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This Highlight tries to understand the interplay between water and equity by mapping the current status in terms of access to quality and quantity of water to different social groups. While mapping inequities, the effort is to assess the performance in the sector in three broad areas of contestations over: resources and rights, rules and rule making, and authority to enforce. An attempt is made to understand the contestation in different domains which are non-homogenous with diverse interests and are bound in a relationship of both cooperation and conflict. Here, contestation takes place over water in myriad ways. For example, household is both a site of conflict and cooperation for men and women and so is the community. By using these terms, we are in no way assuming a harmonious and consensual relationship at any of these domains.

IWMI-TATA
Water Policy Program

Water Policy Research

HIGHLIGHT

**Assessing Social and Gender Equity
in the Water Sector**

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ASSESSING SOCIAL AND GENDER EQUITY IN THE WATER SECTOR^{1,2}

Research highlight based on a paper with the same title³

INTRODUCTION

Structural inequity is one of the less addressed areas in the water sector. Inequities in water access, resulting due to caste, gender and class locations have not been sufficiently highlighted in debates and discussions around water policy and practice. Much of the water discourse is dominated by issues of scarcity and conflicts with little analysis of the social composition of the water sector and the implications that has on aggravating scarcity and conflicts.

To understand the implications of social inequities in the water sector it would be important to unpack its social composition in terms of who decides, who benefits, who does the menial work etc at the micro, meso and macro level.

The Social and Gender Equity Gauge (SGEG) is an effort to gauge the social and gender inequities in the water sector. The equity gauge, it is hoped would be an effective tool that informs policy on a periodic basis. It can also be developed as an ongoing tool in the hands of communities to monitor the progress.

Equity is always contested, implying that we need to remain explicit and critical of the perceptions of equity that inform our indicators. One way of doing this is by relating and comparing our definition of equity with the prevailing formal laws and norms of justice and equity (and their effects) and with those of the different actors themselves. This understanding of equity also believes that gender-based forms of inequity and exclusion cannot be understood and assessed in isolation from other social forms of inequity and exclusion. Gender and other forms of social differentiation are intimately intertwined, and mutually constitute each other. Which and how axes of social differentiation are relevant differs depending on

context and cannot be assumed. This implies that for each specific project, a first exercise would consist of establishing what the most relevant axes of social differentiation are.

This Highlight tried to look at water and equity and map the current status in terms of access to quality and quantity of water to the different social groups. While mapping inequities, the effort has not been to reduce the inequities to a single number much as that would hold a lot of attention in terms of the policy makers rather through this effort, we hope to note the performance in the sector in the three broad areas of contestations over resources and rights, rules and rule making and authorities. The effort is to understand the contestation in the different domains which are non homogenous with diverse interests and bound in a relationship of both co-operation and conflict where contestation takes place over water in myriad ways. For example, household is both a site of conflict and cooperation for men and women and so is the community. By using these terms, we are in no way assuming a harmonious and consensual relationship at any of these domains.

There have been several debates around the need for indicators in development planning. Many of its opponents feel that single numbers hide the complexities behind the numbers and often do not serve the purpose it set out to achieve. Indicators have also come under academic scrutiny with questions being raised on the reliability of data, which is collected at huge scales and also weighted and presented as a single number. Questions have also been raised as to how much should policy making rely on a set of numbers.

¹This was a pilot study done in 2009-2010 in India and Nepal and was coordinated by SOPPECOM. The India study was led by SOPPECOM and the Nepal studies were led by Janwillem Liebrand and Pranita Bhushan. The study was supported by Gender and Water Alliance, GWA, Netherlands. The advisory team comprised of Margreet Zwarteveen, Sara Ahmed, Amita Shah and Chanda Gurung.

²This IWMI-Tata Highlight is based on a study conducted by SOPPECOM with support from Gender and Water Alliance, Netherlands. It is not externally peer-reviewed and the views expressed are of the authors alone and not of IWMI or its funding partners.

³These reports are available on request from p.regghu@cgiar.org

Its proponents however have argued that unless data is presented at a scale and in numbers that are intelligible to the policy makers there is little seriousness in using it for policy and program planning. It is argued that indicators of performance are an important aspect of evaluating the impacts of programs where huge public spending is done. Our interest in developing this tool is because of its potential as a political tool in the hands of people to monitor the progress of desired goals.

Various indicators around water have been developed over the years globally. These are of course important indicators and tell us a lot about the status of water supply across the globe, however they tell us little about the micro-contexts and specifically about women and other social groups within these contexts.

Almost all of these indicators are in some ways concerned with the availability of freshwater and the increasing water stress at the global level. Few of them do talk about how social, technological and other factors influence these stress levels. None of these indicators have actually looked at the social composition of access to water and decision making.

The social and gender equity gauge looks at aspects in water access which are linked to inequities due to structural issues. Here the focus is women and discriminated social groups, such as caste, in the Indian context. While considering access, the SGEG has also looked at factors that constrain the access to water of women and the different social groups - viz. economic status, caste and patriarchal structures.

Table 1 Gender and equity indicators of access to water

Levels of contestation	Indicators	Variables
Resources and Rights	Access to land, water, rights, technologies Access to water (in quantity and quality) a) Domestic- in relation to minimum requirements – relative water deprivation; and b) Water rights for irrigation/production	Ownership of resources Access to water for domestic purposes in Liters per capita daily (lpcd)
	Cost of access	Time, labor and money spent on accessing minimum required water Obstacles in accessing water like incidences of violence or conflicts when collecting or using water
	Access to Sanitation	Who uses what and goes where?
Rules, norms and laws	Norms and rules for water allocations and distributions	Basis for water distribution (e.g. proportional to land; based on need; based on the ability to pay; a combination of these) related rules for mobilizing labor and money for operation and maintenance (e.g. according to quantity of water used; all pay/ contribute the same) Who agrees and who disagrees with current distribution patterns and organization of management authority; What are alternatives of people who don't agree?
Authorities	Membership to water institutions Representation in decision making	Who participates in water management decisions, whose authority is legitimate? Where and by whom are water decisions made? Membership criteria of water users associations (WUAs) Inclusion – exclusion Conflicts and disagreements? Domains of decision making? Levels and nature of participation?
Knowledge discourses	Discourses that guide / justify existing patterns of allocation and distribution	What are the larger stories-discourses-cosmologies-ideologies – people use to explain (justify / criticize) existing allocation and distribution patterns of water? Who uses which discourses/ frames of interpretation?

The main purpose of this gauge is to make a political statement on the need to attend to the structural inequities in the water sector, which often are glossed over by the discourses around scarcity and conflicts rather than being understood as part of them.

Table 1 below gives an overview of the indicators that were assessed across caste and gender.

METHODS OF DATA COLLECTION AND SAMPLING

In Maharashtra, the study was done in the northern district of Ahmednagar. This is a drought prone area known for water scarcity especially during summer. Ten villages were selected based on the population size of 300 households per village and *dalit* population being more than 15 percent.

Sampling was done in such a way that all caste groups and land owning and landless households were represented. Data was collected from a total of 320

households. Interviews were mainly canvassed with women respondents. Apart from the detailed interviews with women, other methods of data collection were:

- Focus group discussion
- Spatial mapping
- Secondary information from government sources
- Field observations

Table 2 summarizes the social categories prevailing in the study area.

OVERVIEW OF RESOURCE ACCESS, ITS COST FOR WOMEN AND THEIR PARTICIPATION IN DECISION MAKING

Social composition of resource ownership

In terms of resource access, we do see variations across castes. These are most evident is the ownership of water

Table 2 Caste and religious categories in the area studied

Open	All the castes considered as higher in the caste hierarchy
OBC	Other backward castes
SC	Scheduled castes are also referred to as <i>dalits</i> or the exploited castes, now listed by the government for positive discrimination.
ST	Scheduled tribes are tribes that are listed in government lists as disadvantaged
DT	Denotified tribes which were earlier referred to as the criminal tribes.
NT	Nomadic tribes are of different types, those that are now settled, own land and thus better off than their brethren who still are nomads and wander in search of livelihoods. Our sample had NT households that have been settled and own land
Muslim	Religion

Table 3 Ownership of land, water sources, and livestock

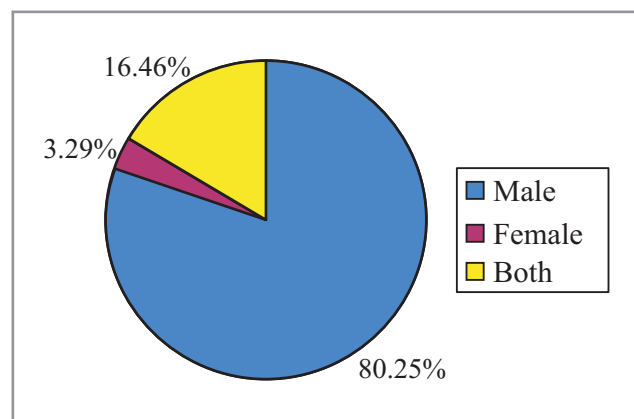
Caste group	Landownership (Percentage of households)		Livestock ownership (Percentage of households)		Water Source ownership (Percentage of households)		Total no of households
	Own land	Landless	Yes	No	Yes	No	
Open	88	12	82	18	65	35	164
OBC	57	43	71	29	43	57	42
SC	63	37	57	43	26	74	70
ST	40	60	50	50	20	80	10
DT	75	25	75	25	75	25	8
NT	79	21	71	29	57	43	14
Muslim	75	25	50	50	17	83	12
Total	76	24	72	28	50	50	320

infrastructure (source and related equipment), and of land. In the Table 3, we see the overall pattern of resource ownership across different caste groups. In our study, we have looked at water resources and those resources that predominantly affect water use patterns in the study area. The table shows that ownership largely rests with the upper castes or the open castes.

Landlessness is lowest among the open castes at 12 percent and highest among the *Adivasis* or the ST. The DT and the NT communities which are part of these study villages are into settled agriculture unlike their ancestors who were on the move and were rarely engaged in agricultural activities. They own land and have also invested in water resources as is evident from the table. A similar pattern emerges over the water resources as well. Here we have considered wells and borewells owned by the household and our data shows that 65 percent of the open caste households have their own water sources, whereas very few SC, ST and Muslim households have their own water sources.

The livestock ownership pattern shows that most of the small livestock like goats and poultry are owned by the SC and ST categories while most of the large livestock is owned by the upper castes.

Chart 1 Women's ownership of land in landowning households



Gender inequities in access to land

Looking at women's access to land within the household, we find that among the land owning households about 80 percent is held by men and only 3.2 percent is owned by women while the rest is owned jointly by men and women. If we consider the caste composition of this ownership pattern, we find that it is largely in the upper caste households that women do have land in their names and this is mainly because households want to save their surplus lands from land ceiling laws of the country.

Table 4 Caste wise spread of land ownership among women

Caste Category	Number of women owning land	Percentage to the total number of women owing land
Open	43	75
OBC	4	7
SC	5	8
DT	2	4
NT	1	2
Muslim	2	4
Total	57	100

As far as assets, such as livestock or water related equipment, are concerned, these are mostly in the name of men or are controlled by them. Women are thus not perceived as owners of these resources and much less the decision makers for them.

Table 4 shows this spread across different castes. Among the open castes, larger number of women own land. This is largely because these are also large land owning households that have transferred land titles in the name of women to retain their surplus land from being acquired for redistribution by the government under the Land Ceiling Act.

Access to drinking water and sanitation

As seen earlier SC, ST and Muslim communities have lower ownership of water sources and this reflects in their

Table 5 Caste wise access to drinking water and sanitation

Caste Category	Ownership of Well/bore well (Percentage of households)	Average water available (lpcd)	Sanitation access (Percentage of households)	Total no of households
Open	65	90	42	164
OBC	43	58	45	42
SC	26	48	49	70
ST	20	34	20	10
DT	75	41	63	8
NT	57	81	29	14
Muslim	17	41	58	12
Total	50	71	44	320

water availability (see Table 5). Those who do not have their own water sources are totally dependent on public systems or, in the cases where those systems have failed, on private sources of other people. This does affect their water availability. If we consider the water available in terms of liters per capita daily (lpcd), SC, ST and Muslim communities get far less water than those belonging to open and NT caste groups. The sanitation coverage is poor in overall terms and this is surprising considering this was one of the most acclaimed districts as far as the total sanitation program is concerned.

Access to water for production

While domestic water is a central concern, access to water for livelihoods becomes important in the rural context for a majority of the farming households and those that depend on water for livelihoods other than farming.

Access to water for livelihoods is mediated through access to land or rather ownership of land. In our study villages 24 percent, households are landless. Among the landed households, about 27 percent have no source of irrigation at all and 72 percent have some seasonal source of irrigation. Among these 34 percent have their entire land irrigated and 39 percent have some of their land irrigated and some unirrigated.

In the study villages we did an exercise of mapping caste-wise land holding and irrigation on the cadastral map of the village. This mapping is based on the 7/12 revenue records provided by *talathis*. (For a sample map, see Figure I). All of the villages clearly indicate glaring inequality in land ownership and irrigation access across

castes with the *dalits* or the scheduled castes being the most resource poor among them. One of the villages in our sample was along the banks of a river and, across castes, landowners lifted water from the river for irrigation purposes. This was also a village where the ST population was high and hence the high number of ST households with irrigated land. The same is also true for Denotified tribes.

This data brings out the need for a caste analysis of resource access and the changing dynamics. The present data shows less variation among the upper castes and the OBC, DT and NT in land ownership and access to irrigation, and to an extent, access to domestic water.

Participation in committees

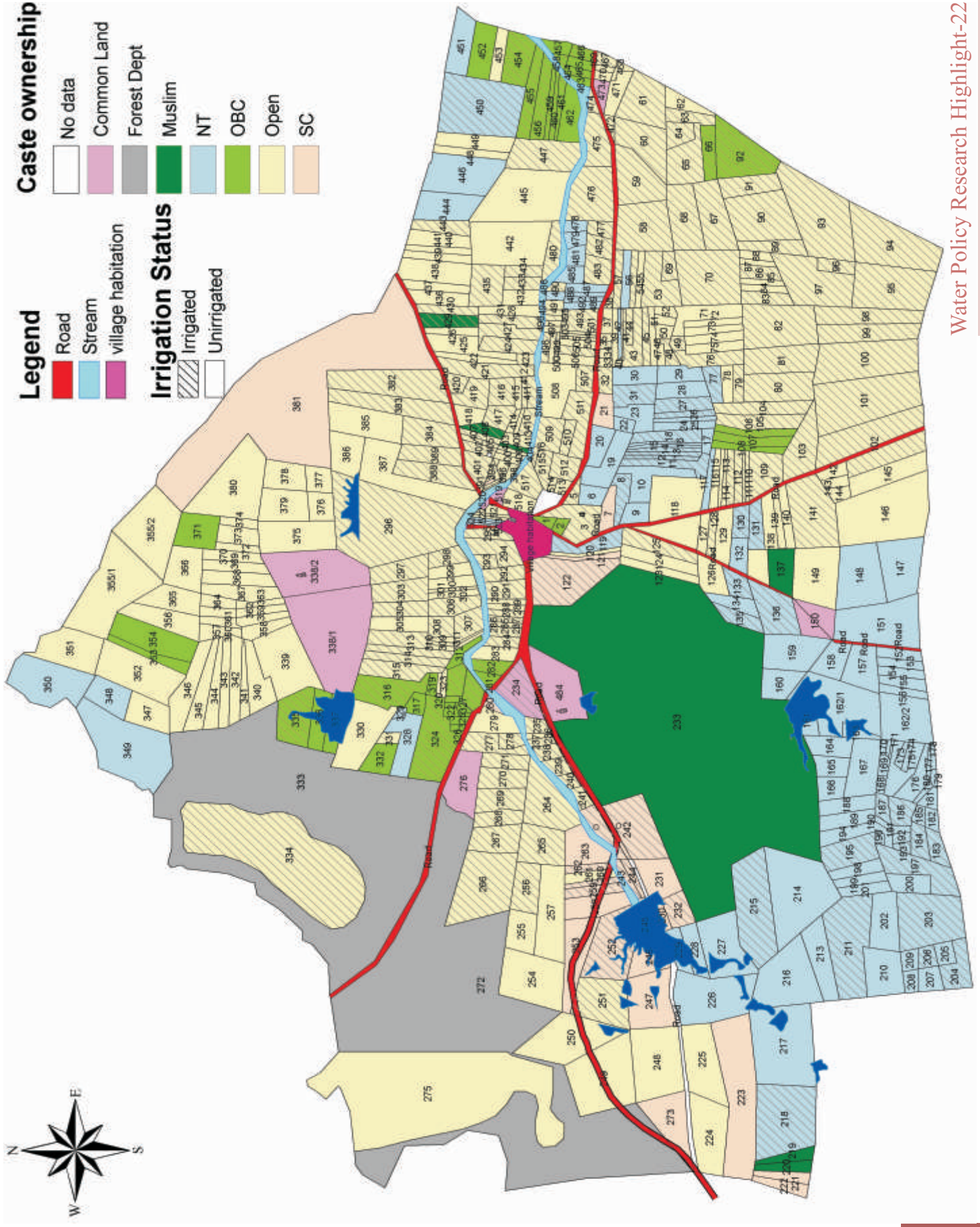
Participation is also considered as one of the indicators for improved services in water. As per the new guidelines people's participation in local level water institutions has become mandatory. However, our data as well as our observations show a complete lack of participation in village level water institutions. For irrigation and watershed programs there is no participation from among the sample households. Neither are the women participating nor are any other members from the household participating. In fact none of the water related institutions are functional.

When it comes to understanding women's participation, the responses we received are as follows. Most women felt that they did not participate because mainly there are several restrictions on them to get into the public sphere.

Table 6 Caste wise ownership of irrigated and unirrigated land among total land owning households, percentage of households

Caste Category	Land ownership (Percentage of households)			Total no of land owning households
	Irrigated	Non irrigated	Both	
Open	36	18	46	145
OBC	46	17	37	24
SC	13	64	23	44
ST	75	25	0	4
DT	50	0	50	6
NT	36	18	46	11
Muslim	33	56	11	9
Total	34	27	39	243

Figure 1 Cadastral map of village Ravalgaon, showing caste wise land ownership and irrigation status



Some said they have no time and some said they have no information. Other reasons also included lack of literacy and confidence.

Gender and non paid work: the cost of water access

This was another important area of concern for us. Although commuting time and energy spent for water collection from different sources involves significant amount of time and accuracy, we felt that understanding the cost for one source, which can be considered as the primary source, too would present a useful picture. The table below gives a picture of the time spent, distance traveled for collection of water and the time spent by women in its utilization for domestic purposes.

Table 7 Cost of accessing drinking water

Average distance traveled for fetching water from one main source (km)	0.18
Average time spent (minutes) - fetching water from one main source (in hours)	1
Average time spent in utilizing water for domestic needs - (cooking, cleaning utensils, washing vessels) (in hours)	5.6

Computing time and energy spent around irrigated agriculture involves significant amount of time and drudgery. It is however important that policy makers do undertake detailed studies that would highlight the increasing burden of women in irrigated agriculture. Increased economic activity due to irrigation, although in general terms are considered as beneficial to the household, its implications on women are yet to be studied carefully.

Rules regarding water distribution

Rules related to water distribution demonstrate the power dynamics of the local context. At one level are the larger policy level rules and laws that seem to discriminate in subtle but sure ways on the lines of caste and gender. For example landless are excluded from water access for livelihood activities. Although quota system has been introduced to allow for women and caste group representation on decision making bodies, little is done to mitigate the prior inequities which constrain their effective participation.

The common story that pervaded the responses was that of inequity in water distribution determined largely by power, landownership, and capacity to pay and due to water scarcity caused because of low rainfall. If there was enough water, everyone would have had access to it. But when there is little water those belonging to better off castes and class, or those wielding power had better access to water. Water scarcity itself was not questioned although the inequities that result due to water scarcity were expressed rather bitterly. Electricity or power crisis was another major factor affecting water availability especially so in areas where some water was available but its distribution was weak.

IMPLICATIONS OF THIS RESEARCH

The study findings strongly point to the need to generate a data base of this kind for the region. Such a database of course indicates the extent of inequities in terms of access to water and decision making but also provides us insights into areas for further research. It gives us a view into the social composition of the water access and the decision makers at the micro level. The other question is who would use this data and how would it be used. Most of this data has to be gathered on a continuing basis. At the moment the tool looks at the micro level and would need a lot of work before it can be scaled up to the macro level to provide a national comparison.

The tool in a modified form can be extremely valuable if communities can use it to monitor water access and their participation in allocation, distribution and related decision making processes. Gathered through a participatory process through the involvement of civil society groups with some credentials this data can be a very effective planning tool. Such data collated on a frequent basis would help policy makers to make the necessary course corrections.

Cadastral maps are useful in signifying the caste based ownership of irrigated land. This could be extended to giving an overview to gender based ownership of land and its irrigation status as well. It could be useful as a policy tool to inform programmes around social justice and water.



About the IWMI-Tata Program and Water Policy Highlights

The IWMI-Tata Water Policy Program (ITP) was launched in 2000 as a co-equal partnership between the International Water Management Institute (IWMI), Colombo and Sir Ratan Tata Trust (SRTT), Mumbai. The program presents new perspectives and practical solutions derived from the wealth of research done in India on water resource management. Its objective is to help policy makers at the central, state and local levels address their water challenges – in areas such as sustainable groundwater management, water scarcity, and rural poverty – by translating research findings into practical policy recommendations. Through this program, IWMI collaborates with a range of partners across India to identify, analyze and document relevant water-management approaches and current practices. These practices are assessed and synthesized for maximum policy impact in the series on Water Policy Highlights and IWMI-Tata Comments.

Water Policy Highlights are pre-publication discussion papers developed primarily as the basis for discussion during ITP's Annual Partners' Meet. The research underlying these Highlights was funded with support from IWMI, Colombo and SRTT, Mumbai. However, the Highlights are not externally peer-reviewed and the views expressed are of the author/s alone and not of ITP or either of its funding partners.

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