe they would have to pay to various government bodies, namely the police and the groundwater department. In these cases, social capital plays an important role; long term tenants are not offered such services, it is imperative for the boring entrepreneur to know of the family wanting this done from a long time, as one complaint to the wrong person can in full destroy the system. Borrowing from the concept of Legal pluralism; officers at the groundwater department also do not see this breach as something very serious, it is felt that not allowing a person to access water is not acceptable, many times the officials would turn a blind eye, it is as if they at some level agree with the community. A farmer mentioned " paani nahi lene denge toh kheti kasie hogi, kheti ke liye paani lena mana nahi hona chahiye, aur peene ke liye toh bilkul hi nahi. Humari sarkar factory ko paani barbad karne se nahi rok paati, tabhi asie kaam hote hai" (groundwater extraction should be allowed for agriculture and if not for agriculture, then it should be allowed for drinking purposes at least, the government is not able to check water wastage in industries, and thus we all have to suffer).

Further, it was earlier mentioned that Budheda is a "Land acquisition village" meaning that a lot of its land has been acquired for various purposes. One development of particular interest is the passing of the waste water canal in the agricultural lands of Budheda. The Government releases treated waste water into the canal for the purpose of irrigation. The farmers use this water for the growing of crops as it is nutrient rich and does not require intensive use of fertilizers; in fact, many respondents say that it works as a good substitute to fertilizers. Access to this water is organized using plastic PVC pipes and diesel engines. The Farmers who have land close to the canal have the ability to decide the rates at which they would sell the waste water. Usually it is Rs 50 per hour and the price of diesel that is used. Factoring in the large number of ready buyers, the community says what makes the difference is "bhaichara". A respondent informs that because his engine is placed where the water flow is good, he supplies water to more than 50 acres of land; he is able to do such a thing as his rates are lower. These rates are lower on account of the lesser diesel he has to use as when the water level is high, the pump uses lesser energy.

Another way of dealing with water scarcity is the trading of groundwater. This is different from the waste water canal phenomena; groundwater does not have an active market anymore. Certain relations built in the past have guided these phenomena. In earlier times, farmers would share tube-wells and the price of this groundwater sold would depend on social relations, like kinship ties, location in the village, or other such criteria. Some farmers are still dependent on it and their social ties have enhanced this system, but this dependence is also a measure of vulnerability. We see that peri-urban villages under booming real-estate spell have a tendency to get acquired by commercial and private interests. As many farmers are dependent for their water on a single piece of land, the selling of such an important source of water, may serve as a setback for many.

## 5. CONCLUSIONS

Gurgaon's haphazard growth over the past decades has been a major challenge for policy makers and local governments working in Haryana. The booming population of Gurgaon city shall put further stress on peri-urban areas. This shall happen in two ways, firstly migrants looking for cheaper accommodation shall look towards peri-urban areas for respite increasing the stress on water resources even further, and secondly the growing population of Gurgaon city shall demand higher attention from policy makers and administrators; thus leaving the peri-urban areas in neglect. This lack of attention will not help the cause of equitable water supply within the villages lying in this area. As policy makers in the higher echelons of power are not always able to follow up with the picture on the field, it is imperative for action research projects to build capacities of local governments and village committees. This is easier said than done due to lack of enforcement power on the side of the NGOs. There is an urgent need to have a multi-caste committee in the village of Budheda, which works on the basis of majority vote. This committee should ensure equal representation from different castes so as to provide a platform for checks and balances. The idea of reserving seats for the backward castes does not necessarily lead only to empowerment but also creates a case of reverse domination, and that was not the purpose of the policy makers.

In Haryana it is imperative to understand caste as a strong institution and remedial measures should take

15 Legal pluralism is the state of affairs in any social field in which behavior is guided by more than one legal order (Griffiths 1986). Thus we see that a banned activity like boring has a high level of social acceptability in the village of Budheda.

into account the aspect of power relations based on caste and kinship. This paper has further made a case, that power relations are an important aspect for action research projects, to ascertain the vulnerable in the community and thus design interventions.

A key aspect for policy making in peri-urban areas shall be flexibility, this is required due to the fact that these areas have multiple claimants with their own agenda. Hilner (2010) states that peri-urban areas are by their very nature dynamic, they are seen by different groups through their own lenses, depending on where they fall in the rural urban continuum. This has and will lead to various changes in water use in the coming future. It is a must to understand that in peri-urban locations water resources have multiple uses even amongst the local population (Phansalkar 2007). Swimming pools, orchards, kitchen gardens by the elites are sure to upset the social harmony if locals are not adequately compensated with drinking water at least.

It is imperative to build skills of the peri-urban communities as they continue to face the dual threat of urbanization and climate change. Land-acquisition will continue to reduce the water resources of the peri-urban areas, as the expansion of Gurgaon city does not seem to be slowing down; in these circumstances, judicious use and equitable distribution of limited resources is of importance.

As a way of moving forward a few recommendations can be considered; firstly, there is an urgent need to build capacities of local people in order to fight climate change induced uncertainties; for this purpose, capacity building workshops focussing on better internal management and teaching the judicious use of water can be of help to the community. There is also a need to revive local traditional knowledge about the commons, as community led initiatives have maximum impact and sustainability. We also have seen that power analysis is imperative for action research projects, thus it could be an important tool for future research projects. Lastly at a macro level, there is a need to educate policy makers on the dynamic nature of these peri-urban areas. Budheda residents having given their lands for a water treatment center for Gurgaon city, should at least enjoy the benefits of the water treatment plant built using their village land.

Politics, the defining issue of this paper, shall determine if Budheda shall benefit from the water treatment plant or not. Unfortunately for Budheda, the local MLA under whose jurisdiction this decision falls, does not favor the village. He being a Yadav does not consider Budheda, a Harijan village, as being important for his vote bank. Eventually, politics still decides.

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## Water Security in Peri Urban South Asia: Adapting to Climate Change and Urbanization

Working primarily on water security issues in Peri-Urban South Asia, across India, Bangladesh and Nepal, the project's main concerns are the rapidly changing peri-urban landscapes due to urbanisation and implications for water security in specific locations in the larger context of climate change. As an action research project, working across four locations in South Asia, it will serve as a basis for capacity-building at the grass roots level to address concerns of the poor, marginalised and other vulnerable communities to water security and seek to understand the dynamics of adaptation in the specific locations, for action and policy agenda at the regional level. It will build their capacities to cope with climate change induced water in-security.

[www.saciwaters.org/periurban](http://www.saciwaters.org/periurban)

### Coordinating Institution:

The project is being coordinated by **SaciWATERs**, Hyderabad, India. SaciWATERs focuses on transforming water resources knowledge systems, key ideas being an interdisciplinary approach to understanding water resources issues, from a pro-poor, human development perspective, with an emphasis on exchange, interaction and collaboration at South Asia level.

### Partner Institutions:

**Bangladesh University of Engineering and Technology (BUET)** is the oldest and leading university in Bangladesh in the area of technology. IWFM is a premier institute for the advancement of knowledge and development of human resources in water and flood management.

**Nepal Engineering College (NEC)** was established in 1994, as a non-profit organization under private sector initiative, to function as center for advanced learning in engineering and allied sciences. It has been offering the Interdisciplinary Water Resources Management (IWRM) Program since the beginning July, 2007 under the support of Crossing Boundaries (CB) Project funded by Government of the Netherlands.

### Project Support:

This project is supported by Canada's **International Development Research Centre (IDRC)**. IDRC is one of the world's leading institutions in the generation and application of new knowledge to meet the challenges of international development. For nearly 40 years, IDRC has worked in close collaboration with researchers from the developing world in their search for the means to build healthier, more equitable, and more prosperous societies.

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