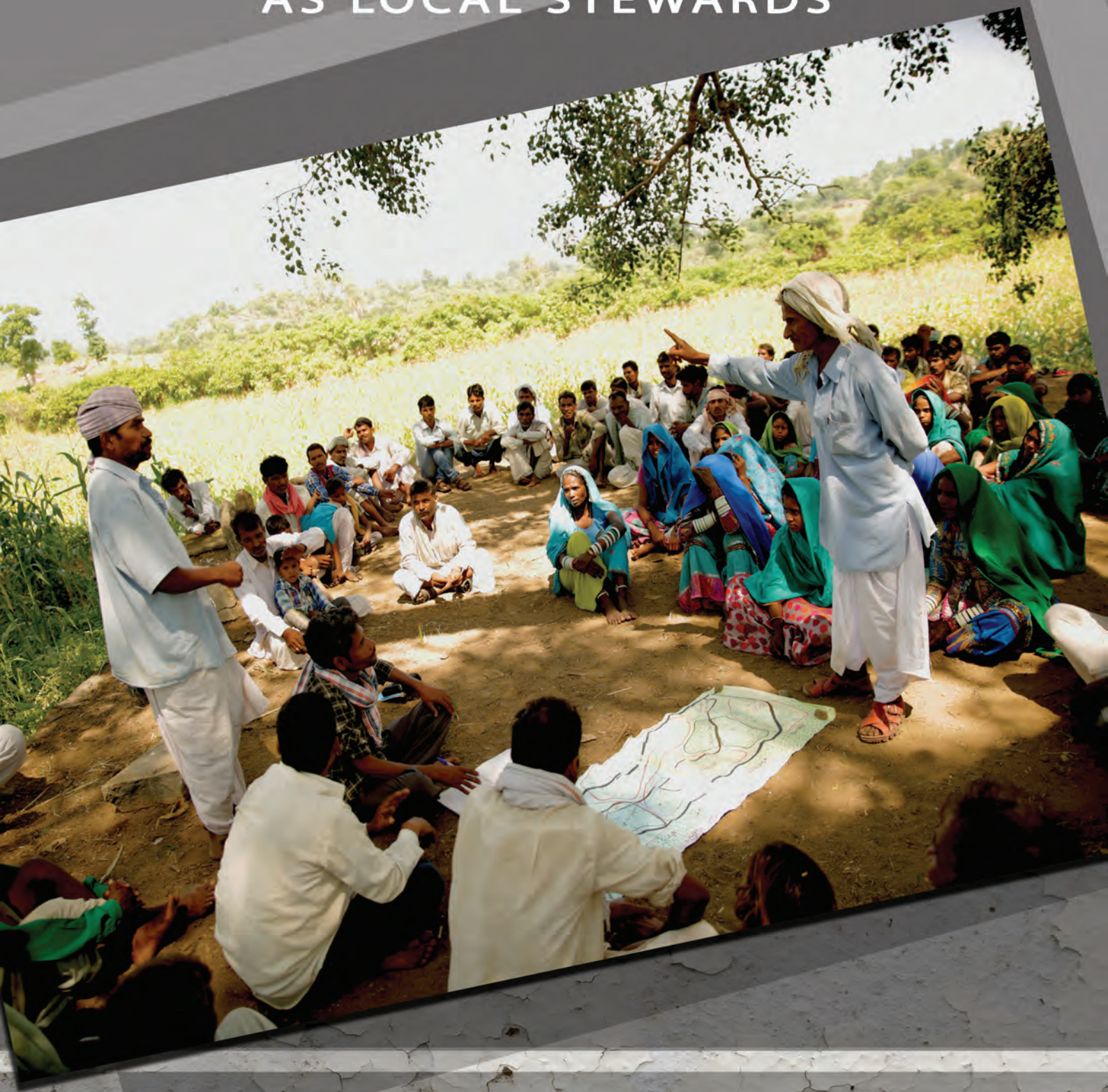
COMMUNITY AS LOCAL STEWARDS



A Learning Document

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Community as Local Stewards

A Learning Document from Piloting the AWS Standard to Improve Local Governance of Water Resources in Rural Context

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Foreword

The Alliance for Water Stewardship (AWS) is global partnership dedicated to promoting the responsible use of freshwater. AWS does this through an internationally-consistent water stewardship system that drives, recognizes and rewards improved water stewardship performance. Central to AWS's work is the International Water Stewardship Standard (the AWS Standard), which provides a voluntary framework for major water users to understand their water use and impacts, and to work collaboratively and transparently for sustainable water management within a catchment context. The AWS Standard was developed through a four-year, global multi-stakeholder process.

Foundation for Ecological Security (FES) is a non-governmental organization associated with about ten thousand village institutions located in diverse social, economic and ecological settings helpingthem secure collective rights over common pool resources such as forests, pastures and water, and strengthen governance of such shared resources. The work with local communities on land and forest commons for more than two decades has shown that communities have the capability to manage and govern forest and common lands effectively and that the management can be improved with enabling policy decisions and collaboration with civil society organizations and other stakeholders.

FES in collaboration with Hindustan Unilever Foundation (HUF) has initiated a programme on Water Commons to improve management and governance of land and water resources in around 750 habitations spread across five States of India. Building on experiences from work on land Commons, the core of the initiative on Water Commons is to carve out a space for community management between the extremes of centralised or individualised management of water resources. To begin with, a strong evidence is being built to demonstrate the effectiveness of collective management of common pool water resources by local communities. The initiative on Water Commons and that of AWS have much in common and provide grounds to understand how local water stewardship can be promoted and assessed on a common set of indicators.

It was against this backdrop that FES with the support of HUF decided to pilot the AWS Standard in one of the villages it is engaging with. By implementing the AWS Standard in the context of a local community led project, the partnership between AWS, HUF and FES aims to fill in the gap of an important stakeholder – the local communities and their collective arrangements. FES also aims to build on the argument that communities are not only the water users but also have immense potential to be a governing body for managing water resources, maintaining water balance in the local ecology and ensuring socio-economic benefits. The objective of the AWS scoping exercise has been to *understand, test and develop an integrated framework / theory of change for community stewardship of water resources.*

The AWS scoping exercise undertaken in Bhatkheri village in the semi-arid state of Rajasthan has been a learning process. It

has helped in getting deeper insights on how communities perceive and approach problems related to water use, access and availability. It also surfaces the challenges that farmers have to grapple with in the absence of a strong legal framework that regulates the use and management of water, particularly groundwater. The farmers in Bhatkheri value groundwater as a shared resource and have resolved to ban drilling of borewells in their village. However, in a context where water rights are attached to land rights and technological and infrastructural advancements enable individuals to extract as much water as they want from underneath the land they own, groundwater management in this village presents a typical case of collective action problem.

The document highlights that the AWS Standard is helpful in developing a step-wise understanding of community and institutional development. An action plan was developed with the community during the scoping exercise, considering the water related concerns of the communities and their shared risks and challenges. The plan would act as point of reference and guide the implementation process. However, developing the plan in line with the requirements of the Standard requires considerable information to be collected periodically. Developing ways to simplify the data collection processes without compromising the rigour, and enmeshing local knowledge with science, could lead to the Standard becoming more accessible and meaningful at a community level, and enable local community institutions to play a more central role in the Alliance for Water Stewardship.

At a policy level, the initiative offers promise in establishing local communities as water stewards in managing complex issues of collective management of water resources in a cost effective manner, translating the National agenda of 'less of Government and more of Governance' into rural realities.

Adrian Sym
Executive Director

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Executive Summary

Rural communities can be thought of as the natural stewards of water resources - protecting and conserving the catchments of numerous water sources, developing methods to harvest and conserve water and crafting institutions for coordinating their water uses. Communities' deep understanding of the local ecosystems and their stewardship efforts to govern water resources resonate in the plethora of folklores, stories, academic literature and the diverse indigenous systems for harvesting water that have evolved over time in different parts of the country. Valuing water as Commons or 'shared' resource that is basic for the survival and sustenance of human and natural systems, communities often evolve codes of locally agreed behaviour that promote collective action and keep individualistic behaviour in check.

The role of local communities as stewards of natural resources however, fails to feature in the dominant discourses on water governance. The mainstream views of water or environmental governance are rooted in assumptions that undermine the ability of local communities to manage their resources and reposes greater faith in state and individual property regimes. In the absence of an enabling framework that recognizes communities as water stewards, helping them claim and assert their water rights, the spaces and incentives for local communities to collectively engage to invest in protecting and managing their resources reduces drastically. As the competition for freshwater intensifies and the trend towards commoditization of water increases, the water rights of the rural communities, particularly the poor, politically and economically weak water users is further endangered. Such a scenario is likely to only intensify the issues related to water conflicts, equity, efficiency and sustainability in access to water in the years to come.

It is in this context, that Foundation for Ecological Security (FES) with the support of the Hindustan Unilever Foundation (HUF) under the programme on ' Water Commons - Influencing Practice and Policy', has undertaken a scoping study to understand, test and develop an integrated framework/theory of change that fosters community stewardship of water resources, keeping in consideration the project interventions and outcome pathway, as well as the Alliance for Water Stewardship (AWS) standard process. AWS is a non-profit international organization dedicated to promoting responsible use of freshwater that is socially and economically beneficial as well as environmentally sustainable. It is a collaboration with some of the world's leading players in sustainable water resource management who are committed to driving collective responses to shared-water risks through a stakeholder-endorsed International Water Stewardship Standard. However, the Standard is designed primarily with companies and water service providers in mind. There is a need to test and adapt the Standards in the context of rural communities who are not

only the primary water users for agriculture, livestock and other domestic uses but also the natural stewards of water and other natural resources.

The AWS scoping exercise was undertaken in one of the project villages of the Water Commons project – Bhatkheri to gain deep insights into how communities perceive and approach problems related to water use, access and availability. It also aimed at understanding how communities manage, conserve and protect their natural resource endowments and the challenges they face in doing so. The learning report builds on the findings from the scoping exercise as well as the lessons from our engagements with rural communities across diverse social, economic and ecological geographies working towards improved governance of land and water Commons.

Some of the key lessons highlighted in this report include:

- **Rural communities are and should be recognized as water stewards to improve governance of water resources:** Having a deep understanding of the local ecosystem, communities have demonstrated the ability to craft institutions that define rights for use and access, rules for allocation and equitable benefit-sharing, check individualistic behaviour and promote optimal usage such that water is preserved as 'shared' resource for all beings, at present and in the future. There is a need to appreciate and recognize these communities as water stewards and understand the complexities that govern human-nature interactions amongst these communities.

- **Need for an enabling framework where communities can claim and assert their water rights:** Water rights in India have been attached to land rights. This becomes specifically complex in the context of groundwater as some of the statutes can be interpreted to argue that State / individuals owning land have rights over water that is beneath it. In the absence of appropriate institutional arrangements, the owner of the land is therefore, in many cases able to extract as much water as desired without understanding the repercussions on others who might be located far off but share the same aquifer. There is a need to craft an enabling framework that recognizes the 'shared' nature of water (including groundwater) and assists communities, particularly the poor and marginalized, in claiming and asserting equitable water rights.

- **Local ecological knowledge needs to be valued and recognized:** Local knowledge is deeply rooted in social-ecological contexts. The art and science of assessing geo-hydrological conditions, finding water-source, deciphering water flows (including groundwater), assessing quality of water, harvesting and conserving water has been practised by local communities for generations. There is a need to recognize local communities as knowledge co-creators. Integrating science with local knowledge can contribute significantly to better understanding thresholds. It can help communities in coordinating their water uses such that the consumption levels are within the thresholds, take more nformed decisions and improve their adaptive capacities.

- **Need for multi-scale institutions for better water governance:** While habitation is the basic unit for mobilizing communities for collective action, given the nature of hydrological boundaries, it is not sufficient to work at the habitation (or any one scale) alone. There is a need to craft and engage with larger institutional associations based

on natural affiliations that cut across habitations, for instance communities sharing a forest or stream or aquifers. Evolving nested institutions at multiple scales from habitation to watershed or river basin or sub-basin level could help in addressing water related concerns at different levels, thereby improving water governance.

- **Need to address issues of water access and equity even within a community context:** In heterogeneous community settings where access to resources is deeply rooted in social structures and relations, there can be serious issues of water security for the poorer, socially and politically marginalized sections within a village. It is important to understand the local dynamics and strengthen social infrastructures that promote cooperation and equitable sharing of resources. Application of tools such as participatory aquifer mapping, experimental games and crop water budgeting can help in stimulating discussions on issues of access and equity between different sections of community.

- **Balancing between the short term and long term interests:** The alternatives suggested by external actors for improving water use regime should cater to the short-term interests of farmers for better crop yield and income while considering the long term ecological interests. Location specific seed / crop varieties and irrigation techniques or agricultural practices need to be identified and promoted such that there is an improvement in water use efficiency.

- **AWS framework can be helpful in developing a stage based understanding of community and institutional development:** As a framework, AWS can be helpful in systematizing implementation of the project. It can help in developing a plan that serves to connect all the initiatives that a community plans to undertake in a single place, acting as points of reference and guiding the implementation process.

1.Understanding Community as Local Stewards

'*Local stewardship, not private business, expensive technology or even government, is the best guardian of the water Commons. Local citizens and communities are the frontline "keepers" of rivers, lakes, and groundwater supplies upon which they depend for life....The management models of Indigenous populations and rural communities must be enhanced, as they have proved to be the real preserver of the Water Commons. States must not only recognize these local rights, but also protect them in law, and provide the authority to local communities to exercise their stewardship effectively.*'

Maude Barlow,
National Chairperson of the Council of Canadians and Senior Advisor on Water Issues to the President of the UN General Assembly

Rural communities can be thought of as the natural stewards of water resources. For centuries, the rural communities located in diverse social-economic-ecological settings have been the keepers of their water resources – protecting and conserving the catchments of numerous water sources, developing methods to harvest and conserve water, and crafting institutions for coordinating their water uses. Communities have a deep understanding of their local agro-ecological conditions and adapt to the natural resource conditions. They appreciate the forest-farm-water interconnections. Valuing water as Commons or 'shared' resource that is basic for the survival and sustenance of human and natural systems, communities often evolve codes of locally agreed behaviour that promote collective action and keep individualistic behaviour in check. The role of collective action and local institutions in mediating interactions between individuals, groups, and the natural and human systems, and in enhancing adaptive capacities of rural communities to the increasing instances of drought, crop failure, biodiversity loss, and variability in rainfall and temperature is gradually being recognized (Agrawal, 2008).

1.1 Evidences of Community Stewardship in Water Management

There are numerous evidences from across the globe that demonstrate the strength of community stewardship and collective action in the management of common pool resources such as forests, pastures, river, streams, lakes, canals, groundwater. In a series of studies undertaken by the Nobel Laureate Elinor Ostrom and her colleagues across the world, it has been well established that many communities are able to self-organize and successfully govern their shared resources. However, it is also important to understand that to do so an enabling policy environment is required that recognizes the role of community stewardship and supports local communities in strengthening governance of natural resources.

Communities' deep understanding of the local ecosystems and their stewardship efforts to govern water resources resonate in the plethora of folklores, stories, academic literature and the diverse indigenous systems for harvesting water that have evolved over time. The fact that there is ample literature that records the practice of diverse indigenous systems for harvesting water indicates that the efforts at stewarding water resources by communities have existed and evolved over time. Along with creating tangible assets and structures to harness water for various uses, communities also craft institutions that define rights for use and access, rules for allocation and equitable benefit-sharing, check individualistic behaviour and promote optimal usage such that water is preserved as 'shared' resource for all beings, at present and in future. Below are few examples that demonstrate communities' ingenuity and stewardship efforts in managing water resources.

- **Water for all:** The Pani Panchayat (Water Council) movement that began in 1972 as a response to one of the worst droughts in western Maharashtra is a community lift irrigation system that builds on the principles of equitable water sharing and water rights for all. Leveraging the provision that allows 10% of the water from medium or minor irrigation dam to be lifted by the people in the catchment area, community lift irrigation systems were set up for lifting water from the reservoirs to the fields in the upper reaches of the catchments to be provided to those who were displaced by the waters of the dam. Over a period of two decades, the Pani Panchayats succeeded in ensuring right s to access of water for drinking and domestic purposes to around 1500 families while also having irrigated 1200 ha of land. Water rights are not attached to land rights and a landless person can also become a member of the group. Water is allocated on the basis of number of members in the family rather than in proportion to the landholdings. Irrigation schemes are taken for groups of farmers rather than for individual farmers. Cropping patterns are restricted to seasonal crops with low water requirements (Pangare, 2006)

- **Building on indigenous knowledge to revive land and water resources:** The rural communities in Alwar district of Rajasthan with the support of a local organization Tarun Bharat Sangh (TBS) have been able to revive the Arvari river which is now perennial. Once declared a dark zone by the Government, community efforts improved the groundwater recharge by 20% and revived 0.65 mha of land while also increasing the forest cover by 33%. Communities from 650 villages engaged collectively in rejuvenating about 3000 traditional water harvesting structures

called *johads*. Interestingly, not a single qualified engineer was involved in the construction of any of the structures. All the construction work – right from planning, site selection and design to execution – was undertaken by the communities themselves under the guidance of *gajdhars* who have traditionally been the experts and pioneers of constructing water harvesting structures and have passed on this indigenous knowledge to subsequent generations. All the structures remain intact to date (Mahapatra, 2001).

- **Reviving the forest and water:** In the Doodhatoli ranges in the Middle Himalayas in Uttaranchal, about 100,000 people from 300 villages of the region have been engaged in protecting and managing their forests and water resources. In a movement that started in 1979 as a protest against the massive deforestation that was being undertaken to acquire logs for railway tracks, the communities under the leadership of Sachidanand Bharati of the famous Chipko movement, constructed over 40,000 *jal talais* or small tanks for water harvesting. These talais are usually made in March-April when the snow starts to melt, and the soil is soft. After the gap of a few months during the monsoon, work is taken up again in October-November just before snow sets in. The slow trickling of water from sets of *talais* over three catchment areas of the higher region has led to the formation of a stream called Ghadganga in the village forest of Ufrainkhal-Ghadkarak and water is now abundant all around the year for drinking and agriculture. The entire work is done by the communities without any external financial support (Pangare, 2006).

- **Coordinating water uses:** The Ery system of irrigation in the semi-arid regions of South India meets one-third of the irrigation needs of the farmers. An Ery is a reservoir of water contained behind earthen bunds or embankments designed to irrigate a certain extent of agricultural land (ayacut). It is fed by run-off water from catchments and in many cases, an inter-connected chain of Erys exist where the surplus waters of one, flow down to the next Ery in line and so on. The Erys have been traditionally managed by the local communities. A six member committee, known as the Ery Variyam is appointed by the village assembly to supervise the functioning of the Ery. Decisions such as when to open the sluices, how long would the sluice be opened for, how much water will flow to each field and how, what crops would be cultivated in which part of the land are mutually arrived at by consensus. Cultivation practices during the cropping season are chosen such as to adjust to the water available and the decisions on the crops to be cultivated by the farmer that season are in a way that ensures fair distribution of water collected in the Ery. The Erys not only contribute to irrigation but also help in checking soil erosion, wastage of run-off water and mitigating the impacts of flood in times of heavy rainfall (Mukundan).

- **Equitable water sharing between upstream and downstream users:** The Apatani tribe in Arunachal Pradesh harness water available from River Kele and streams and springs that flow into it. They have evolved a management system that ensures irrigation equitably to fields located in the upstream and downstream areas. After the upper fields receive their share of water, the outlet channel is opened so that the next series of fields receive water. However, in this process, it takes some time for the water to reach the tail end. During this time, the lower fields have to remain without water. Thus, a separate channel at the head is made from the main stream through which water is diverted to fields located at the tail end. The place where the channel separates is known as borang. The community collectively maintains the system. When the agriculture department of the State Government began to encourage the rice farmers to stock fish in special ponds in the 1950s, the farmers decided to raise fish in the rice fields instead. This led to an innovation in fish-rice farming that is being extensively followed by the Apatani (Pangare, 2006).

- **Building Social Capital to Manage Water:** The Dong system of water management in the north-eastern parts of India, along the Indo-Burmese border enables the communities in more than 300 villages to meet their water needs throughout the year, particularly during long dry spells of winter when water becomes scarce even for drinking purposes. Under the Dong, small dams are built on a river and the water is routed through canals to the agricultural fields and household ponds. Various Dong committees, spread across a river, work with mutual understanding and co-operation to devise methods most suitable for indigenous terrain. A Dong is opened for a few hours at periodic intervals for one village so that the residents can store water in their ponds. The next day another Dong is opened for another village. People get water as per their needs. The communities engage collectively for water resource planning and management by reducing service delivery intermediaries and improving community welfare. The Dong system of water management demonstrates how the community manages its water resources by building on social capital in heterogeneous community settings (Thakur, 2010).

1.2. Challenges to Community Stewardship

One of the key insights that the various community stewardship efforts across diverse social-economic-ecological contexts provides is that secure resource rights are an important incentive for communities to invest in the management

of natural resources. People tend to steward a resource with greater care when they feel they benefit from it and have taken part in deciding for whom and how the resource is used (Dargantes, 2012). The mainstream views of water or environmental governance however, are rooted in assumptions that undermine the ability of local communities to manage their resources and reposes greater faith in state and individual property regimes. As Garrett Hardin in the 'Tragedy of Commons' argued, individuals act independently and towards maximizing each one's short-term self interest contrary to the whole group's long-term interest and will over harvest thereby depleting the shared resource (Hardin, 1968). Private and State (government) ownership and control are thus, seen as the 'panaceas' for addressing this 'tragedy' but Hardin later revised his views to say that his argumentonly applied to "unmanaged" commons (Hardin, 1998).

Secondly, water rights in India have been attached to land rights. This becomes increasingly complex in the context of groundwater as legally, some statutes can be interpreted to argue that individuals owning land have rights over water that is beneath it and therefore can extract as much as they want in the absence of appropriate institutional arrangements to check it, (although other legal arguments may also be made, for example due to impacts on neighbours (nuisance torts), or based on water being a public trust). As it is difficult to see how groundwater flows or how one person's use subtracts from what is available to other, people may not even perceive groundwater as Commons, and instead think of it as a private property with individuals having the right to take as much water as they want from underneath the land they own, without understanding the repercussions on others who might be located far off, but could share the same aquifer. Communities which have for long believed water (including groundwater) as a shared resource are thus, increasingly facing the challenges in the absence of an enabling framework through which they can assert their water rights.

Closely intertwined to the above two challenges is the rhetoric that has led to the increasing commoditization of water, particularly since the latter half of the 21st century. As the competition for scare freshwater supplies intensifies, the debates on water governance sometimes becomes polarized around two kinds of narratives – one that values 'water as Commons' or as 'public trust' and thus all have rights to access it, and the other narrative that values 'water as commodity' that is to be bought and sold in the open market. The increasing trends towards commoditization of water raises concerns related to equity, efficiency, sustainability in access to water, and increasing vulnerability of the poor, politically and economically weak water users. This is in complete clash to the value that is central in defining water management systems, preserving it as common property, with institutions that considers for all those reliant on water – humans and natural systems, present and in future, and the need for equitable rights of one and all to access, and institutions that can adequately develop strategies for sharing water among multiple uses.

1.3. FES's Approach and Actions to Resource Stewardship

At Foundation for Ecological Security (FES), our efforts to secure rights of use and ownership over common pool resources like forestlands, revenue wastelands and pasture lands for communities and village

Box: 1
Elinor Ostrom's Institutional Design Principles

1A User boundaries: Boundaries between legitimate users and nonusers must be clearly defined.

1B Resource boundaries: Clear boundaries are present that define a resource system and separate it from the larger biophysical environment.

2A Congruence with local conditions: Appropriation and provision rules are congruent with local social and environmental conditions.

2B Appropriation and provision: The benefits obtained by users from a common-pool resource (CPR), as determined by appropriation rules, are proportional to the amount of inputs required in the form of labor, material, or money, as determined by provision rules.

3 Collective-choice arrangements: Most individuals affected by the operational rules can participate in modifying the operational rules.

4A Monitoring users: Monitors who are accountable to the users monitor the appropriation and provision levels of the users.

4B Monitoring the resource: Monitors who are accountable to the users monitor the condition of the resource.

5 Graduated sanctions: Appropriators who violate operational rules are likely to be assessed graduated sanctions (depending on the seriousness and the context of the offense) by other appropriators, by officials accountable to the appropriators, or by both.

6 Conflict-resolution mechanisms: Appropriators and their officials have rapid access to low-cost local arenas to resolve conflicts among appropriators or between appropriators and officials.

7 Minimal recognition of rights to organize: The rights of appropriators to devise their own institutions are not challenged by external governmental authorities.

8 Nested enterprises: Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises.

Source: Cox et al. 2010. A Review of Design Principles for Community-Based Natural Resource Management

institutions have assisted 5.80 million people from around 10,369 village institutions in eight states of India to improve the management of common lands and water resources (FES, 2014). This has involved assisting villages in recording their customary use practices, mapping their resource boundaries, inventorying the forest and common resources, setting up institutional arrangements for judicious governance, and claiming their rights over land and produce. As villages have secure tenure over the common lands, we assist them in framing rules and regulations so as to improve the democratic character of their functioning and providing access to the poor and marginalized. The differences are seen not only in over 1.54 million hectares of the commons, but has also improved the productivity of the adjacent 1.2 million hectares of privately owned lands, together resulting in better incomes from agriculture, livestock production and sale of forest produce. FES now seeks to apply this approach more systematically to water commons.

At FES, we believe that water is a commons that is finite and therefore subtractable and involves large costs of exclusion unlike a public good that is non-subtractable and non-excludable. All

water bodies such as ponds, tanks, canals, and groundwater are common pool resources and need to be managed and governed as common property regimes. We help bring in robust institutional arrangements based on principles of universal membership, social inclusion and social justice to foster collective action, develop locally agreed norms for resource usage, democratize decision making processes and improve the governance of common land and water resources. We nurture a 'systems perspective' towards establishing and reinforcing the inter-linkages between different resource systems (forest-farm-water) and production systems (commons-agriculture-livestock).

While working with habitations that lie in contiguity, we engage with them to evolve larger institutional associations based on natural affiliations that cut across habitations, for example the communities sharing a forest or a stream. To build a larger stewardship for governance of natural resources, we promote platforms at the landscape level with representatives of communities, government personnel, NGOs, interested citizens and assist them

articulate and steer issues pertaining to judicious use of local natural resources, particularly land and water.

Building on Ostrom's Institutional Design Principles, we aim to achieve the following collective action indicators through informal cooperation or a formal association:

- Establishing or modifying rules, which are then followed by most users, about use and withdrawal of water, including water allocation for irrigation; crop choice, or irrigation practices; such as prioritizing access for domestic water supply;
- Operating, maintaining, repairing, or improving infrastructure or increasing water storage, such as operating or repairing gates, de-silting, or watershed conservation to increase water storage, check soil erosion, and recharge ground water.
- Establishing or modifying rules, which are followed by most users, to protect water quality or prevent damage to infrastructure, such as excluding livestock from polluting domestic water sources, or evicting encroachment.
- Establishing or modifying rules, which are then followed by most users, about any transfer or sale of water or resource units, such as sale of water to tankers, external sale of fish, or auctioning fishing rights.
- Establishing or modifying rules, which are followed by most users, to promote cooperation between those in the command area and the others in the community aiming to address issues of equity and social justice, particularly equitable management of access and benefits so that water resources and their benefits are not captured by nearby landowners or another subsection of the community.
- Receiving recognition of authority to govern the resource, such as approval of rules or delegation of management responsibilities by local government (Panchayat) or resource management agency.
- Increasing the investment stake of the community in the resources by mobilizing household contributions, in labour, cash or kind for maintenance or construction.
- Publicly providing and discussing water monitoring information, such as estimated supply and demand for water (as in crop-water budgeting), or seasonal assessment of crops and irrigation and drainage service delivery.
- Effective and accountable governance, including resolving conflicts and enforcing sanctions, resulting in a fine, or other penalty; or removing a leader from office for violating rules.
- Promote village specific byelaws (rules and regulations) customized to fit local conditions and priorities, as a key process for strengthening local self-governance and arriving at arrangements and mechanisms which tilt governance towards the poor and ensure transparency and accountability in managing common land and water resources.
- Convening wider scale discussions, developing shared understanding, and working together beyond single communities, for example through signing a binding agreement on wider-scale resource management, with aother association or agency, such as a water allocation agreement, dispute settlement, or watershed land-use plan.

1.4 The Water Commons Programme and Alliance for Water Stewardship (AWS) Standard

The program on Water Commons – Influencing Practice and Policy aims to improve the management and governance of land and water resources and impact rural livelihoods in around 750 communities in eights districts across the states of Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra and Rajasthan. The major components of the project include participatory planning, conservation of natural resources through watershed approach, livelihood enhancement, crop-water budgeting, promoting community cooperation to protect and improve common lands and shared water resources, and establishing wider networking and policy dialogue. The project is financially supported by the Hindustan Unilever Foundation (HUF), Mahatma Gandhi National Rural Employment Generation Act (MGNREGA), and, in selected watersheds, the National Bank for Agriculture and Rural Development (NABARD).

Alliance for Water Stewardship (AWS) is a non-profit international organization dedicated to promoting responsible use of freshwater that is socially and economically beneficial as well as environmentally sustainable. It is a collaboration amongst some of the world's leading players in sustainable water resource management who are committed to driving collective responses to shared water risk through a stakeholder-endorsed International Water Stewardship Standard. The Standard defines water stewardship as:

"The use of water that is socially equitable, environmentally sustainable and economically beneficial, achieved through a stakeholder-inclusive process that involves site and catchment-based actions. Good water stewards understand their own water use, catchment context and shared risk in terms of water governance, water balance, water quality and important water-related areas; and then engage in meaningful individual and collective actions that benefit people and nature."

(Alliance for Water Stewardship, April, 2014)

At the core of the Water Commons project being implemented by FES is the concept of community stewardship of land and water resources. The final outcomes of the Water Commons Project - environmental restoration, improved livelihoods and economic opportunities and better governance, align with that of AWS. While the Standard is designed primarily with companies and water service providers in mind, it gives the standard seeker, including the rural communities, a systematic and verifiable way to assess their own water use and its impact on the surrounding catchment.

Considering that the final outcomes of the Water Commons Project and that of AWS have much in common and provide grounds to understand how local water stewardship can be promoted and assessed on a common set of indicators, we decided to undertake a scoping study to understand, test and develop an integrated framework/theory of change for community stewardship of water resources keeping in consideration the 'Water Commons' project intervention and outcome pathway and the 'AWS standard' process.

2.Lessons from Piloting the AWS Standard in a Rural Context

2.1 Introduction and Context

In the context of agro-pastoral communities in the water scarce regions of semi-arid Rajasthan, the availability of and access to assured water sources forms the basis of a heavily resource dependent production system. Communities in these regions have historically developed mechanisms to manage and conserve water resources to ensure water availability for livestock and domestic purposes. They value rights of access to drinking water for human and livestock as fundamental rights to life and prioritize these over the use of water for irrigation and other purposes. However, in the recent years technological and infrastructural advancements in the form of borewells, pumping technology and rural electrification, has enabled farmers in these regions to access and extract groundwater at unprecedented levels, allowing farmers to intensify and extend cultivation. Further, the legal framework that governs groundwater resources privileges individual users while ignoring the common pool nature of groundwater and aquifers. These changes have also served to destabilize the existing indigenous governance and institutional systems by increasing the opportunities for free riding and subsequently reducing the motivation for individuals to invest time and energy into managing and monitoring their water resources. The increasing extraction accompanied by widespread

land degradation has led to declines in groundwater levels.

It is in this context, in balancing the farmers' agency, access, and interests; the common pool nature of water resources, particularly groundwater, that water governance must be understood as a collective action problem. As part of the AWS scoping exercise we interacted with one of the project villages under the Water Commons Programme, in Mandalgarh Tehsil of Bhilwara District, Rajasthan, to gain insight into how communities perceive and approach problems related to water use, access and availability. We also tried to understand the efforts that communities take towards managing, conserving and protecting their natural resource endowments.

In Mandalgarh Tehsil, the Water Commons project aims to engage with around 50 villages benefiting about more than 4000 households in the basins of the Mej and Menali (Banas) rivers. While Mandalgarh is not as dry as other areas in Bhilwara district, the average annual rainfall in the Block is around 699 mm. In the recent years, Mandalgarh block has seen a great deal of groundwater developed, the groundwater draft exceeds annual availability, and the Block has been declared as Dark Zone by the Central Groundwater Board (CGWB).

Table 1: Groundwater Situation in Mandalgarh Block								
Block	**Area (sq.km)**	**Type of Area**	**Potential zone area (sq.km)**	**Net Annual GW availability (mcm)**	**Agriculture draft (mcm)**	**Dom & Draft (mcm)**	**Annual Gross draft for all uses (mcm)**	**Stage of GW development (%)**
Mandalgarh	1499.1	NC	963.44	53.4362	71.3663	2.0002	73.3665	137.30
		C	69.29	8.3109	7.7351	1.0153	8.7504	105.29
Total			1032.73	61.7471	79.1014	3.0155	82.1169	132.99

2.2 Bhatkheri: The village

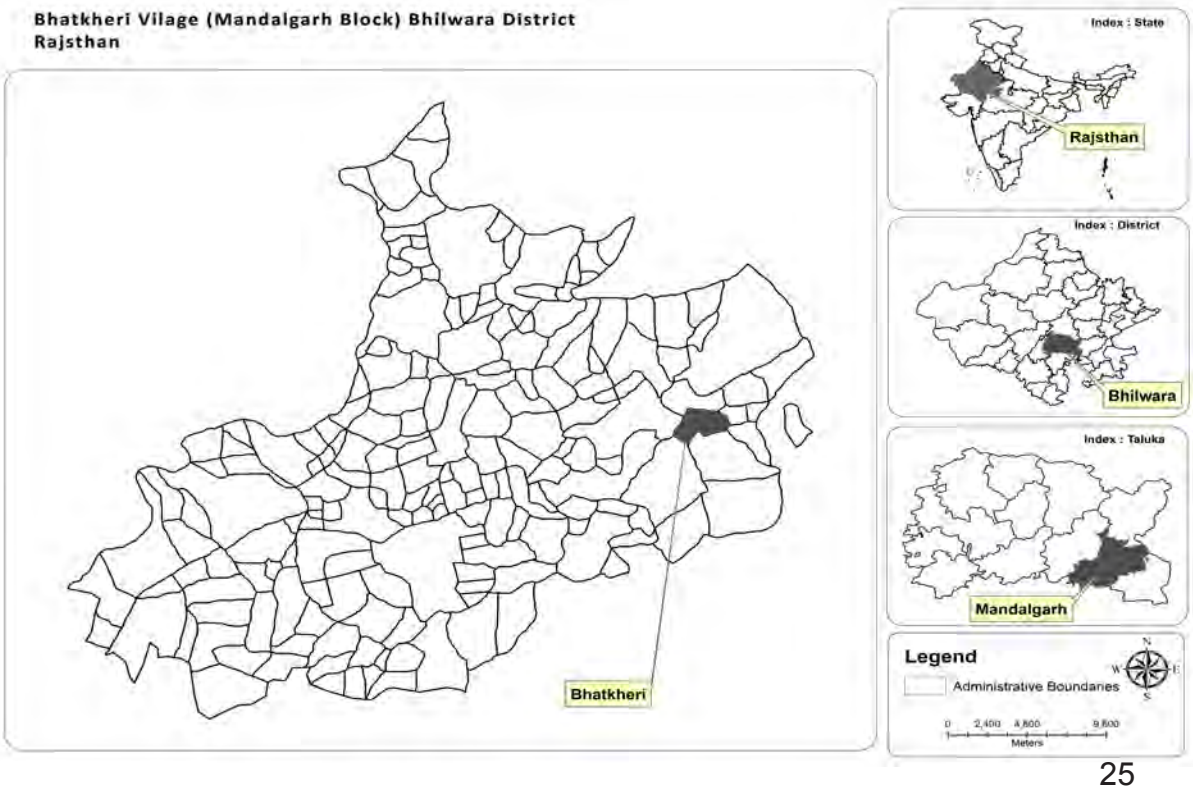
Demographic profile

Bhatkheri is a small revenue village of 57 households, located in Mal ka Kheda Panchayat, in the Mandalgarh Tehsil of Bhilwara District. It is a heterogeneous village inhabited by people from Rajput, *Bhil, Balai* and *Khatik* communities (Please see Table 2 for caste composition of the village).

Livelihood Profile

Agriculture and livestock rearing are the primary sources of livelihood for most of the people in Bhatkheri.

Table 2: Caste composition in Bhatkheri		
Caste	**Official caste category**	**No. of habitations**
Rajput	General	15
Bhil	Scheduled Tribe	30
Balai	Scheduled Caste	5
Khateek	Scheduled Caste	3
Regar	Scheduled Caste	1
Meena	Scheduled Tribe	2
Teli	Other Backward Classes	1
Total		**57**



Most of the farmers are small and marginal and practice subsistence agriculture (please see Table 3). Maize and wheat are the principle crops. Other crops sown during Kharif (June – September) include groundnut, soyabean, *urad, til,* garlic and tomato (primarily for household consumption). Tarameera, mustard and bengal gram are the other crops sown during Rabi (November – February). Fodder crops such as *rajka* is also grown by some of the farmers during the Rabi. There is a dairy in the neighbouring village and a few families also sell milk to support their livelihoods. Over the years, there has been an increasing dependence of the people on goat and sheep rearing and daily wage earning (please see Table 4). Many of the men from the village migrate or travel to and fro everyday to work in the nearby sandstone quarries as daily wage workers.

Table 3: Landholding Composition

Landless	Marginal farmers (<0.5 ha)	Small farmers (0.5 - 1ha)	Medium farmers (1 – 2.5 ha)	Large farmers (> 2.5 ha)
2	19	20	12	4

Table 4: Changes in livelihood patterns in the last ten years

Livelihood	**Trend (in last 10 years)**	**Households with primary occupation**	**Households with secondary occupation**
Goat and sheep rearing	Increased	9	41
Daily wage earning / MGNREGA	Increased	5	35
Pension (Social Security Schemes)	Increased	0	7
Subsistence agriculture	Unchanged	12	32
Commercial agriculture	Unchanged	5	16
Dairy	Unchanged	2	4
Salaried job	Unchanged	3	3
Migration	Unchanged	21	25

Resources in the village

Common lands consisting of revenue wastelands and pasture lands spans across 250 ha and share more than 80% of the village geographical area. The Mej river flows alongside the village and some of the farmers who have their farmlands close to the river, pump water from the river to irrigate their crops. Once the water in the river is not enough they do not pump water so that there is enough water reserved for the livestock to drink.

Other water sources include the water harvesting structures such as ponds, anicuts and check dams, open wells and borewells. While the open wells and borewells are primarily used for irrigation, the water harvesting structures are

Table 5: Water Resources in the village

Water harvesting structures	Open wells	Borewells
12	14	17

reserved for livestock drinking purposes and recharging the wells in the command area. Interestingly, as per the discussions with the community, most of the borewells are owned by farmers who do not reside in their village but own farmlands in the village.

Historical overview of stewardship efforts in the village

FES's association with the village commenced in 1999-2000 when the community approached FES to help them in restoring their degraded pasture land. In the year 2000, FES assisted the community in organizing the Bhatkheri Charagah Vikas Samiti to anchor natural resource governance and restoration activities in the village. The Samiti consists of all the adult men and women in the village. Over the past 14 years, the Samiti has led several initiatives with the help of FES for protection and conservation of the land and water resources. They formalized rules and regulations for governance of their common lands and water resources, developed and executed plans for reviving their land and water resources through MGNREGA and other programmes and schemes. The community has also established systems for maintaining the assets created. For instance, every year they come together voluntarily and collectively undertake de-siltation of the ponds and anicuts. They have also made several efforts for evicting encroachments from their common lands and opposing drilling of borewells in their village. As per the discussions with the community, these efforts have helped in improving the soil and moisture regime, availability of fodder, water and firewood in the village. The duration of water availability in the water harvesting structures has increased that has not only helped in meeting the water requirements for livestock for longer periods of time but also in recharging the groundwater. There has also been an improvement in the water column in wells that has helped in increasing the cropping area during Rabi from around 10 ha to 48 ha over the last ten years.

However, with the increasing proliferation of borewells, the water tables have been depleting in the last 3-4 years thereby threatening the agriculture based livelihoods of these communities.

Resisting Borewells

Discussions with community members during the AWS scoping study revealed a rich history of efforts and initiatives for the management of natural resources in the village. Valuing groundwater as a shared resource, the community has had a moratorium on digging borewells in the village. However, in 2007 an influential person from a neighbouring village who owned farmland in this village began to drill for water. The act was seriously disdained by the community members and they made several efforts to prevent the drilling but in vain. The person concerned refused to stop the drilling. The community took the matter to the Block and District Administration with the help of FES. However, the individual in question was influential and was able to dig his borewell under police protection, despite strong opposition from the community. This experience while on the one hand demonstrates community's perspective and commitment to preserve groundwater as Commons, it also reveals the challenges that the community faces in the absence of an enabling framework for asserting collective rights on groundwater as a common pool resource, particularly in the face of actors and problems that extend outside the community.

2.3 Defining Site and Catchment

For the purposes of AWS certification, we define the Bhatkheri Charagah Vikas Samiti as the 'site'. The Samiti consists of all the adult members of the village. Members' landholdings and resource use patterns shall be used to define the extent of the site. This section summarizes the interactions with the different stakeholders in the community, their perceptions and community efforts to strengthen existing stewardship mechanisms.

The Site & Catchment

The AWS defines a site as "the entire area over which a site has control (through ownership, rental, lease, management mandate, etc.).' In the context of Bhatkheri and other communities this presents some difficulties. The village boundaries should form the natural boundary of the site. This is complicated by the fact that not all those extracting water from within the boundaries (farmers living in other villages but cultivating land within the boundary) belong to the Samiti/ habitation. This means that they are not part of the cohesive community that constitutes the habitation, in that the Samiti's ablity to influence these actors both directly and morally is limited.

As with all FES locations, one of the first tasks at hand was to gain an understanding of the project location. PRA maps were prepared and then GPS Maps were created (with assistance from FES) and superimposed on watershed boundaries. The maps show that the site lies within the catchment of watershed (090407070801), and is distributed around three micro-watersheds (090407070815, 090407070814, 090407070813). All the three micro-watersheds drain into the Mej river. Most of the agricultural land that the village relies on lies within the catchment of a single micro-watershed. (090407070814). The common land protected by the village lies in micro-watershed 090407070815.
In order to gain a better understanding of the catchment context, we also discussed resource conditions with the community. Through discussions with the community we were able to establish the direction of groundwater flow, counter intuitively (but consistent with the hydro geological characteristics of the region) it appears that the groundwater flow is in the opposite direction as the surface flow.

2.4 Identifying and engaging with stakeholders to understand their water- related concerns and site's spheres of influence

The stakeholders include the various individuals, groups of individuals or entities that have interest and affect and / or could be affected by the water situation in the village. Broadly, the stakeholders in Bhatkheri's context include the farmers, the women from the marginalized (*Bhil*) community, the Gram Panchayat, Irrigation Department and FES. The water related concerns of each of the stakeholders and their ability to influence or be influenced is presented in Table 6.

Table 6: Stakeholder analysis				
Stakeholder (Name/ Group	**Type of Stakeholder**	**Water Related Concerns (and level of interest)**	**Ability to influence be influenced**	**Engagement**
Open well owners	Farmer	Groundwater level, access to irrigation	Moderate, highly influenced by others extracting groundwater	Meetings, consultations, resource mapping, experimental game on groundwater, crop water budgeting, training
Borewell owners within village	Farmer	Groundwater level	High ability to influence, others have moderate influence on them.	Meetings, crop water budgeting experi-mental games on groundwater.
Borewell owners residing outside the Samiti/village	Farmer	Groundwater level	High ability to influence, others have low influence on them.	None
Farmers without own wells	Subsistence farmers	Access to irrigation	Low, highly influenced by others	Meetings
Women from margin-alised group	Landless and small and marginal farmers	Access to irrigation, access to groundwater	Low, highly influenced by others	Meetings
Gram Panchayat	Administration	Water storage, workdays generated, funding constraints	Ability to influence -high	Meetings
Irrigation Department	Administration	Mej river dynamics		None
FES	NGO	Water balance and water governance		

2.5 Shared understanding of Risks and Challenges

Using PRA techniques and a methodology developed in partnership with the University of Michigan as part of an ongoing study, we also identified the key stakeholder concerns and risks during village discussions that are highlighted in the table below. As is evident from the Table 7, the community perceives that the increasing proliferation of borewells has led to depletion of water tables which is increasingly threatening their agriculture based livelihoods.

Table 7: Shared Understanding of Risks and Challenges			
Risk/Threats	**Livelihoods affected**	**Frequency (in the last ten years)**	**Severity (on a scale of 1-5, where 1 is the least and 5 is maximum)**
Crop damage because of high-intensity rainfall damaging maize crop and soil erosion	Subsistence Agriculture	4	3
Drought	Agriculture linked livelihoods and livestock rearing	2	4
Depleting water table	Agriculture, particularly Rabi sowing	7	4
Proliferation of borewells in village as well as neighbouring villages causing water table to fall	Agriculture, particularly those without borewells, who are faced with drying wells	7	4
Shortage of firewood	All the households	8	2
Shortage of fodder	Livestock keepers	4	2
Encroachment on revenue wasteland	Livestock keepers	6	3
Drinking Water	Not all the habitations of the village have good access to clean drinking water	8	2

2.6 Planning and Implementation

As shared in Section 2.2, the village Samiti undertook several initiatives for conservation, regeneration, protection and management of land and water resources with FES's support in the period between 2000-01 to 2006-07. With the increasing proliferation of borewells, depleting water tables and rising farm costs over the last decade, the challenges of land and water management needs to be approached from a different perspective. Participatory planning exercises were undertaken with the community in 2013-14 to develop a three year action plan. This includes plans, both, for augmenting the water availability as well as improving the water use regime and water governance. The total budget for executing the set of activities is Rs.26,01,000. The biophysical interventions would be undertaken by channelizing funds from MGNREGA while the agricultural and institutional interventions for strengthening water stewardship would be undertaken with financial support from the Hindustan Unilever Foundation (please see Table 8 for detailed action plan for three years). Some of the initiatives undertaken in the last two years include assisting community in repairing the anicut through MGNREGA and making efforts to improve the water use regime through agricultural interventions.

Resource and intervention map of Bhatkheri

Table 8: Action Plan of Bhatkheri village (2015-18)

Objective	Activities	Unit (in no.)	Budget (in Rs)
Improve information and knowledge for better management of land and water resources	Awareness camps for different stakeholders such as children, youth, women, farmers, Panchayat representatives etc. for better management of land and water resources.	6	12,000
	Exposure visits, wall paintings, sharing videos on successful initiatives for land and water management.	lumpsum	45,000
	Sum Total		**57,000**
Improve land and water governance	Facilitate village institution in establishing rules for equitable water sharing, coordinating water (specifically groundwater uses), maintenance of surface water bodies, resolving conflict pertaining to land and water use.	***12***	**24,000**

Objective	Activities	Unit (in no.)	Budget (in Rs)
	Strengthening capacities of village resource persons, MGNREGA mates, Panchayat representatives in different aspects	6	15,000
	Assist the village institution in establishing and strengthening networks with Panchayat, other stakeholders / actors for better management of land and water uses.	lumpsum	20,000
		Sum Total	**59,000**
Improve surface water availability and groundwater recharge	Development of common land	1	3,50,000
	Construction of *naadi* (earthen water harvesting structure)	1	7,00,000
	Repairing check dams	2	12,00,000
		Sum Total	22,50,00
Improve water efficiency and water productivity	Seed / crop varietal replacements	60	60,000
	Promote good agricultural practices such as irrigation scheduling, application of organic fertilizers and pesticides.	60	30,000
	Promote sprinkler irrigation systems	6	60,000
	Promote inter-cropping system to prevent crop damage due to crop disease and pest attack.	6	15,000
	Crop water budgeting exercises with the farmers to create shared understanding of water balance and improve crop planning.	3	15,000
		Sub Total	**1,80,000**
Strengthen livelihoods	Promote micro finance activity through formation of self help groups.	2	10,000
	Improve linkages of poor and BPL families to various government programmes and schemes.	3	15,000
	Improve returns from livestock rearing by promoting improved breed varieties, cattle health camps.	3	10,000
	Sub Total		35,000
Promote domestic water management	Promote awareness among women for better usage of domestic water.	1	5,000
	Set up soak pits for promoting ground water recharge.	2	10,000
	Optimize use of surface water while minimizing use of groundwater for domestic use.	3	5,000
		Sub Total	**20,000**
		Total	**26,01,000**

Progress so far:

Understanding Water Balance

To develop a better understanding of the water balance in the village, crop water budgeting exercises were undertaken with the community before the Rabi in 2014. Water available was calculated based on the rainfall received, storage capacities of water harvesting structures, geology and recharge rate. Simultaneously, groundwater discharge during Kharif for supplementary irrigation and the total demand for water during Rabi based on the cropping patterns and cropping area was calculated. Thereafter, the water balance was calculated that indicated a water deficit situation in the village, i.e. water demand exceeded the water recharged (Please see table 9). Crop water budgeting exercises helped in understanding the aggregate water demand and supply situation in the village that stimulated discussions at the community level for improving water use and engage in better crop planning.

Table 9: Water Budget for October to May 2014

Total non-monsoon recharge from rainfall (cum)	65,170
Total non-monsoon recharge from water harvesting structures (cum)	79,800
Surplus from monsoon	144,576
Total recharge	231,636
Water demand for agriculture	255,163
Surplus	0
Deficit	23,526

Influencing crop choices

To understand how individual farmers adapt their cropping patterns to the water available and one farmer's water use influences the other, experimental games were played with a group of five farmers. During the exercises the farmers discussed on the need for coordinating their water uses to ensure that the resource lasts for a longer time. The farmers also discussed the constraints that they operated under and the problem of over extraction. They shared that the reliance on diesel operated pumps for extraction of water from wells and the limited groundwater stock has resulted in higher farm costs associated with the rising diesel prices and lower yields due to water stress. The farmers decided that it would be beneficial to shift towards less water intensive crop varieties.

Eight of the farmers agreed to test **improved variety of seeds that are less water intensive** on a demonstration basis. The farmers who tested the improved variety of seeds also adopted water saving irrigation practices and **irrigation scheduling** in order to maximise water use efficiency. Unfortunately, due to heavy rains crops of seven of the farmers who had undertaken the demonstrations failed. They however, said that they had been able to save one to two rounds of irrigation with the improved variety of wheat and are hopeful that such changes would help in saving water as well as result in better crop and fodder yields.

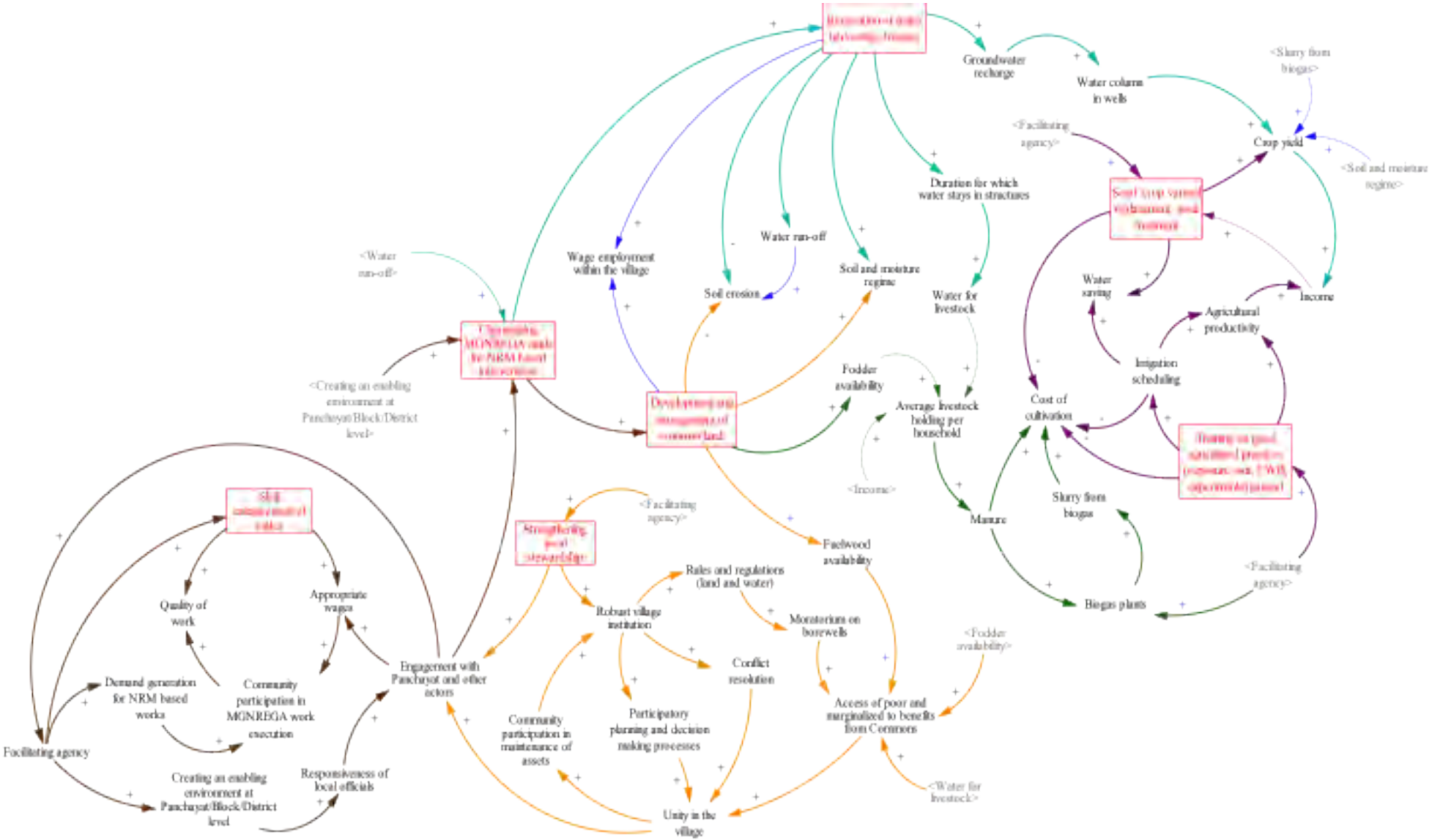
Application of less chemical fertilizers and *amrit paani* (organic pesticide) was also promoted amongst the farmers. Discussions with the farmers indicate that those who applied *amrit paani* were able to save Rs.300/- per bigha i.e. 0.16 hectare. They also believe that in the long run, less

use of chemical fertilizers and application of *amrit paani* will help in improving the soil health and quality of crops.

Augmenting water availability and effective utilization of MGNREGA funds

One of the major focuses in the last two years has been to channelize MGNREGA funds for rejuvenation of land and water resources in the village. Community members led by the Samiti passed a resolution in the Gram Sabha to repair an anicut in the MGNREGA annual action plan of 2014. With support from FES, the community was able to ensure that the work was completed in time and was technically sound. This initiative helped the community in conserving 18 TCM of water. As per the discussions with the community, there are seven wells in the command area which helps in meeting the irrigation requirements of 21 farmers cropping in around 13 hectares of farm land. The farmers shared that renovation of the structure has helped in recharging the groundwater and increasing water column in their wells by about 10 ft. The water in the structure has also improved the water availability for livestock. The community has developed plans and passed resolutions in the Gram Sabha in 2015 for renovation of two water harvesting structures, construction of an earthen pond and development of common land in the village by channelizing funds from MGNREGA. Community's perceptions of the impacts of the various interventions are presented in the figure in the following page.

Community Mind Map



2.7. Monitoring

The community maintains records concerning all the decisions and expenditures that are made. All the resolutions made during community meetings are recorded in the resolution register. In addition to the resolution register, they maintain a Bye Law Register that specifies the various rules and regulations formulated by the community towards better governance of their natural resources. They also have an inventory of all water resources and their condition, and maps that depict the resource conditions, usage patterns and regimes, and their plans for intervention. Further, the financial transactions are also recorded and the village has a common fund wherein the revenue generated from sale of produce from the protected pasture land and fines are deposited to be used for collective purposes of the village. With assistance from FES community members are also monitoring the water table in their wells.

Climate Change Resilient Development Research Project: FES in collaboration with the University of Michigan is undertaking a randomised control trial in some of the sample villages supported under the HUF-Water Commons project.

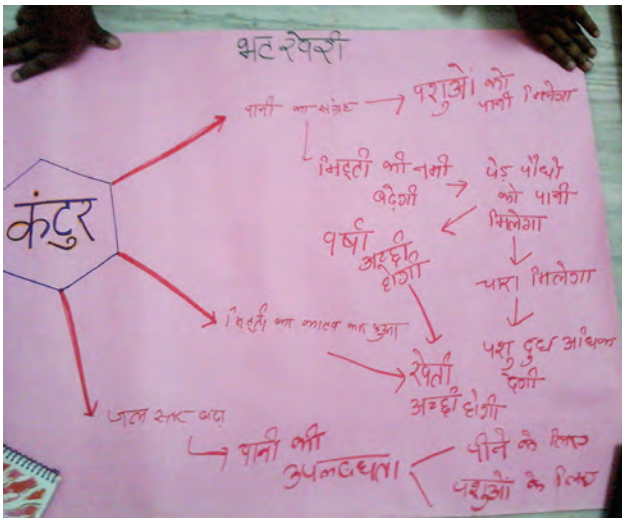
Under the survey the following data will be collected:

- Water Use and Income.
- Resilience and Climate Change adaptation
- Changes in Cropping pattern

SROI Evaluation: An SROI evaluation was undertaken in this village in 2013 and 2014. The SROI evaluations would continue throughout the project period and will be calibrated so as to take into consideration the learning and criteria specified under the AWS.

2.8. Community interpretations of the AWS standard

Table 10 assesses the community interpretations of the AWS standard and the particular learnings during the AWS



Impact maps prepared by the community to assess the intervention

Table 10: Community interpretations of the AWS standard				
AWS Outcome	**Community Interpretation**	**Community Actions**	**Community Outputs**	**Learning**
Water Balance	Ensuring that Groundwater levels do not deteriorate	Moratorium on Bore wells.	Conflict between community members and outsiders to prevent drilling of borewells.	Communities have limited ability to influence outsiders and an enabling framework needs to be created that can help community assert their water rights.
		Adapting the cropping patterns to the water available crops.	Experimentation with less water intensive seed varieties and irrigation scheduling during Rabi	While farmers make crop choices and adapt to the water available based on their individual perceptions, it is important to stimulate community level discussions to understand the water demand and supply situations and help the farmers in coordinating their water uses. The alternatives suggested by external actors for improving water use regime should be such that it also sees the short-term interests of the farmers in terms of crop yield and income while considering the long term interest of addressing the groundwater issue.
	Augmenting Water Availability	Planning and executing works for restoration of common land and water resources.	Construction and repair of water harvesting structures through MGNREGA. Community reports increase in water table in wells.	Communities engage with multiple actors and institutions such as Panchayat, Forest Department, and FES to improve their natural resources.
Water Governance	Ensuring Access to Water and Distri-butional Equity – Ensuring that Surface water resources are not cornered by the few and benefits accrue to all.	Sections of the community have been voicing their water rights.	The community has not been able to achieve much in this area.	In heterogeneous community settings, even within a village there can be serious issues of equity and access to water resources that are deeply rooted in social structure and relations.

AWS Outcome	Community Interpretation	Community Actions	Community Outputs	Learning
	Ensuring Sustainability of Water Harvesting Structures – Repairing Surface water resources	Monitoring of ongoing works and evolving rules for repair and maintenance of the structures.	Clear rules on water use, repair and maintenance of the water harvesting structures	Revenues from village fund that is earned through the sale of fodder and fruits from the pasture land being managed by the community could be directed to this.
	Managing Groundwater	Community has started discussing on coordinating their groundwater uses.	Eight farmers experimented with irrigation scheduling and seed varietal replacement.	External support is required to help in understanding the groundwater flows, aquifer boundaries and in dealing with external threats.
Water Quality	Ensuring Access to Clean Drinking Water	There has been conflict in the community over access to clean drinking water from the water tank built by the panchayat.	To be done.	Resolving the issues surrounding the tank can act as a stepping stone for building collective action and governance around water resources and ensuring water rights.
Important Water Related Areas	Managing Common Land	Protection and Management of 25 ha of Village Pastureland	The pastureland has now been protected by the community for more than a decade	Over the years the pastureland has become a source of revenue for the Samiti.
	Dealing with encroachment on common land	Liaison with Panchayat and District Administration to secure their rights on common land and restore these. Pressurising encroachers through democratic forums	Some encroachments removed	Community argues that investment in Common land development would allow them to make a strong case to remove encroachments. The Removal of encroachments require both administrative and community support. Community support begins to diminish if efforts to remove encroachments are unsuccessful and/or the administration is unresponsive.
	Investing in Land restoration	Presenting and lobbying Panchayat for funds through MGNREGA Liasoning with Forest Department	Plans submitted to panchayat	Communities see investment in land development as strengthening the community rights over common land.

AWS Outcome	Community Interpretation	Community Actions	Community Outputs	Learning
	Agricultural Productivity	Irrigation Scheduling	Initiatives are being made by some of the farmers.	For irrigation scheduling to be successful it is necessary for the scheduling process to be compatible with the nature of well ownership i.e. shared ownership.
	Water use efficiency	Irrigation Scheduling		
	Cost of Cultivation	Irrigation Scheduling		
	Use of Revenues from Common land Products	Small loans (Village Fund)	Rs. 20,000 loaned out.	Need to increase transparency of the financial transactions and access to financial records that is maintained by the Samiti.
	Wage income	Participation in works on land and water restoration under MGNREGA and other programmes.		

3. Stages of Water Stewardship

An important characteristic of the AWS Standard is that it allows for increasing levels of performance in water stewardship. Increasing levels of performance are considered as traversing one full circle i.e conforming with all the six steps, viz. commit, gather and understand, plan, implement, evaluate, and communicate and disclose. At FES we realise that in situations where communities attempt to conform to the AWS, this requirement may not fully capture the actions taken by the community to conserve, manage, and formalise their stewardship of their water resources. We can identify, certain stages in the process of strengthening and formalising community stewardship. (Please see Annexure 1 for a detailed Analysis of the Alignment between community efforts and their alignment with the AWS Standard).

The stages (as elaborated in Table 11) are an iterative and incremental process and describe the socio-ecological pathway that communities follow in the formalisation and strengthening of water stewardship.

Table 11: Stages of Community Water Stewardship

Stage	Inputs	Outputs
Stage I - Scoping Stage Understanding resource condition, use patterns, and existing social infrastructure	- Water Resource Inventory - Understanding the patterns of interactions amongst interest groups, use and ownership regimes. - Existing institutional forms and historical analysis of the management regimes	- Common or shared knowledge of resource conditions, use patterns and water related issues within the village (site/catchment). - Commitment to be responsible water stewards and appropriate local level Governance Mechanisms set in place. - Formalization of rules and norms around water use (that may or may not already exist) recording it in the institution's byelaw register.
Stage II - Capacity Building and Planning Stage Strengthening Governance Mechanisms and developing Physical Resources	-Developing a water stewardship plan. Identifying and strengthening capacities of resource persons from the community. -Engaging with external actors for executing plans for creating common assets. -Experimentation with different crop varieties and irrigation techniques to improve water use regime.	-Augmentation of surface water storage and Groundwater Recharge. -Established mechanisms for governance of water resources, their maintenance and upkeep. -Identification of appropriate crop varieties and irrigation techniques/ agronomical practices to improve water efficiency.

Stage	Inputs	Outputs
Stage III - Crafting/ Development Stage *Demand side management as the primary focus.*	-Scaling up initiatives -Peer-to-peer learning	-Wide Scale adoption of appropriate crop varieties and irrigation techniques. -Water Allocation Mechanisms developed based on water budgets and distributional equity.
Stage IV - Maturation/ Federating Stage	Engage with stakeholders outside the community to resolve questions over use, allocation, and distribution of water.	- Robust governance systems and autonomous functioning of the village institution. - Community makes efforts to maintain water balance and improve resilience of production systems. - Steps towards distributional equity.
The first stage primarily complies with Step 1 and 2 of AWS The second stage is in full compliance with core criteria of Step 3, and partial compliance with steps 4 & 5. The third stage increases compliance with steps 4 and 5. The fourth stage fully complies with AWS core criteria.		

4. Learnings from the Pilot Exercise

The AWS scoping exercise helped in gaining deeper insights into how communities perceive and approach problems related to water use, access and availability; how do they manage, conserve and protect their natural resources; what are the factors that enable or hinder communities to engage collectively to govern water as Commons. The Standard can help in establishing the role of rural communities as water stewards and provide a firm ground for engaging with different stakeholders to craft an enabling framework that recognizes water as 'Commons' (rather than 'commodity') and helps communities in claiming and asserting their water rights.

Piloting the Standard in one of the project villages of the programme on Water Commons has been a learning process. The Standard helps in systematising the implementation of the project, through a stage based understanding of community and institutional development (as described above). Secondly, it also helped in developing habitation level water stewardship/management strategies and plans that outline the "shared water challenges, water risks and existing public-sector agency initiatives." The plan serves to connect all the initiatives that the community aims to undertake in the next few years in a single place, and would act as a point of reference and guide implementation process.

The certification process requires a large amount of information to be collected on water resource conditions both in the catchment and the site, which may be difficult to undertake on the part of the rural communities themselves and would require handholding in meeting the requirements of the Standard. Simplifying the processes could help local community institutions and programmes to use this as an effective tool.

The Standard prefers "scientific" information, over local ecological knowledge. There is a need to recognize local communities as knowledge co-creators. Local knowledge is deeply rooted in social-ecological contexts. Integrating science with local knowledge can contribute significantly in better understanding of thresholds and help communities in coordinating their water uses such that the consumption levels are within the thresholds and they are able to take more informed decisions and improve their adaptive capacities. Monitoring and evaluation frameworks that value community participation and knowledge could help in developing outcome metrics that are more holistic in nature.

Another key learning has been that in heterogeneous community settings where access to resources is deeply rooted in the social structures and relations, there can be serious issues of water security for the poorer, socially and politically marginalized sections within a village. While the government/public sector agencies have been making investments in creating water infrastructure in villages for drinking or irrigation purposes, there is considerable scope in improving this implementation by focusing on issues such as access of the poor and marginalized to safe and clean water. It is important to

understand the local dynamics and strengthen social infrastructures that promote cooperation and equitable sharing of resources. Application of tools such as participatory aquifer mapping, experimental games and crop water budgeting can help in stimulating discussions on issues of access and equity between different sections of community.

Finally, while the habitation is the appropriate unit/scale for mobilising communities for collective action, it may not be an appropriate unit for groundwater management, given the nature of landholdings and the hydrological boundaries. The question then becomes twofold - one on how to organise actors within a habitation and support them in a way that leads to positive social and ecological outcomes in such a way that actions are relatively independent of the decisions taken by other stakeholders. And second, on how to initiate dialogue between different actors who are not necessarily enmeshed in the social and economic matrix (i.e. the habitation) but who influence or have the potential to influence water use and management. There is a need to adopt a polycentric approach that enables evolution of nested institutions at multiple scales from habitation to watershed or river basin or sub-basin level. Experiences from working with multi-scale institutions on land Commons (as discussed in the first section) could be built on.

In a nutshell, to improve the AWS framework and make it applicable in the rural community contexts, the following suggestions could be considered:

- An enabling framework needs to be crafted that recognizes the 'shared' nature of water (including groundwater) and assists communities, particularly the poor and marginalized, in claiming and asserting secure community tenurial rights over water resources.
- Local ecological knowledge needs to be valued and recognized. Integrating science with local ecological knowledge could help in more informed decision making and improving adaptive capacities of communities.
- As hydrological boundaries transgress administrative and social boundaries, multi-scale institutions need to be crafted for better water governance.
- Issues of water access and equity need to be addressed even within a community context and effective steps need to be undertaken to promote cooperation between different sections of the community and share resources equitably.
- Short-term interests for better crop yield and income needs to be balanced with the long-term ecological interests.
- Simplifying the AWS certification processes could help local community institutions and programmes to use this as an effective tool.

References

- Agrawal, A. (2008). *The Role of Local Institutions in Adaptation to Climate Change.* Washington DC: Social Dimensions of Climate Change, Social Development Department, The World Bank
- Hardin, G. (1968). The Tragedy of the Commons. *Science*
- Mahapatra, R. (2001). *Dramatic Turnaround. Making Water Everybody's Business: Practice and Policy of Water Harvesting.* Center for Science and Environment
- Mukundan, T. *The Ery Systems of South India.* www.samanvaya.com
- Pangare, G. (2006). *Springs of Life: India's Water Resources.* New Delhi: Academic Foundation
- Stewardship, A. f. (April, 2014). The AWS International Water Stewardship Standard, Version 10
- Thakur, S. (February, 21, 2010). Indigeneous Irrigation Comes Handy in Dry Season. *The Assam Tribune, Guwahati*

Annexure 1

Detailed Analysis of the Alignment between Community Efforts and the AWS Standard

Step	Criteria	Fulfillment Criteria	Community Capacity	Learning
COMMIT	1.1 Establish a leadership commitment on water stewardship		Community has already made several resolutions for conserving land and water resources within the village.	There is a need to develop a comprehensive statement that the community can make on water resource management.
	1.2 Develop a water stewardship policy			
	1.3 Further the Alliance for Water (9)		Need external support	
	1.4 Commit to other initiatives that advance effective water stewardship			
	1.5 Secure a water stewardship commitment from the organization's senior most executive or the organization's governance body.			
UNDERSTAND	2.1 Define the physical scope	1. Define Site's Boundaries 2. Identify the Site's Water Sources 3. Identify the receiving water bodies of the site's discharge 4. Define the Catchment that the Site relies upon and affect	Defined site as the village. Mapping activities have been undertaken.	Boundary definition in a community context becomes difficult due to the presence of fuzzy and overlapping boundaries.
	2.2 Identify stakeholders, their water-related challenges and the site's sphere of influence.		Stakeholders and their spheres of influence have been identified.	

Step	Criteria	Fulfilment Criteria	Community Capacity	Learning
	2.3 Gather water-related data for the catchment	1. Governance & Catchment Plans 2. Legal and Regulatory Framework 3. Catchment Water Balance 4. Catchment Important Water Related Areas 5. Catchment Water related infrastructure structures	GIS based mapping and data has been collected with FES's support on the key parameters.	A key finding is that the "scientific" veracity of the data is not so important rather it is more important for the information to be held as legitimate by community members/ farmers
	2.4 Gather water-related data for the site	1. Site Water Governance Plans 2. Site Water Balance 3. Site Water Quality 4. On site Important water related Area 5. Site Water-Related Costs, Revenues and Shared Value Creation	Water Related data has been collected but needs to be made more robust	
	2.5 Improve the site's understanding of its indirect water use		Not so relevant	
	2.6 Understand shared water-related challenges in the catchment		Depleting Groundwater as primary water related challenge	During experimental games sessions it was observed that farmers adapt based on their individual perceptions of the water available. Further, they tend to see rainfall as a key determinant of the water available.
	2.7 Understand and prioritize the site's water risks and opportunities	1. Write and prioritize a risk profile that speaks to the physical, regulatory and reputational water risks. 2. List and prioritize water-related opportunities at the site and within its catchment (for economic, social and environmental improvement) 3. Quantify the site's cost savings and value creation for all high-priority opportunities.	Water related risks were identified during a study undertaken by FES, (Studying Poverty Agricultural Risk and Coping Strategies)	

Step	Criteria	Fulfillment Criteria	Community Capacity	Learning
	2.8 Support and undertake joint water-related data collection	Not applicable to this context		
	2.9 Gather additional, detailed water-related data 3			
	2.10 Review a formal study on future water resource scenarios.			
	2.11 Conduct a detailed, indirect water use evaluation			
	2.12 Understand groundwater status or environmental flows and the site's potential contributions			
	2.13 Complete a voluntary Social Impact Assessment 3			
PLAN				
	3.1 Develop a system that promotes and evaluates water-related legal compliance	1. Provide a system that outlines the names, positions and credentials of those staff responsible for ensuring legal compliance; 2. Have a system that lists relevant regulations (from Criterion 2.2) and indicates where to find evidence of the most recent compliance submission.		Need external support.
	3.2 Create a site water stewardship strategy and plan	1. Water Stewardship Strategy 2. Water Stewardship Plan	The community has developed a three year action plan.	

Step	Criteria	Fulfilment Criteria	Community Capacity	Learning
	3.3 Demonstrate responsiveness and resilience to water-related risks into the site's incident response plan	1. Develop a disaster Management Plan 2. Show that community efforts increase resilience	Water related risks and some of the adaptation practices evolved by the community have been identified. There is a need to design a well defined response strategy.	The activities have been undertaken by the community to create social and physical infrastructure to improve the availability and governance of water resources will undoubtedly improve resilience, however it is important to articulate this in a systematic manner.
	3.4 Notify the relevant (catchment) authority of the site's water stewardship plans	1. Demonstrate active outreach to the catchment authority (or equivalent) 2. Demonstrate how the site's water stewardship plan contributes to the catchment plan.		
	3.5 Gain stakeholder consensus on the site's water stewardship targets			
	3.6 Develop a formal plan for climate change adaptation			
IMPLEMENT				
	4.1 Comply with water-related legal and regulatory requirements			

Step	Criteria	Fulfilment Criteria	Community Capacity	Learning
	4.2 Maintain or improve site water balance	1.Criterion 4.2 requires continual improvement until such point that the site has achieved "best practice" 2. Achieving a performance level that a consensus of stakeholders recognizes as positively contributing to the achievement of the four water stewardship outcomes in the catchment. 3.For sites where water scarcity is a shared water challenge, these sites must "cause no net increase in water scarcity in the catchment"" 4. For sites where water scarcity is a shared water challenge, these sites must "cause no net increase in water scarcity in the catchment" In the event that a site in a water-scarce catchment wishes to increase its withdrawals or consumptions, it must "cause no net increase in water use".	1. Leveraging MGNREGA 2. Cropping pattern 3. Agronomical Practices	
	4.3 Maintain or improve site water quality		Water Quality has not been identified as a shared water challenge	
	4.4 Maintain or improve the status of the site's Important Water-Related Areas	1. Where degradation of Important Water-Related Areas is a shared water challenge, Criterion 4.4 requires continual improvement until such point that the site has achieved "best practice" 2. Where degradation of Important Water-Related Areas is a shared water challenge. These sites must "cause no further degradation to Important Water-Related Areas".	Protection of Common land Attempts at removal of encroachments Resolutions submitted to the GP for restoration of common lands.	

Step	Criteria	Fulfilment Criteria	Community Capacity	Learning
		3. Protect: If a site is already in very good condition, then the aim should be to maintain or "protect" that status. This would involve ongoing maintenance interventions where necessary and ensuring that the conditions in place that are allowing the area to thrive are maintained. 4. Manage: If a site is somewhat impaired, then management practices can be implemented to help improve its condition. This could include managing riparian vegetation, limiting or fully restricting access/ use of the water area to ensure that no additional degradation occurs, removing invasive species, modifying water levels at a given time of the year, etc. 5. Restore: If a site is impaired or has been lost entirely, then actions typically involve in-depth restoration. This could include restoring a cultural area, replanting vegetation or re-introducing appropriate species to a given water body as the context dictates. This conforms with the advanced-level criterion on restoration (Criterion 4.11)		

Step	Criteria	Fulfilment Criteria	Community Capacity	Learning
	4.5 Participate positively in catchment governance		Protection of Common land attempts at removal of encroachments Resolutions submitted to the GP for restoration of common lands.	
	4.6 Maintain or improve indirect water use within the catchment		Not a concern	
	4.7 Provide access to safe drinking water, adequate sanitation and hygiene awareness (WASH) for workers on-site		Access to Drinking Water remains a concern or some households	
	4.8 Notify the owners of shared water-related infrastructure of any concerns		Inform the Gram Panchayat of damage to structures	
	4.9 Achieve best practice results on site water balance		Farmers are experimenting with water frugal seed varieties and irrigation scheduling for maintaining the site water balance	
	4.10 Achieve best practice results on site water quality			
	4.11 Achieve best practice results on Important Water-Related Areas through restoration		Community has established rules and regulations for protection and management of common lands. Plans for restoring common lands have been developed and incorporated in the MGNREGA annual action plan for execution.	

Step	Criteria	Fulfilment Criteria	Community Capacity	Learning
	4.12 Achieve best practice results and strengthen capacity in water governance		Enabling capacities of community resource persons and the village institution in water governance	
	4.13 Advance regionally specific industrial water-related bench marking 3		Not relevant	
	4.14 Re-allocate saved water for social or environmental needs			
	4.15 Engage in collective action to address shared water challenges 8 (14)			
	4.16 Drive reduced indirect water use throughout the site's supply chain and outsourced water-related service providers 5 (7)			
	4.17 Complete implementation of water-related initiatives 3			
EVALUATE	5.1 Evaluate the site's water stewardship performance, risks and benefits in the catchment context			
	5.2 Evaluate water-related emergency incidents and extreme events			

Step	Criteria	Fulfilment Criteria	Community Capacity	Learning
	5.3 Consult stakeholders on water-related performance		SROI assessments	
	5.4 Update water stewardship and incident response plans catchment context			
	5.5 Conduct executive or governance body-level review of water stewardship efforts 3			
	5.6 Conduct a formal stakeholder evaluation 6			
COMMUNICATE AND DISCLOSE	6.1 Disclose water-related internal governance			
	6.2 Disclose annual site water stewardship performance			
	6.3 Disclose efforts to address shared water challenges			
	6.4 Drive transparency in water-related compliance			
	6.5 Increase awareness of water issues within the site			

Step	Criteria	Fulfilment Criteria	Community Capacity	Learning
	6.6 Disclose water risks to owners (in alignment with recognized disclosure frameworks) 4 (6)			
	6.7 Implement a programme for water education 4			
	6.8 Discuss site-level water stewardship in the organization's annual report 2			

Alliance for Water Stewardship (AWS)
A multi-stakeholder organisation dedicated to enhancing water stewardship capacity, and guiding, incentivising and differentiating responsible water use. AWS employs three mutually-reinforcing programs to drive improved water stewardship: a standard and verification system, membership of a multi-stakeholder association, and training. Together, these programs are designed to build capacity and provide a forum through which knowledge on water stewardship can be generated, accessed and shared, helping us address our shared water challenges. At the heart of all three programs is the stakeholder-endorsed AWS Standard. Our Vision is that water users and managers are responsible water stewards, who protect and enhance freshwater resources for people and nature. Our mission is to promote responsible use of freshwater that is socially and economically beneficial as well as environmentally sustainable. AWS network of regional partners make our system accessible to a wide range of stakeholders from industry, agriculture, public sector and civil society. Our innovative partnership based approach allows global consistency to team up with local expertise, placing AWS at the leading edge of the drive for collective responses that address local water challenges. AWS is currently transitioning to a multi-stakeholder governance structure in which Board members will be elected by AWS members. Until this transition is complete, AWS is governed by a Board of organisations namely, Water Stewardship Australia, Water Mandate, UNEP, The Nature Conservancy, Water Witness International, CDP, the Pacific Institute, World Wildlife Fund, Water and Environment Federation, European Water Partnership.

Foundation for Ecological Security (FES)
Registered under the Societies Registration Act XXI 1860, the Foundation for Ecological Security was set up in 2001. Spread across diverse ecological and social geographies, FES works towards conservation of nature and natural resources through collective action of local communities. In India, FES has played a pioneering role in furthering the concept of Commons as an effective instrument of local governance, as economic assets for the poor and for the viability of adjoining farmlands. Globally, FES hopes to see an increasing influence on two fundamental issues in governing shared natural resources – a 'socio-ecological systems' approach and a 'Commons paradigm', which together could have far-reaching impact on world views on 'development'. FES has initiated work on compiling, consolidating and making available accurate and comprehensive data to facilitate informed decision making on Forest, land and water resources and commons in particular. An effort with a vision to make available real time data on a scale and scope that systematically removes asymmetries in information for action on ecological and social concerns. This is an initiative to foster and enhance multi stakeholder efforts of cooperation, collaboration and management involving local communities and institutions with varied concerns and levels of decision making. By working on systemic issues that can bring about a multiplier change, FES strives for a future where the local communities determine and move towards desirable land-use that is based on principles of conservation and social justice.

Hindusthan Unilever Foundation (HUF)
Future demand for water resources will increase significantly as the population, rate of economic development, and consumption grows. Estimates tell us that by 2030, the supply of water in India could be significantly lesser than the demand. The adverse impact of climate change on agriculture will further compound problems arising due to linkages between food, energy, and livelihoods in the country. To understand and partake in meeting this challenge, HUF was formed in 2010.
By 2020, the cumulative impacts of our collective action are expected to generate:
Water potential of 500 billion litres
Employment of more than one million person days
Employment of more than one million person days
Annual additional agricultural production of 0.1 million tonnes

HUF is a not-for-profit company that anchors various community development initiatives of Hindustan Unilever Limited. HUF supports national priorities for socio-economic development through its 'Water for Public Good' programme. It's projects also comply with the requirements of the Companies Act. 2013

ALLIANCE FOR WATER STEWARDSHIP

FES
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