# Crossing the Frontiers

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NWO Netherlands Organisation for Scientific Research · TU Delft · Both ENDS Environment and Development Service · SaciWATERs · The Researcher · Shifting Grounds · JJS Jagrata Juba Shangha


Shifting
Grounds

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## Transdisciplinary Research and the Negotiated Approach for Peri-Urban Groundwater Management in the Indo-Gangetic Delta


Editors:

**Leon Hermans, Vishal Narain, Remi Kempers**

Authors:

**Sharlene Gomes, Leon Hermans, Wil Thissen**
Delft University of Technology, Delft, the Netherlands

**Vishal Narain**
Management Development Institute, Gurgaon, India

**Poulomi Banerjee**
SaciWATERs, Hyderabad, India

**Rezaul Hasan, Mashfiqus Salehin, Shah Alam Khan**
Bangladesh University of Engineering and Technology, Dhaka, Bangladesh

**ATM Zakir Hossain, Kazi Faisal Islam, Sheikh Nazmul Huda**
Jagrata Juba Shangha (JJS), Khulna, Bangladesh

**Partha Sarathi Banerjee, Binoy Majumder, Soma Majumder**
The Researcher, Kolkata, India

**Remi Kempers**
Both ENDS, Amsterdam, the Netherlands

The Shifting Grounds Project Team

The Netherlands / Bangladesh / India



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# 1. Introduction

## 1.1. Transdisciplinary research

Transdisciplinary research is a process of mutual learning among scientists from various disciplines and societal actors aimed at the creation of knowledge that helps to address important societal problems (Lang et al., 2012; Scholz& Steiner, 2015a). Transdisciplinary research is multidisciplinary, because complex societal problems typically require different perspectives, doing justice to the complexity of societal challenges and the diversity of stakeholder views and interests. Transdisciplinary research also is interdisciplinary, because the boundaries between multiple disciplines need to be crossed and insights and elements from different disciplines need to be synthesized into richer and new ways of understanding. Transdisciplinary research adds societal relevance and participation of societal stakeholders to these interdisciplinary endeavours (Krueger et al., 2016).

Although transdisciplinary research has been developed since the nineteen seventies (Scholz& Steiner, 2015a), it is the focus of renewed attention and effort. With its emphasis on co-creation of knowledge between scientists and local actors outside academia, it is closely related to, and for many practical purposes often indistinguishable from participatory action research (Whyte et al., 1989; Bradbury, 2015) and other participatory, interactive and community-based approaches (Lang et al., 2012). All these approaches bring a systematic method of inquiry to assist societal actors in improving their actions for societal problems (Bradbury, 2015), while also generating methodological innovations and new empirical and theoretical knowledge related to the problem field (Lang et al., 2012).

The rise of transdisciplinary research is visible in a steady flow of publications on the topic. In these, roughly three phases are distinguished: problem framing; co-creation of solution-oriented knowledge; and re-integration of knowledge with scientific practice (Lang et al., 2012; Scholz& Steiner 2015b; Steelman et al. 2015). Each of these phases has various challenges (Lang et al., 2012; Brandt et al, 2013; Steelman et al., 2015), issues and obstacles (Scholz& Steiner, 2015b).

Table 1 shows an illustrative list of challenges developed by Lang et al. (2012) and reported to be encountered in transdisciplinary water research in South Africa by Steelman et al. (2015). As is clear from this table, many of the key challenges relate to the representation and participation of societal actors. A logical place to look for lessons to address these challenges, is the more socially oriented approaches for participatory and community-based management.

*Table 1 Challenges encountered in transdisciplinary water research (source: Lang et al., 2012; Steelman et al., 2015)*

| Phase | Challenge | Description |
|---|---|---|
| Phase A: Problem framing and team building | Lack of problem awareness or insufficient problem framing | Issues are not perceived as problematic, affecting for instance motivations to participate |
| | Unbalanced problem ownership | Dominance of scientists or actors from practice in defining the joint boundary/research object and research objectives |
| | Insufficient legitimacy of the team or actors involved | Underrepresentation of relevant actor groups in the research process |
| Phase B: Co-creation of solution-oriented transferable knowledge | Conflicting methodological standards | Conflict between scientists and researchers regarding suitable methods |
| | Lack of integration | Lack of integration across knowledge types, organizational structures, communicative styles, or technical aspects |
| | Discontinuous participation | Barriers for researchers and partners from practice to participate in the transdisciplinary processes |
| | Vagueness and ambiguity of results | Different interpretations of results conceal potential conflicts |
| | Fear to fail | Pressure leads to retreat to prepackaged solutions |
| Phase C: Re-integrating and applying the produced knowledge in both scientific and societal practice | Limited, case-specific solution options | Lack of transferability and scaling-up of results |
| | Lack of legitimacy of transdisciplinary outcomes | Friction between transdisciplinary projects and political processes |
| | Capitalization on distorted research results | Results are misused to legitimate actions that were not included |
| | Tracking scientific and societal impacts | Difficulties to assess scientific and social impacts due to characteristics of transdisciplinary research |

## 1.2. The Negotiated Approach

Societal demands for evidence-based policies and decisions have been increasing, with the realization that many societal challenges have a level of complexity that requires thorough and rigorous analysis. The practices of participatory and community-based management have grown, especially in the environmental and water-related domains (e.g. Dyer et al., 2014). These approaches would seem to mirror the developments of transdisciplinary research from a societal perspective, but also add an important ingredient. Where transdisciplinary research recognizes scientists and practitioners, the community-based approaches underscore that in societal problem solving, different groups and interests are present.

The creation of strategic and coordinating platforms for negotiations among these different societal actors thus is a critical feature of participatory and community-based natural resource management (Koudstaal, Nooy & Paranpjpye, 2011). Representation of actors, especially community actors, becomes a key factor in participatory environmental management (Dyer et al., 2014). This, in turn,

requires not just inviting communities, but also capacity building and empowering local communities (Koudstaal, Nooy & Paranpjpye, 2011). This is recognized for instance in the Negotiated Approach, an approach developed in practice by several NGOs, supported and spearheaded by the Dutch NGO Both ENDS (Both ENDS &Gomukh, 2005; Koudstaal, Nooy&Paranjpye, 2011). Access to knowledge development for local platforms and continuous learning are important pillars in this approach, recognizing community knowledge as well as rigorous and innovative science. It follows the principle of 'principles negotiations' as developed under the seminal Harvard Negotiation programme and popularized by Fisher et al. (1991). The approach offers eight tasks as guidance, and, as can be seen from Table 2, these tasks connect well to the phases and challenges identified for transdisciplinary research in Table 1. This makes the Negotiated Approach a very interesting match for transdisciplinary research endeavours.

Although the Negotiated Approach has been developed and used in several communities in the global South, it is not a set of tools or methods that can be easily replicated. Rather, it is a set of principles, accompanied by a large range of potentially useful tools for participatory environmental management.More insights, and more guidance, on how to combine knowledge development and how to conduct NA and TR processes is therefore critically needed. Peri-urban groundwater management poses an important societal problem, around which such insights can be developed.

*Table 2 Tasks and activities in the Negotiated Approach (Source: Koudstaal, Nooy&Paranjpye, 2011)*

| Tasks | Sub-tasks and points of attention/challenges |
|---|---|
| Task 1: Preparing the process | Understanding past initiatives and existing social arrangements<br>Selecting committed participants that represent a 'balance of power'<br>Identifying broad areas and boundaries of intervention |
| Task 2: Reaching agreement on process design | Understanding of institutional context, its possibilities and limitations, by all participants<br>Specifying agenda and procedures, while allowing flexibility |
| Task 3: Joint fact-finding and situation analysis (problem analysis) | Ensure participants understand each other: Clarity on the backgrounds, aspirations and interests of various stakeholders<br>Access to and understanding of objective information on natural system<br>Joint fact-finding might be needed |
| Task 4: Solutions analysis | Establish prior agreement on criteria, separate from weight given to them by different stakeholders<br>All solutions identified by the stakeholders should be considered and discussed seriously |
| Task 5: Forging agreement | Positional bargaining by one or more parties might require active mediation by independent outside facilitator |
| Task 6: Communication with constituencies | Allow representatives with ample time and documented information to maintain communication with constituencies |
| Task 7: Monitoring agreed actions | Long-term commitment by stakeholders for monitoring of agreed actions and impacts of those actions |
| **Task 8: Strengthening capacity of participants** | Local communities may need extensive training to build knowledge and skills needed to become equal partners in negotiations – among themselves and with the other key stakeholders and government officials |

## 1.3. Peri-urban groundwater management

Peri-urban areas are the spaces at the periphery of cities that usually bear the brunt of urban expansion by providing the much needed resources, while acting as receptacles of urban waste(Narain and Singh 2017). They are spaces in transition, that present some features of both urban and rural environments (Allen 2003; Mc Gee 1991).

In cities such as Khulna in Bangladesh and Kolkata in India, rapid urbanization has resulted in an increasing pressure on groundwater resources in peri-urban areas. Increased climatic variability, degrading surface water sources, land use change, coupled with unequal caste-class-power structures, rules, norms and practices, create pressure on already stressed groundwater tables and lead to uncoordinated overexploitation of aquifers. The resulting lack of access to groundwater during critical periods affects the livelihood securities of the vulnerable and contributes to the incidence of poverty.

## 1.4. Structure of this book

In this publication, we share our experiences with combining transdisciplinary research with the Negotiated Approached to address the challenges in groundwater management in peri-urban villages near Khulna, Bangladesh and near Kolkata, India. In the past five years, we, a team of researchers and civil society organizations, have been executing the Shifting Grounds project. In 2013, we have jointly formulated this project together with local community and government stakeholders. The aim was to combine research, capacity building and development activities to address peri-urban groundwater problems in cities in Bangladesh and India.

Before describing our experience, we first set the stage, by giving some more context on the peri-urban spaces (Chapter 2) and the Negotiated Approach (Chapter 3). Based on these, we identify three critical interfaces for our endeavours: the interface between our project team and the community, the interface between our community efforts with policy and decision-making, and the interface between the Negotiated Approach process and the scientific research (Chapter 4).

These three interfaces (with community, decision-making and research), provide the structure for the description of our experiences in the peri-urban villages near Kolkata in India (Chapter 5) and Khulna in Bangladesh (Chapter 6). These experiences form the core of this book. We conclude by drawing on some experiences and lessons in working with this approach in these two peri-urban locations.

# 2. The concept and growing importance of peri-urban spaces

## 2.1. The rising attention for peri-urban spaces

Peri-urban is  a loosely used term, with no consensus regarding its meaning. Broadly, it refers to spaces at the periphery of cities that usually bear the brunt of urban expansion by providing the much needed resources, while acting as receptacles of urban waste (Narain and Singh 2017; Iaquinta and Drescher 2000). They are spaces in transition, that present some features of both urban and rural environments.

These spaces  bear the ecological foot-print of urban expansion as they are the source of much of land and water that the growing city demands. These resources may be systematically acquired by the State through formal processes of land acquisition, or encroached by private actors. They are usually therefore spaces of great land use change, which in turn drives changes in water use and allocation too. They are characterised  by social and economic heterogeneity and a diversity of economic interests (Allen 2003). On account of changing land use, such spaces witness great competition for resources, giving rise to conflicts or conflicts of interest. However, they can also be fertile grounds for studying new forms of cooperation over resources as resource users may evolve new norms for resource sharing in the face of scarcity (Vij and Narain et al. 2018).

The study of peri-urban spaces is important because it throws light on the processes of urbanization. It sheds light on how the transition from the rural to the urban takes place; the processes of the reallocation of land and water resources, and the change in institutions: the norms, practices and codes of conduct around resources. It helps us understand changes in the social and ecological systems accompanying urbanization.

Peri-urban spaces can be institutionally complex and challenging on account of the changing character of institutions, the existence of governance lacunae on account of the overlapping rural and urban jurisdictions and the existence of state apathy and neglect. Both rural and urban institutions could co-exist. The transitory nature of the social, ecological and institutional environments coupled with the diversity of social interests makes such spaces fertile grounds for trans-disciplinary research.

## 2.2. Transdisciplinary research on natural resources management in peri-urban spaces

As urbanization processes advance in the global south, peri-urban spaces will grow both in geographical spread and importance. They will continue to demand attention of policy-makers, researchers and development practitioners. There is a need for research to understand the rapidly changing social, institutional and ecological contexts as well as a need to mobilise both the state and communities to improve resource access and governance. This makes peri-urban spaces uniquely positioned as spaces for transdisciplinary research.

Action research has been used in peri-urban contexts in India to improve peri-urban communities' access to natural resources (Dahiya, 2003; Halkatti, Purushothoman and Brook 2003). These approaches focused on community mobilization for better management of natural resources. Departing from this approach, Narain and Ranjan et al (2017) describe an approach that sought to make state agencies more responsive and accountable to water users. Through a process of Action Research, water users in peri-urban Gurgaon in north-West India were brought into dialogue with representatives of the agencies of the state engaged in water provisioning. This was done through a process of a series of dialogues between the two sides, seeking to break the anarchy syndrome and

overcome the situation of prisoner's dilemma in water. This approach shifted the focus to the state, making it more responsive and accountable to the needs of the water users.

This book presents the outcomes of another transdisciplinary research approach in the peri-urban Indo Gangetic plains. What makes this experience unique, is that we sought a conscious mix between a research-initiated process and a community-initiated process to enable a balanced effort of co-creation of both scientific knowledge as well as practical solutions. The main vehicle to do so, was the Negotiated Approach, to which we will now turn.

# 3. The Negotiated Approach: Concept and rationale

The Negotiated Approach (NA) is a bottom-up governance approach. It gives communities a voice in land, surface and ground water management, seeks to ensure a fair and sustainable use of water and prevents damage to vulnerable ecosystems. The Negotiated Approach is thus a methodology towards sustainable land and water resource management, aimed at enabling local communities to protect their rights and propose and negotiate viable long-term solutions, in order to alleviate poverty and ensure healthy ecosystems.

## 3.1. The Negotiated Approach and Both ENDS: A long history

The Negotiated Approach has been developed in the field through the efforts of civil society organizations (CSOs) and non-governmental organizations (NGOs) in various parts of the world. It emerged as a response to the business-as usual, top-down processes used by the mainstream establishment, and to the frustrations felt by local communities (and those who work closest with them) that these processes rarely provided satisfactory or balanced results.

In the late 1990s, the Amsterdam based NGO Both ENDS and their partner Gomukh Environmental Trust for Sustainable Development, based in India, decided to design an alternative approach to water resources management. They brought together NGOs from various countries (Bangladesh, Bolivia, Cambodia, India, Peru, Thailand, South Africa and Vietnam) that had succeeded in linking local initiatives to higher levels of government. Taking their projects as starting points, the organizations worked together to develop the basics of the Negotiated Approach, using their projects as examples. The outcome was the study River Basin Management: A Negotiated Approach, which was published by Both ENDS and Gomukh in 2005. In this publication the seven case-studies have been described in the appendix. This book was followed up by an extensive guide 'Involving Communities' in 2011 (Koudstaal et al., 2011). In this guide, the scope, principles and implementation of the Negotiated Approach with regard to Integrated Water Resources Management were formulated.

## 3.2. The aim and priorities of the Negotiated Approach

### Creating political space for local actors

Access to water and land is essential for the rural poor. Smallholder producers, pastoralists, peasants, fishing folk and indigenous people depend directly on these resources for their livelihoods. However, local communities often have insecure access to fishing grounds, drinking water and fertile lands and these natural resources are often managed in an exclusive and top-down manner. Local communities are rarely involved in planning and decision making and often do not have a seat at the negotiation table or any way to influence policies or planning processes. This results in policies which do not reflect, and often conflict with, the rights, needs and realities of local communities. The Negotiated Approach is an instrument designed to correct this: to create structural political space, in which local people acquire a long-term negotiating position over the planning and management of natural resources, especially water.

### More than participation

The Negotiated Approach facilitates local communities and civil society organizations (CSOs) to become full-fledged players in natural resource management at the local and (inter)national levels. The Negotiated Approach goes beyond merely creating a multi-stakeholder dialogue but creates opportunities for local actors to actively develop, propose and negotiate policy and investment measures, based on their own local knowledge, needs and environmental realities. This is

fundamentally different from most conventional participatory processes, in which local groups merely have the opportunity to react to strategic plans developed by experts or policy makers.

The Negotiated Approach prioritizes building the capacity of local stakeholders so that they can engage effectively in negotiations with policy makers and have a stronger position in the negotiation process, creating a (more) level playing field. The Negotiated Approach guarantees that local communities are well prepared and have all tools to be equal participants throughout the whole negotiation process. This includes: gathering data on the physical and biological characteristics of the local environment, understanding the institutional and legal contexts, power mapping, developing negotiation skills and creating, or linking to, strategic platforms for negotiation.

## 3.3. Scope and principles

The following ten principles form the basis of the Negotiated Approach to Integrated Water Resource Management (Koudstaal et al., 2011):

1. Prioritizing self-motivated local action for initiating the Negotiated Approach
2. Empowering local communities to assert their basic rights to water
3. Maintaining flexibility to negotiate at different levels simultaneously
4. Optimizing the use of water resources by integration
5. Taking decisions by consensus at the lowest appropriate level
6. Upscaling water management initiatives through iterative negotiations
7. Maintaining the integrity and resilience of ecosystems
8. Working to achieve and maintain a gender balance
9. Using appropriate science and technology
10. Promoting transparency and accountability

The first three principles are specific to the Negotiated Approach and are described below.

**Three key principles of the Negotiated Approach**

The *principle of self-motivated local action* asserts that the community's role as an initiator, manager or co-manager of water systems is at par with parts played by government agencies and other established institutions. The Negotiated Approach asserts that the community's role has to be in the form of a continuously and long-term management process.

The *principle of empowering local communities* recognizes water as a special good and the right of communities to access the resource as a human right (including quantity as well as quality aspects). This is incumbent on community empowerment, which means enhancing the community's ability to negotiate and make wise decisions based on both inherited knowledge and scientific data.

The *principle of maintaining flexibility* states that a flexible approach is imperative as IWRM functions in a dynamic environment where external and internal conditions continuously change. This is in line with adaptive management, where changes in strategies and interventions are made according to the feedback received from monitoring and evaluation processes. According to this principle, simultaneous and iterative procedures are needed at various levels, based on the recognition that water management takes place at multiple levels and that external changes at one level may result from internal changes at another level.

*Source: Koudstaal, Nooy & Paranjpye, 2011*

## 3.4. The proof is in the practice

Since the development of the Negotiated Approach (NA), Both ENDS and its partners have implemented it in many river basins around the world. Since 2006, they launched pilot projects in Bolivia, Costa Rica, Indonesia and Peru and recently in Kenya. In Indonesia this led to the installation of the IndoWater Community of Practice. This network enables local organizations to learn and work together and strengthen each other in their efforts to inclusive and sustainable river basin management.

All the efforts have led to greater recognition of CSOs as important players in the field of water management in many countries. This, in turn, enabled communities to better protect the river which is so essential for their livelihood. Since the Negotiated Approach has proven itself in so many different contexts and with so many different positive outcomes, the aim is to spread this sustainable practice. There are many more river basins around the world threatened by abuse, mismanagement, pollution, infrastructure projects or large-scale agriculture. By applying the Negotiated Approach it can give local water users a voice in basin and delta management and ensure a more sustainable and fair water governance.

The Negotiated Approach is an approach still in development and improvement by adding various tools to the original set up. In the Shifting Grounds project, role of access to and development of knowledge was particularly explored, through its explicit combination with transdisciplinary research. Given the timeline of the project, emphasis was on the initial stages and tasks of the Negotiated Approach. As a new area of application, peri-urban spaces and groundwater management, also more could be learned about the Negotiated Approach itself. Furthermore, the development of new tools and supporting methods – such as the institutions gaming-simulation workshops – could provide a useful addition to the existing toolkit of the Negotiated Approach.

# 4. Capturing our experience with the Negotiated Approach and transdisciplinary research in the Shifting Grounds project

## 4.1. Design of the project

In the Shifting Grounds project, researchers and civil society organizations from Bangladesh, India and the Netherlands cooperated to enhance understanding and build capacity with local stakeholders to support sustainable groundwater management in the peri-urban areas mentioned in the preceding sections. This was to be based on an improved understanding of the dynamic interplay between local livelihoods, the groundwater resource base, existing institutional systems and links with nearby urban centres in Kolkata and Khulna.

The Shifting Grounds project started with the ambition to combine transdisciplinary research and the Negotiated Approach in two villages for each of the two main cities. Thus, four sites were selected: two near Kolkata, and two near Khulna. This selection was based on seven criteria: (i) peri-urban nature of the village (taking into account the census data and visual observation), (ii) importance of groundwater as a major resource, (iii)tensions (recent, actual or imminent conflicts) over groundwater resources (quantity and/or quality), (iv) willingness of key players to engage with the Shifting Grounds project team, (v) ability of key players to engage with each other and the team (existence of nucleus for self-organization or platform, such as presence of NGO, CBO or village committee that has already identified the problem), (vi) practical feasibility: accessibility of location, documentation, data , and (vii) diversity in the full set of sites, benefitting the more exploratory nature of our research efforts. However, after the first full year into the project, it was apparent that a true transdisciplinary effort required more intensive community level interactions than foreseen. The Negotiated Approach activities from then on, focused on just one village near each major city.

The project was designed around three distinct research activities, along with community empowerment. Three primary project researchers were engaged, one to study and model physical groundwater systems, one to study groundwater in relation to socio-economic issues and livelihoods, and one to study local level groundwater governance from an institutional angle. Analytical mapping and integration of the activities conducted by these researchers were designed to be fed by, and provide support for, stakeholder processes through their direct linkage to workshops and trainings undertaken for the Negotiated Approach process. In addition to the capacity building and communication embedded in these activities, additional activities in this field were planned to link community capacity building with external government processes and state actors. Furthermore, a Project Advisory Group was formed, consisting of high-level government advisors and academic experts. This helped the project team to benefit from external advice, while also providing an additional platform to share and communicate project findings.

Research and capacity building activities were undertaken in peri-urban villages near Khulna and Kolkata. Researchers conducted local assessments on groundwater systems, livelihoods and institutions and analysed their interplay. Results were linked to capacity building activities through an intensive process based on the Negotiated Approach. This research-capacity building linkage was visible through the participation of researchers in local stakeholder meetings, where they shared research outputs and obtained feedback and information from the local communities. The research also resulted in a gaming-simulation workshop in the final project year, which was researched as a tool for knowledge-based capacity development.

## 4.2. The Negotiated Approach and transdisciplinary research: Three key interfaces

Transdisciplinary research and the Negotiated Approach both have many challenges. Their combined use in the Shifting Grounds project sought to initiate a process of mutual learning among and within three main groups of actors: researchers, local communities, and policymakers. In the following chapters, we provide a detailed account of challenges and responses associated with each of these three key interfaces.

### Community

The community provided the starting point for the process, for the Negotiated Approach as well as for the research. Rather than assuming the community as a homogeneous and conflict-free social entity, the project team acknowledged the presence of different groups and interests within the local communities. Community dynamics and interactions are described in the first, and the longest, sections of both chapters.

### Decision-making and the state

Groundwater management is not just a matter of mobilizing and enabling local communities. There are important government mechanisms and regulations, and also, many groundwater systems extend beyond community boundaries. Local communities can do a lot, but also need to be heard by government actors such as City Corporations, Public Health Departments and (Ground-)Water Directorates. At the village level formal political state bodies exist, such as elected village committees charged with certain water-related activities such as the Village Water & Sanitation Committees. A working interface between a bottom-up community initiative and such existing state structures is important for a well-functioning and sustainable management of groundwater resources.

### Research

Shifting Grounds started as a transdisciplinary research project. The bulk of funding came from the Netherlands Organization for Scientific Research (NWO) and was spent on research activities. Nevertheless, also considerable resources were allocated to community engagement, as the ambition in Shifting Grounds was to establish a mutual learning process between academic researchers and local stakeholders, especially at the community level. This process was to be more than simply providing researchers with data, or societal stakeholders with direct solutions. Rather it was to be a process of mutual learning. Eventually, this was intended to enable local actors to continue similar efforts in the future, equipped with new knowledge and experiences to tackle other, and future, collective challenges. These ambitions were lofty, but they were not necessarily easily translated to practice. In this final section of the description of our experiences in Kolkata and Khulna, we describe this interface between researchers and local stakeholders.

## 4.3. Capturing our experiences

The narrative in the following chapters is provided by the local teams in charge of coordination and implementation of the Negotiated Approach: The Researcher for Kolkata, and JJS (Jagrata Juba Shangha) for Khulna. These chapters are predominantly based on their perspectives and experiences, complemented by experiences of the team's researchers from SaciWATERs (South Asian Consortium for Inter-Disciplinary Water Resources Studies), BUET (Bangladesh University of Engineering and Technology) and TU (Technical University) Delft. The basis for the chapters have been progress and reflection reports by The Researcher and JJS, supported by Both ENDS. This culminated in a narrative account structured during a two-day intensive writing workshop in Khulna, September 2018. Here project team members discussed local experiences with the NA and research activities in the project villages. Chapters 5 and 6 follow these narratives quite closely.

# 5. The Negotiated Approach in Kolkata[1]

## 5.1. Kolkata: context and initiation of activities

The Negotiated Approach activities near Kolkata took place in one of the peri-urban villages in a Block, located south-east of the Kolkata city that has a 300 year old urban history. It has been an integral part of Kolkata's modernization drive and unabated quest for water. The village Ambikapur (fictitiously named) is located alongside a canal of historic importance, being used for transportation of goods and people to and from Kolkata during the colonial era and before.

The project village and its surrounding areas area is an ecologically fragile part of the moribund delta where alluvial deposits have created numerous creeks and channels. It is part of the East Kolkata Wetlands, a Ramsar site, and historically drained by tributaries of two rivers, Bidyadhari and the old course of Bhagirathi called the Adi Ganga. With the decline of the Bidyadhari river due to over siltation by city's waste, there was a gradual transformation in the aquatic environment of the area from saline to non-saline; from saltwater marshes to sewage-fed freshwater wetlands. The wastewater aquaculture emerged extremely profitable since the 1950s with low input cost and rising demand of fish in Kolkata and its suburbs.

After the 1990s, the modernization process took a new character with Kolkata's desperate search for land and water sources. Urbanization resulted in a transformation of the agricultural fields into real estate plots. The first traces could be seen in land conversion, illegal sand and mud mining. The existing wastewater-canal-based fisheries and paddy fields started relying more on the groundwater drawn through diesel or electric pump-sets. The effects of poor maintenance of wastewater canals, accompanied by increasing incidence of groundwater based aquaculture caused intensified social conflicts and tensions between different groups.

A timeline with some of the main activities of the Shifting Grounds project in Kolkata is shown below, and may help in the more detailed descriptions in the next sections.

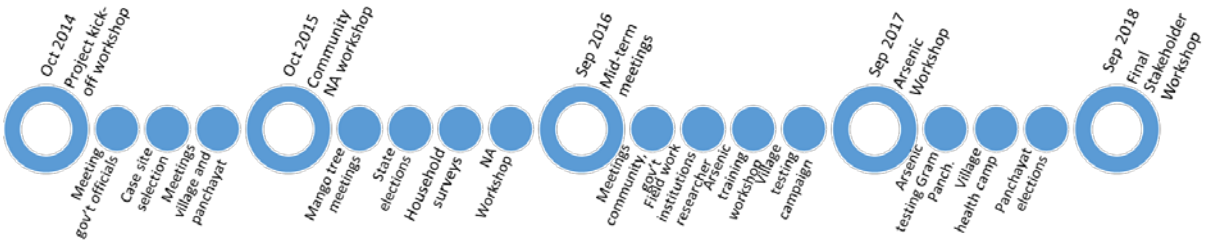


*Figure 1 Timeline with some of the main events in the Shifting Grounds project in Kolkata*

[1]Narrative provided mostly by Partha Sarathi Banerjee, Binoy Majumder and Soma Majumder, The Researcher, with inputs and edits from other team members

## 5.2. Community level interactions

### The initial challenges

The Shifting Grounds team had not had prior interactions with the community in the village, even though the larger area of the Block was well known to the local project team members. Ideally, a thorough understanding of the socio-economic-political dynamics of the village should have been the starting point of the NA process. With the lack of such thorough understanding of the complexity at the ground-level, starting up our project activities in the village was challenging. This, already, held an important lesson for transdisciplinary research in complex environments; as research is starting up, thorough mutual understanding has to be developed. In the beginning we didn't have enough time to study the complexity of the socio-economic situation and political dynamics through adequate interactions with each of the several interest groups.

What was readily apparent, was that access to safe drinking water was a critical issue in the village life. The existence and operation of a private water-bottling plant inside the village was visible as a very tangible and controversial issue. In the first community meetings, which in the Shifting Grounds project were labelled mango tree (MT) meetings, we discovered two distinct interest groups, divided in a pro- and anti-bottling plant lobby. The owner of the bottling plant, an industrialist residing in Salt Lake, Kolkata, had bought a large part of the village land. Where the average land ownership was less than 1 acre, this person bought a few acres of agricultural land, and constructed a guest house, and set up the bottling plant.

During our initial visit to the village, we had visited that plant, with the ex-pradhan (chief) of the village. This ex-pradhan was a very knowledgeable person and took us around for a tour of the village. He was part of the erstwhile ruling party. Slowly we came to know that the village was very much divided on political lines, a common feature of rural society in the state of West Bengal. This feature was not unknown to us, having studied the social structures and political dynamics in West Bengal villages since long, but we did not have enough time to study these dynamics in equal detail here prior to engaging with the village community. Hence, in the beginning we were not aware of the complexity of the particular situation in this village. This early lack of intricate knowledge of these complex political village dynamics critically affected the progress of NA activities, as will become clear from the following sections.

## Politics and the Negotiated Approach in the village

To begin with we needed a key person who could make us acquainted with the local community. In more conventional social research studies in other sites, the team of The Researcher would go directly to people just for taking interviews or to do surveys. In this NA, we had to work with the people for a prolonged time, so the primary need was to establish links with the community through a person or set of persons who would be reliable to both the project team and the community. We realized the risk of affiliating only and directly with official village leaders, and deliberately reached out to non-political community groups: women self-help groups and youth clubs. Initially we had entered in the village through the ex-Panchayat Pradhan[2], who suggested us that we should work through the formal government system to ensure that our project work would also be supported by the formal actors.

When we started our NA activities in the village, the political situation was in a changing phase. The old regime lost power in the State-wide elections in the State of West Bengal and a new regime had come. Hence, in the early phase of the project, we faced the first dilemma as to how to proceed within the community. The earlier Panchayat Pradhan, who had been our stepping stone in that village, had been isolated after the elections, and we found it would not be prudent to move on with him.

The first mango tree meeting was thus organized with the help of a local youth club leader. Apparently, this first informal community meeting scared the bottling plant owner, who sent his representative and requested us to meet him. He was waiting in the bottling plant. We did not meet him on that day because it was too late, and we didn't want to create any misunderstanding with the community by going to him directly afterwards. We proposed to meet him some days later. Nevertheless, on our way back after the meeting, the bottling plant owner caught us on the way. He expressed his support for our activities, told us that he had been funding some development activities in the village, and at the end he proposed to support and fund our activities as well. We were offered to stay in his guesthouse for free. This sudden benevolence towards our activities suggested to us that he might be getting somewhat scared by our activities and might be trying to influence us so that his water bottling business did not suffer.

Incidentally, the local youth club leader, who was the main organizer of the first mango tree meeting, was completely against the bottling plant and flourishing water business inside the village. He even suggested that the youth club could collect funds to install a community groundwater well to cater to the demand of the local villagers as the public drinking water source, provided by the Department of Public Health Engineering (PHE) was quite far from the location of that area, in the southern part of the village.

Sometime after the first mango tree meeting, we came to know that someone from the community had (mis)informed the Gram Panchayat[3] (GP) Pradhan that the deliberations in the mango tree meeting had gone against the panchayat body. That was clearly intended to vitiate our relationship with the Gram Panchayat Pradhan, who happened to be the most powerful person politically and administratively in the area. In reality, during the mango tree meeting, nobody had talked against the panchayat or even the bottling plant. It had been a very general discussion about the vital

[2] A Panchayat Pradhan is a chairman of the local self-governing body consisting of a number of village councils (the Panchayat, the lowest elected official body in rural areas in India).

[3] The Gram Panchayat is a collection of villages (panchayats), which together form a larger official unit, the Gram Panchayat. The Gram Panchayat council consists of representatives from the different constituting panchayats, and has its own chairman (Pradhan).

importance of water in our lives, where the local participants were also asked to share their problems regarding their (lack of) access to safe water.

So after this first mango tree meeting, we could apprehend that a lobby was active in favour of the bottling plant and that the people associated with this lobby were not happy with our activities. It seemed that they were also close to the local political bosses. Eventually, after the 2016 Assembly elections, we came to know that the youth club leader, who so enthusiastically supported our NA activities at the initial stage and had been key to mobilize the community in support of it, was heckled and humiliated by the probable pro-bottling plant lobby. That incident left him so frightened that he himself told us that he would no more want to be associated with our activities. Evidently, he was no more in the good books of the political bosses, and was even removed from the leadership position of the youth club. Such unpleasant development forced him to completely withdraw from the NA process.

It was also known that the ex-panchayat Pradhan, who had been the main resource person for our knowledge building in the village both for NA and socio-economic research, was beaten up so seriously that he had to be admitted to a hospital. Although we felt sorry for him, we still continued our contact with him not in public, but by visiting him in his house time to time to know more about the village.


## Discontinuous participation

In this way two exclusions happened during the first year of our NA process: first, the ex-panchayat Pradhan who was so supportive to our activities and the most knowledgeable person we came across during the whole NA process in the village had to be kept out of the formal NA activities as he belonged to the now opposition party. Second, the organizer of the first community meeting was also eventually cornered. This youth club leader had to be left out of the NA process because of conflicting interests within the ruling party, in which one of the important bottlenecks must have been the bottling plant inside the village.

With these deep political divides, the basis for the NA approach was repeatedly jeopardized and after the mango tree meetings, we had to continue our efforts by bringing the lose threads together,

roping in new persons, assuaging the conflicting interests to the extent possible. It became evident by then that advancing the NA process was itself a challenge in the rural polity of West Bengal as it was nearly impossible to bring all the interest groups, particularly those belonging to the opposing political fractions, together to work for a common cause. This complexity was highlighted by The Researcher's team in the first international project team meeting in Khulna in 2015 and then in a subsequent write-up.

Summarizing, our project team had some connections and relations to start with, but later some of those connections did not work and we had to work with new people. As we noticed that the most active social bodies in the village were the youth clubs, we tried to mobilize the community through them, but we were not aware of the underlying conflicts of interests even within those youth clubs.

## Social structures in the village community

The project village was a homogenous village in terms of caste. But even within those same homogenous caste groups, there were huge differences between their economic position and wealth and networks with different kinds of powerful agencies, their political affiliations, and livelihoods.

Broadly there were two districts in the village. One area had the most number of aqua-ponds, due to its closeness to the wastewater canal. Also there was an impermeable clay layer underneath which ensured that the water ponds do not dry out in the dry season. In the other part of the village, agriculture was practiced. However, even within those two categories, economic activities of the villagers were partly overlapping. There was no hard and clear division of occupations between agriculture and aquaculture. In some parts of the village, most paddy fields got submerged during monsoon, so the villagers there were used to resort to aquaculture during the monsoon, while undertaking farming in the same field during the summer season. The village had several groups practicing different kinds of aquaculture. Some cultivated hi-breed fish using the industrial waste, thereby polluting the ponds and water bodies. Others resorted to the normal way of fish cultivation with less polluting effects. Some villagers cultivated paddy and fish in different places, while some others cultivated paddy and fish in the same fields, but in different seasons.

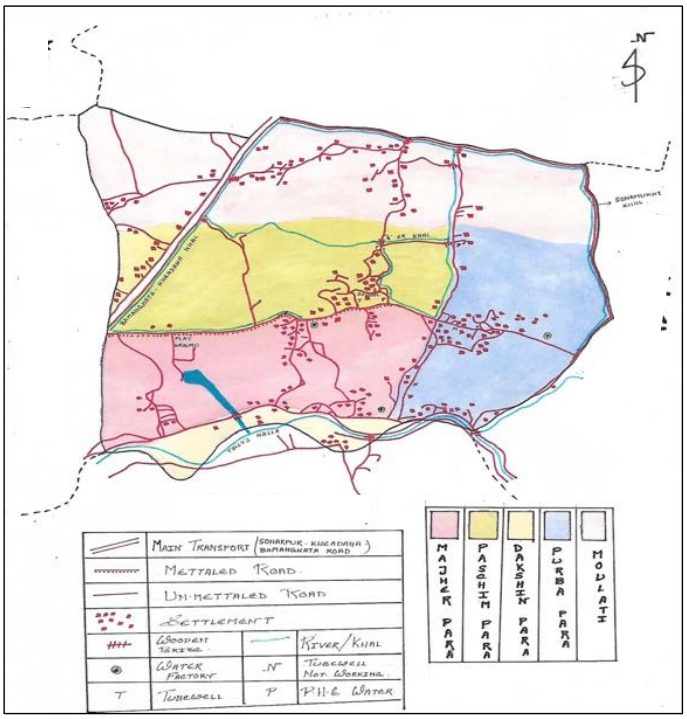


*Figure 2 Social map of the village*

Various groups had different rights to the water. All these groups had different interests which, however, did not always lead to conflict. For example, a group of paddy growers, fishermen, with real estate business, were closely aligned with a second group who were only fishermen. These were the people coming up with new drinking water bottling plants that were popping up. There was some cooperation among them.

## Overcoming the initial bottlenecks

The described social mapping of the village structure was available almost at the end of the project, but it was not there when we started the NA process. But we actually needed that social mapping information not just for research, but for initiating the NA process as well. Preferably there should have been an extensive socioeconomic study before starting the NA. Through such extensive study only, we could have determined with whom to work and how to proceed. Preparing the matrix of human relations in the village in the beginning of the NA process would have been very useful for both knowledge development and capacity building of the NA team and more importantly for building rapport with the community and its leadership to smoothen the process. Later this social mapping took the project's postdoc researcher three months of field work, and that was even after obtaining all information from the previous NA process and household survey results.

After the initially enthusiastic youth club leader left the NA process, it was a challenge to continue mobilizing the community in that particular southern locality of the village. So we built up rapport with the new leadership of the club as the club had been instrumental in mobilizing the people in our earlier NA activities. In fact, the NA process began with our repeated interactions with the youths belonging to the southern locality club and we continued the interactions with its members even after the initial leader departed from our activities. That along with contacts with the women's self-help groups helped us to connect with the community in the subsequent rounds of the NA process.

During the planning for the workshops, we always asked the local club leaders to bring people from different occupational groups. We never selected the people who would attend the workshops, and instead left it to the community leadership who brought people to the workshops. We explained our objective to them, which was to include as many diverse and different kinds of people in the workshop. It was beyond our capacity to know all the people without undertaking an extensive survey. Moreover, bypassing the local youth club leaders and panchayat members, who represented the people, might have created space for misunderstanding and might have hampered our NA process altogether.

In fact, the social and political dynamics did not remain the same during the three years of implementing the NA process. It was therefore necessary to continuously work with the community, study the social dynamics and build up rapport with the different interest groups; but such a process required more time, more resources and obviously more intense work which had not been conceived in this project.

## Problem framing: Selection of a single issue to encompass all

After the initial interactions with the community, we decided to focus on the drinking water issue, which appeared to be the most crucial of all issues related to the use of water. But we didn't try to negotiate between conflicting interests, which seemed to us to be too sensitive to deal with. We picked up the drinking water issue as it was the common issue among all people, recognized across the social and political divide. The issue had been focused through the NA process by all as the most crucial issue affecting the community that should be addressed. Most importantly the Panchayat, the statutory body for local governance that wields enormous social and political power, also recognized the drinking water issue and extended support to the NA activities.

The general acceptance of that drinking water problem thus became our focus. The biggest challenge for the advancement of the NA process was overcoming the misgivings generated by the pro-bottling plant lobby at the initial stage and the subsequent reluctance of the GP leadership towards our activities. That the panchayat officials finally recognized the importance of our activities was evident as they invited us to the Book Fair organized by three Gram Panchayats in early-2017 to make an audio-visual presentation on the water security issue before a larger audience. At the same fair, we noticed that the drinking water supply to the fair had been under the control of the bottling plant owner– this showed that the bottling water plant, which earlier was opposed to by some villagers, was still in operation although shifted to a new location outside the village and that the conflicting interests regarding the supply of safe water were still prevalent.

The decision to focus solely on drinking water supply issues, however, initially was questioned by the Shifting Grounds team leader and the Project Advisory Group during a mid-term meeting for the project in Kolkata in September 2016. It was perceived as a way to avoid the more serious issues in the village. Drinking water use is generally known to be a relatively minor water use compared to agriculture or fisheries, and drinking water problems are more easily "outsourced" by the village community, expecting government agencies to take care of them. Despite these discussions, the focus stayed on drinking water and arsenic contamination. There simply seemed to be no other option to continue the fragile and early NA process in the village.

Establishing trust and common ground takes time. Had we taken up more issues, it would have been more difficult, as that would have involved too many different interest groups to interact with. Taking up one issue, and indeed the most crucial one, helped us to advance the NA process with comparative ease, and also to build confidence with the villagers as well as their social and political leaders. This decision not to take up more issues was very crucial to avoid further messing up of the NA process. Moreover, in the Mid-term Review meeting in September 2016, community representatives requested us to "do something concrete" to gain confidence of the community and continue the NA process further.

## The gender dimensions

Learning from the initial challenges faced during the first mango tree meeting, we focussed our attention more on the women's self-help groups (SHG) rather than depending solely on the youth clubs, which might sometimes become a tool for manoeuvrings in the hands of the powerful persons as had happened to the southern locality youth club during the first mango tree meeting. Typically in an SHG, 10-12 women from a certain locality form a group, collect and deposit some fund in a bank that in return finances small entrepreneurship of the women or provides them loans during exigencies. We continued keeping contacts with the youth clubs, because they have some power. But while campaigning, we met the members from the self-help groups separately. Every self-help group held weekly meetings. We tried to attend as many such meetings as possible and urged them to attend the mango tree meetings. There were about 12-13 SHGs in one part of the village and 15 in the other. These efforts ensured a good participation of women in the subsequent mango tree meetings. For workshops we had to mobilize people through the panchayat member and through the youth clubs, to whom we insisted to bring men and women in equal proportion. We did not try to mobilize members on our own as that might have sent a wrong signal to the leadership and may have invited more problems to the NA process.

When we first went to meet the Panchayat Pradhan, we asked him to name a contact in the village community. He mentioned the name of the female panchayat member from the village. He probably mentioned her because she was the panchayat member and also belonged to his party. This was, for us, a lucky coincidence. Had he sent us to a male village leader, we might have faced somehow a different challenge so far as gender balance was concerned.

In the mango tree meetings and the larger NA workshops, women were no less vocal than men. One of the key persons to mobilize the community for us, was the local female panchayat member. That she was a woman probably helped the other women in the community to join our programme in good numbers as well as to speak out. Women leadership played a very crucial role for fairly equal gender balance in the NA process henceforth.

Also, in this part of India, particularly in West Bengal, women are generally vocal, because the participatory "Panchayati Raj" institutions with one-third of the seats reserved for women have been prevalent for quite some time. Our NA process definitely benefitted from this prevailing system. Furthermore, because of linkages with the urban area, women in this part of Kolkata are more forthcoming. This has a positive impact on women helping them to speak out. In remote rural areas of West Bengal, sometimes even the elected women panchayat members were not allowed to talk to us, as we had witnessed during other studies.

Still, if this lady in our project village had not been re-elected in the panchayat elections held in May 2018, our effort to involve the women in the final workshop might have been thwarted. Women's formal participation in the meetings and workshops may be ensured even with a male organizer, but whether the women participants will speak out depends on the social environment.

## The influence of peri-urban characteristics in community interactions

Migrants in this village are not many in number. The rich people from the city are absentee landlords investing in real estate by buying land for future development; hence they are not part of the community and have a limited role in the community. Of the local people many have migrated outside, but such migrations happened mostly from the marginal sections. Out of the 920 households of the village, only 15-20 were poor immigrants. They were included in the NA process, but not as a very important group.

Nevertheless, the social dynamics were quite complex in this peri-urban village. More heterogeneous interest groups are active here, the power structures are steeper and conflicting interests are greater into play compared to the village in Khulna, or compared to more remote rural villages in West Bengal. Hence, building a level playing field for all the stakeholders posed serious challenges in the peri-urban village, particularly when political conflicts become intense. Politics usually play vital roles in the rural areas of West Bengal, but here interest groups were numerous, posing many problems for the negotiation process. Although these peri-urban areas were under a rural administration, the nature of their problems was more urban than rural. Here pressures on natural resources like safe drinking water were much higher and fast increasing. In such a context, the NA process required a longer time to be effective than in other places such as interior rural villages. Also, in this case, we needed more time and resources to focus on the study of the socioeconomic diversity. It would have been good to start with this, as that would have given us a better understanding of the complexity of the peri-urban area.

Another difference was that unlike in more remote rural areas, in the peri-urban zone some people have many more opportunities to exploit and can get suddenly rich. Such opportunities are sometimes illegal but there are also legal ways to earn substantial money. These opportunities are intrinsically linked with (exploiting) political power as well and political power itself has become a means to earn money. Naturally all these factors create complex dynamics that we had to deal with in the NA process.

## 5.3. INTERFACE WITH THE DECISION MAKING PROCESS / STATE

In discussing the interface with more formal decision making processes and the state, two different systems need to be highlighted. There is an official political system, with elected representatives of people at various levels. At the community level, these are the panchayat members and the gram panchayat. Then there is the administrative system. This is run from the State level, and provides important services to the communities. For instance, the Department of Public Health Engineering is the state agency in charge for providing drinking water supply. This administrative system for instance has Block Development Officers at the block level. Both systems are relevant here. We start our discussion with the elected political system.

### Combining informal activities with the formal process

After the change of guard in the power corridor of West Bengal, the people loyal to the erstwhile ruling party could not take part in the NA process anymore. But as drinking water had been the most crucial issue across political divide, people belonging to the present opposition camp were also involved in the process in a more indirect and informal way. Such as apart from consulting them and taking them into confidence for each of the activities, when testing of water samples and door to door campaign on water quality was undertaken, we didn't segregate households according to their political allegiance and people from the opposition camp were also involved in the process.

But in the formal process, i.e. in village meetings and workshops, these people were always not involved. Even when present in mango tree meetings, they were not so vocal due to fear of being identified. But this section of the villagers belonging to the opposition was participating in the awareness campaigns, and in surveys. So in some way or other we took care to keep everyone included. But in the more formal NA workshops, people opposed to the present ruling party were not invited or asked to participate.

In the second part of the NA process, we organized an arsenic health camp, as part of an effort to address the specific concerns regarding arsenic contamination of domestic water supply. When organizing the health camp in the village school, we took the support of the ex-panchayat Pradhan, who arranged the School for the event, and also helped to identify the probable arsenic affected persons. The participants of the health camp included people beyond the party divide.

So there was a formal as well as an informal process working in parallel that enabled the NA team to keep in touch with the ex-ruling party supporters, within the framework of the NA process. Ex-ruling party supporters were in fear of being identified so they themselves did not come to the formal workshops. But that did not deter us from going to their houses, and reach out to them during our house to house campaigns and surveys. Particularly, we took care to get the best knowledge and support from the ex-panchayat Pradhan, while meticulously keeping him away from the formal process. He had been the leading person in the panchayat structure for a long 30 years and had deep knowledge of the village history and its geographical conditions that we wanted to make best use of.

But in the formal process, we proceeded through the local panchayat member, who belonged to the present ruling party. The Pradhan, who was also the local political boss, was initially apprehensive of our project activities, being misinformed about the first Mango Tree meeting. So it was important for us to engage the elected people's representative of the village as well as someone enjoying the trust and confidence of the ruling political party to avoid any further complications. The involvement of the local female panchayat member, nominated to us by the Pradhan, helped us to connect with broader sections of the community who used to be associated with the incumbent ruling party. This lady panchayat member was not a political being in person and, being a housewife before she became panchayat member, did not have any visible vested interest, economic or social. She played a very active role in mobilizing people in the NA process that worked much to the advantage of the NA process in more than one way.

## Ownership: who owns the process?

Usually the community doesn't approach the panchayat leaders for their collective problem. Rather they would contact the panchayat with their own personal problems like those having to do with ration card, job cards and other individual or household beneficiary schemes. For any kind of collective or community interests, the villagers usually talk to the local panchayat member, who is supposed to raise the issue in the Panchayat board meeting. Such has been the stipulated relationship between the community and the panchayat. Hence, we did not ask the community to directly raise their communal issues or public interest problems to the panchayat as that might have created misunderstanding and apprehensions about our intentions.

We never tried to bypass the authority of the panchayat, and rather initiated the NA process with their knowledge, permission and involvement, which was ensured through the person designated by the head of the local panchayat. That is why the panchayat chief in spite of his initial apprehensions responded positively. He had to own the process. As it started with his consent and permission, he could not disown the same. Hence, at the workshop in presence of the community, he encouraged the process to go forward and accepted the problem in accessing safe drinking water.

The government of India is giving much importance on the panchayat and allocates several hundred crores of Rupees for water supply. A village Water and Sanitation Committee (VWSC) is stipulated to be formed to look after the water and sanitation problems of the Gram Panchayat area, which is formally chaired by the Panchayat Pradhan, and includes village health workers, Panchayat members and Panchayat officials (see Textbox below).

According to Guidelines issued by the Department of Drinking Water and Sanitation, Government of India in 2011, Village Water and Sanitation Committee (VWSC) should be set up in each Gram Panchayat for implementation of Water Supply Scheme of their own choice with active participation of the villagers.
https://mdws.gov.in/sites/default/files/manual1_pop.pdf

The VWSC is supposed to undertake a number of such activities as:

- planning, designing, and implementing all drinking water and sanitation activities;
- providing facts and figures to the Gram Panchayat for reviewing water and sanitation issues;
- providing inputs for the Village Water Security Plan;
- ensuring community participation and decision making in all phases of scheme activities;
- organising community contributions towards capital costs, both in cash and kind (land, labour or materials);
- opening and managing bank account for depositing community cash contributions, Operation and Maintenance (O&M) funds and management of project funds;
- Commissioning and takeover of completed water supply and sanitation works through a joint inspection with line department staff;
- collection of funds through a tariff, charges and deposit system for O&M of water supply and sanitation works for proper managing and financing of O&M of the services on a sustainable basis;
- And empowering of women for day to day operation and repairs of the scheme.

source: http://www.panchayat.gov.in/documents/10198/456811/water%20-%2028_08.pdf

However, in Ambikapur, the committee mostly remained on paper as the Pradhan did not convene the VWSC meeting and never tried to make it function. So our aim was to make it function as the sustainability of the NA process was more dependent on the functioning of the VWSC that works for the whole GP, consisting of seven villages. When we were discussing in our project to form some kind of negotiation group, we were unaware of this committee. Only when we met the new Block Development Officer (BDO)[4], he told us about the existence of the VWSC and also provided us with a list of VWSC members. We were wondering why the Panchayat Pradhan did not tell us about its existence and why he never tried to activate the VWSC.

The Panchayat Pradhan gave us permission and linked us with the village panchayat member, but we sensed somehow a little reluctance to our activities. There could have been several reasons for this: one, the misinformation regarding our first MT meeting; two, he might have had some links with the bottled water lobby, because that was run by rich persons getting good profit out of that business; three, he might have been evading his responsibility to resolve the acute drinking water problem. Although he had to formally accept our activities as a good thing, he didn't tell us about the VWSC. From the beginning we felt that the panchayat chief was not interested to talk to us. Every time we went to meet him, he was reluctant. Sometimes he kept us waiting for hours. He is not so busy, and we don't have many things to discuss with him. We found his embarrassment when a representative from the UNICEF attending an arsenic workshop confronted him with the question why he had not still appointed a Water Facilitator, who would be responsible for testing of the public drinking water sources. The Panchayat Pradhan hesitantly said that the Panchayat didn't get the funds earlier. Now the Water Facilitator would be appointed.

Later when meeting with the Block Medical Health Officer (BMHO), she informed us that she had for long asked the GP Pradhan to install a tube well in the primary health centre situated in the GP area, which the Pradhan had promised to do, but never did. The Pradhan had a lot to do to resolve the drinking water crisis, which he was not doing and that might be one reason for him feeling uneasy with our activities. Even if the GP lacked proper funds for solving the problem, he could have told that to the villagers. He was uncomfortable because probably he did not want to be accountable to the community.

There is a system of panchayat accountability where the panchayat has to convene a village council meeting once in every six months and submit its accounts to the people and hear the problems of the community and sanction its future development plans. But this Pradhan was clearly trying to evade his accountability. Our dilemma was that we could not bypass the system, and hence we spent a lot of time and energy just to move it in the required direction. Here the Gram Panchayat was the key institution to link the community with the higher up government officials and could not be ignored in any case. But within this institution, the GP Pradhan was the main stumbling block.

### Interface with the state administration

Before going to the community and beginning the bottom-up approach, we started with a top-down process to make our project work formal and smooth. To begin with, we approached the District Magistrate[5] (DM) and got a letter from him endorsing our project, which was forwarded to the BDO's office, so that he would receive us positively. One of the researchers on the Indian team had some personal connections that enabled access to the administrative level, which made our work easier to

[4] The Block Development Officers oversees the government's administrative and executive activities at the Block level – whereby a Block is covering several villages within a District.

[5] The District Magistrate, sometimes also called District Collector, is the highest administrative authority in a District. This is an important and powerful position within the administrative system.

get the DM's endorsement for our project activities. Otherwise we could also have met the DM, but it would have taken considerably more time. Officially, the DM has to meet everybody, but getting an appointment is tricky and that process becomes easier if you have a network to start it.

Then we tried to contact the Public Health Engineering Department (PHED), which is in principle responsible for drinking water supply in the villages. They have several offices in Kolkata. In the beginning we talked with the executive engineer in the Kolkata office who was in-charge of water supply for this district, and one assistant engineer in that office. The assistant engineer was very helpful. In the Sonarpur Block office also, we met one sub-assistant engineer of PHED, who was very knowledgeable and helpful, but he was subsequently transferred during the project period. A new sub-assistant engineer replaced him.

The PHED Executive Engineer also recognized that the supply was insufficient, but asked us to focus on generation of public awareness to reduce wastage of water from the public supply line. When the supply line was open, water was continuously overflowing, as could be seen at the two supply points in the village. In any case the PHED couldnot ensure that they could enhance their supply within just one or two years. The first sub-assistant engineer joined one of the NA workshops. The new sub-assistant engineer also joined subsequent NA workshops. They admitted the crisis and the need for more supply, but could not do anything very quickly.

The Panchayat bodies were also aware of this situation. However, not everyone in the community might have been aware of this and therefore we tried to inform the community about this supply position. For alternative sources, the community had to go through the panchayat and the Block Development Officer (BDO) for the sanctioning of new tube wells to meet the increasing demand of the village population.

Apart from the PHED, two administrative structures were responsible for water supply of the village community:

1. The Block Development Officer (BDO) operating under the state government and
2. The three-tier Panchayati Raj Institutions as the local government: Gram Panchayat at the lowest tier, Panchayat Samiti at the Block level and Zilla Parishad at the District level.

Block Development Officers were very powerful in administration, and have a lot of funds. Now recently more funds and responsibilities are being delegated to the panchayat bodies, so they have more resources than before. When we met the BDO with our arsenic mapping of the village, he told us to discuss the situation with the sub-assistant engineer of the PHED, who in turn told us that the gram panchayat had the funds for installing new tube wells. So everyone seemed to be passing the responsibility to others.

For looking after the water and sanitation problems in the rural areas, a Village Water and Sanitation Committee (VWSC) was formed at the GP level under the stewardship of the GP Pradhan. We were informed about the VWSC by the BDO, not the panchayat members. The BDO wanted the VWSC to be part of our NA process.

### Periodic transfers of government officials

In this administrative set up, if the community wants to raise something at the Block level, they have to raise it through the Panchayat. The Block Development Officer (BDO) will generally not talk to the villagers directly. We talked to the BDO at the beginning of our project, but that officer got transferred in the middle of our activities and we had to work with a new BDO, again explaining to him the project activities. Government officials are transferred every three years and that disturbs

the already established network in the NA process requiring re-working on establishing good relationships. These transfers were very important challenges for the interface with the state, as we faced transfers of the PHED Sub-assistant Engineer and BDO, both being key for the NA process. The transfers as such were not a problem, but required us to give more time to bridge the broken link.

If the BDO informed the PHED and other departments, they would be more helpful towards our project. The second meeting with the District Magistrate (DM) was meant to indirectly ask for support for the NA, but more directly to hear about the arsenic issue, to obtain groundwater data, and to inform him that we were working on community awareness. He appreciated the work on arsenic and recognized the problem and mentioned about the Arsenic Task Force, as a third body.

Then we went to the BDO who showed us that the area under our project was part of the East Kolkata Wetland, called Ramsar site, where land conversion from agriculture to non-agriculture is not legal. This posed a challenge for the BDOs. While meeting the BDO, we always informed him about the progress of our NA activities and sought his support for the same. We also explained what we wanted to do with the villagers. We did not seek a resolution of the problem, because that would come through the process, from the community. At that time we had not yet started meetings with the community.

### Formal notifications before starting the informal activities

While taking up any new activities, we resorted to the top-down process before going for the bottom-up approach. We informed the BDO, the sub-assistant engineer of PHED and sometimes executive engineer PHE as well and then came down to the GP level. For every new activity and workshop, the process was maintained to involve the officials to the extent possible.

The BDO never got time to come to the workshops, but every time directed the sub-assistant engineer of the PHED sitting in his office to participate. In the last two workshops related to our arsenic work the new sub-assistant engineer participated. But his participation was more as an observer as he was new in this block and wanted to learn about the situation, rather than intervene.

While working on the arsenic issue, we also contacted the Block Medical Health Officer, BMHO. We wanted to involve the health workers working at the village level to get their help to spread awareness about probable arsenic contamination in drinking water and wanted their participation in training camps and subsequent workshops. The BMHO was a female doctor who gave instructions to the health workers to attend our programme and even sent the Health Inspector and senior health officials to attend the arsenic workshop. We had always kept contact with the Panchayat Samiti, the second tier of the panchayat body working at Block level. Members from this higher panchayat body had also attended all our workshops, except the initial one.

In the first workshop and subsequent mango tree meetings, we deliberately avoided inviting the panchayat leadership that exercised power at the grass root level, because in their presence the community might hesitate to express their mind. In the subsequent workshops, after the first four mango tree meetings, when people had come out with their problems and become more vocal, the panchayat leadership was invited to attend and they participated and heard the voice of the people. The process was meticulously charted out with the aim to give the community the space to speak out and then involve the panchayat leadership.


## 5.4. INTERFACE WITH RESEARCH

The research and Negotiated Approach activities started in parallel. During the first months of site selection, the local team of The Researcher and the project researchers at SaciWATERs, TU Delft and BUET had regular interactions. However, after this initial phase, the NA activities continued largely without substantive research results to feed them. The first year of NA activities was very intensive and critical. At the same time, during this year, researchers were still engaged in literature reviews and data collection activities. During these periods, the NA would have benefited more if research results would have been available earlier on in the process.

The groundwater and institutions researchers eventually focused more on the Khulna research sites, while the socio-economist focused more on Kolkata. These decisions were made mainly to respond to data and time constraints in the research projects. Therefore, the interdisciplinary research trajectory as it was contemplated at the beginning of the Shifting Grounds project, ultimately could not be achieved. This does not mean that the transdisciplinary effort failed and that the research interface has not played a role in the NA process. It was, however, different from the ideal design. Below we will explain how, structured for the three main research components within the project.

### Groundwater Research

In the preparation phase of the project, when establishing connections with the formal decision-makers and state agencies, the research components in the Shifting Grounds project were highlighted, especially the groundwater research. Hydrogeological modelling is more acceptable and less threatening. We introduced ourselves as an international and transboundary research project, covering sites in Khulna and Kolkata. This also carried more weight at the beginning, when meeting with the District Magistrate and District Collector. The groundwater research also was our point of entry to the State Water Resource Minister, mediated by the SaciWATERs' researcher on the team. In this first meeting with the State Water Resource Minister, we got a first support letter from them. The Minister also gave us an entry to the Director of the State Water Investigation Directorate and all these departments. These connections helped us reach through, and when we started speaking, it was all about research. As community mobilizer our entry would not have been that easy and we would have not been viewed in a similar positive way.

Although researchers can also be seen as independent and critical, the main card that was played during the initial contacts, was the groundwater knowledge. The physical science, a cross-country study on groundwater, was the selling point in initiating the contacts with the formal government system representatives.

Later on, however, it proved very difficult to obtain data for the groundwater modelling. Despite our efforts to establish good contacts and obtain the support from key government officials for our project, despite considerable time spent in government offices, the project team failed to obtain the required data to set-up his regional groundwater models. Logically, the groundwater researcher thus could not provide much in-depth site-specific knowledge to feed back into the NA process. Nevertheless, this work triggered and supported some important activities in the NA process.

Research data is required for NA and community mobilization. First we heard from villagers that they needed new tube wells. But then the PHE Engineer stated that the depth should be more than 500 metres. There is in this situation no scope to install a new tube well. Demanding more tube wells might not be advisable in all cases as it would lower the water table of that particular village. We needed to move in another direction in the negotiation process to get a better water supply.

During the second phase of the NA process, there was an important focus on arsenic mapping and arsenic awareness. This was developed during discussions in the NA. It was triggered because the water quality data that were obtained for the groundwater research indicated the presence of arsenic, which was validated by the Block Development Officer, Gram Panchayat, and the PHED engineer. That helped us to sit together.

Funds for arsenic testing and mapping were secured through the facilitation of the project team's researchers. Through researchers from SaciWATERs, contacts could be made with the South Asia Arsenic Network, to apply for funds and support. This was discussed during a project team meeting in Dhaka, around the mid-term of the project. In the development of the proposal to apply for arsenic mapping support, the groundwater researchers from BUET helped with establishing the sample size and similar technical details. In that way there is a direct connection with the groundwater research work. The groundwater researcher has produced a trend analysis with presence or absence of elements and level of groundwater. Groundwater quality data was thus used to formulate the proposal for the Arsenic Network.

Until we took up this arsenic testing exercise the local people were still sceptical about the purpose of our project and the benefit they could get from these "dry discussions" in the NA process. We had given them a platform to talk about their problems, but that was not satisfying for them. That was the sentiment reflected at the mid-term review of the project. The arsenic data collected in the third year of the project, is something very concrete in their hands, which they can show to the higher authority to get things done, because it is universally accepted as a part of their right to safe water. These data were collected by the local community and did not feed into the groundwater research anymore. Yet, the groundwater research has unmistakably played a role in ensuring these data eventually did become available as knowledge to support the local community.

### *Cooperation with Ramkrishna Mission*

When we got involved in the arsenic programme, we contacted one reputed NGO, namely Ramkrishna Mission, which had been involved in monitoring and testing of groundwater quality since long. They had some experts and a water testing laboratory. One of them worked a lot on groundwater issues in the Sonarpur block. The Mission had also developed an arsenic removal filter. In the first arsenic workshop the expert from the Mission demonstrated that filter and he took keen interest to work on that issue with us. As they had the testing facility, it made our efforts to get the

water samples readily tested easier. Our team personally visited the PHE government testing facilities in Jadavpur, but being a government department, its' functioning seemed bureaucratic and required permission from its higher office. The cost of testing was also very high (more than 1000 Rupees per sample). The Ramkrishna Mission charges only 80 Rupees, taking only the costs of their chemical agents used. Importantly, the Mission laboratory is accredited by the PHED, and hence acceptable to the authorities. From the very beginning of the arsenic related programme, the Mission was actively involved in this process. We contacted the KPC Medical College also, who had an arsenic specialist doctor who took keen interest and participated in all our arsenic programme. This way we could involve more stakeholders.

### Socio-economic research and household survey

Due to the timing and timelines of activities, the socio-economic researcher benefited more from the presence of NA activities than the other way around. The household survey was the first main task in the socio-economic research. Mango tree meetings had provided clarity to identify the issues to be captured in the survey and helped to design the questionnaire.

The idea was that an integrated index could be supported by the survey results and could be shared with the community and would help to prioritize issues in the NA. However, participating in the mango tree meetings already helped to prioritize many issues, and suggested that a lot of issues included in the standard poverty index might not be relevant. Therefore more questions towards water quality and water distribution could be included and wastewater irrigation was added – something that was not there in the standard set-up for the index survey. Thematically picking up issues for the index survey was thus helped by meetings.

At the same time, however, conducting the household survey gave the NA team a better overview of the problems in the village, helping to understand who was getting water, who had irrigation, etcetera. Conducting the survey gave the local team of The Researcher a raw picture. They didn't analyse the survey results, as this was done by the SaciWATERs team. The Researcher's team however, came into contact with more people, and got the knowledge of the broad socio-economic characteristics of the village. Different people went to different parts and involvement in this helped us to reach out to the community and the whole village.

From the survey we learned that in peri-urban areas the socioeconomic dynamics change very rapidly with regard to status and income. We didn't realize this complexity at the initial stage. Sudden income or status changes of households make it opportune to make contacts or to get a new place in the social youth club. In more remote rural areas it is easier to understand the status of the people as it is more stable. Here the socioeconomic status became clear only during the survey, when we visited the households more intensely for several months. The survey also gave us the idea that there is a sizable section of population using groundwater for irrigation. This was not raised in the NA meetings, which had focused predominantly on drinking water problems.

This overview did not affect the NA process significantly, however, because by the time of the survey, the NA had already started working on the particular issue of drinking water and arsenic. The household survey results eventually were only available well into the third year of the project. Still, it did reinforce earlier choices in the process. During the survey, many people asked us: "Will you be giving us a tubewell?" We knew from rapid appraisals and initial meetings that this was a concern, but we had not realized the extent and seriousness of it, that there were so many families facing this problem. We came to know that there are over 900 families in that village and there were only 10 available water sources. Understanding the importance, as a consequence it reinforced the focus on drinking water.

For the later socio-economic research, the NA process gave in-depth understanding, so perhaps as a researcher taking more from them than giving back to them. When the socio-economic researcher undertook social mapping, it was easier to do so, but it would have been more useful to the NA process if done earlier in the process. The network developed by the NA process helped the researcher to informally do research and talk to villagers. Which she again could do because she was not engaged in NA.

### Institutional research

A thorough understanding of the institutional context and conditions is an important aspect of the Negotiated Approach. An institutions brief was prepared by the institutions researcher to support the NA process. The brief was presented to the community in their own language, Bengali, printed as a brochure with many pictures and illustrations that made it attractive and helpful to understand. Most of the attending community members said the information was completely new to them.

This was useful in respect of imparting knowledge to the community about people's rights to water and the official acts and departments regulating water in the country. The community had never heard of such rights to water or water governing acts. Simultaneously, they came to know that not only the panchayat, BDO and PHED, but also several other government departments have a role to play, like the State Water Investigation Department (SWID) and the Pollution Control Board. They never heard that there was a body to control pollution although they have pollution problems in the village. Although immediately this type of knowledge could not be translated into action, to establish their rights, the knowledge remains with them, for future process and their lives.

Formal institutions provide a key leverage point for sustaining future interventions and improvement in water supply. It was learnt during the NA process that the Village Water and Sanitation Committee (VWSC) in the Gram Panchayat area under our study was formed formally, but never activated, probably due to the reluctance of the GP Pradhan. As a result, our attempt was to activate the VWSC, of which the village panchayat representative was a member. We did not ask the Pradhan directly to convene the meeting of VWSC, but stimulated it in other ways. A direct question might have hurt his ego and made things complicated. This dimension, around the VWSC, however, was not directly provided as output from the institutional research, but rather emerged as part of the NA meetings.

# 6. The Negotiated Approach in Khulna[6]

## 6.1. Introduction

### Khulna: Geographic context

Khulna is the third largest metropolitan city in Bangladesh with a population of about 1.4 million in 2011 within its administrative boundary of approximately 46 square kilometers. Geographically, Khulna city is located on the banks of the Rupsha – Bhairabrivers and has developed laterally along the Rupsha-Bhairab river in the east and the Mayur river in the west. Subsequently, the railway line and Khulna –Jessore highway played a dominant role in shaping the growth of the city in a linear way.

Rapid urbanization took place in the last 3 decades in the region, with an increase in urban area from 30% to 69% from 1989 to 2014 in Khulna and its surroundings beyond the city corporation area (Hassan, 2018). Recent growth has been observed in the westward direction along the Satkhira-Khulna Highway and Khulna University, and in the southward direction because of its proximity to the Mongla seaport. When the Padma bridge and the Rampal thermal power plant become operational, city expansion is further expected to be enhanced.

Khulna city experiences high impact of salinity in its surface and ground water. This poses a problem because of the saline natural environment around the city. Natural levees are well developed along the Bhairab-Rupsha banks and are occupied mainly by the present built-up area of the city. The low-lying areas extend mainly towards fringe areas of the town characterized by swampy areas, currently used for agricultural purposes that are poorly drained and have persistent water logging problems.

The Negotiated Approach implementation site in Bangladesh was located in the urban fringe or peri-urban areas of Khulna city. Hogladanga village is a part of Jalma Union under the Batiaghata Upazila, which is near Khulna University. The village is more than 100 years old (JJS, 2016). People in Hogladanga village are engaged in agriculture, daily labour, fisheries, small business, services and rickshaw and van pulling. Most of the people are farmers and a major portion are also engaged in fisheries. Most of the people live below the poverty line and their monthly family income is less than BDT (Bangladeshi Taka) 10,000 per month (roughly equivalent to 100 Euro). Most of the people are illiterate. Local people were selling their land to the migrants. With increasing numbers of migrants the land prices are increasing. Commercial land developers were also active in the village.

### The Negotiated Approach process in summary

Since the beginning of the Shifting Grounds project in October 2014, rapport building initiatives were taken up with village community members. Although it was clear from the beginning that the Negotiated Approach (NA) would be used for community engagement and empowerment, the existing NA handbooks and guidance notes remained quite abstract, and did not tell our project team really “how to do NA”. Important at the start of the NA process was the guidance provided by professor Vijay Paranjpye, one of the founding fathers of the Negotiated Approach in India. On the invitation of Both ENDS, professor Paranjpye attended the project kick-off workshop in October 2014. A year later, in the early stages of the process with the communities, he also attended the NA workshops in Kolkata and in Khulna with the local stakeholders. His very practical suggestions and clear painting of the broader picture of the NA principles, to team members and local stakeholders, helped to raise confidence and ensure the process was started on a good basis.

[6] Narrative provided mostly by ATM Zakir Hossain, Kazi Faisal Islam and Sheikh Nazmul Huda, JJS, with inputs and edits from other team members

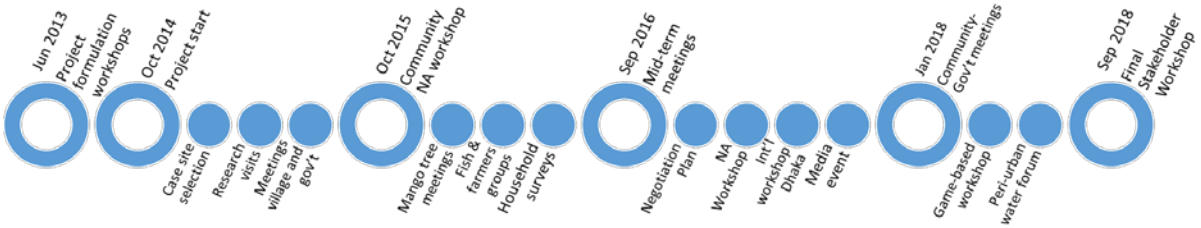


*Figure 3 Timeline with some of the main events in the Shifting Grounds project in Khulna*

In Hogladanga, after the NA Workshop in October 2015 and following several knowledge and capacity building initiatives, Farmers and Fishermen Groups were formed to represent the community in the NA process. Twelve village level workshops were organized with the communities of the Hogladanga village. Through this workshop series, the people learned about the Negotiated Approach at the community level and its practice.

The village negotiation groups worked on prioritization of issues. Three issues were eventually identified as priority issues: accessible safe drinking water, canal encroachment and water logging, and waste dumping by the city corporation. Although not all were directly related to groundwater, the NA further continued work on these priority issues. A small scale participatory water management plan was developed by villagers for identifying problems and expected solutions, including identifying target organizations based on stakeholder mapping. As part of the research, JJS conducted a socio-economic survey in Hogladanga village and developed a village profile. JJS also developed a Negotiated Approach Guideline in Bengali and shared it with the villagers. Using inputs from the researchers in the team, different knowledge development activities were undertaken related to groundwater and institutions.

A six member Community Negotiation Group was formed by the villagers for negotiation and advocacy with authorities for their water related problems. After this, the Community Negotiation Group met with government representatives and agreed on a joint plan. This was followed by individual meetings of community representatives with individual departments: the Bangladesh Water Development Board (BWDB) and the Department of Public Health Engineering (DPHE). These meetings were also facilitated by JJS. Officials there showed the villagers a way to solve their problems by suggesting them the appropriate procedures.

Through this NA process, some very specific results were reached for Hogladanga village. The Upazilla administration (local level government) took the initiative to remove canal barriers. At the end of the project period, peri-urban issues were being discussed at different levels, at universities and in the local media. DPHE was planning to install a test tube well over 1000 ft deep in Hogladanga village, in recognition of the declining water tables and the need for sufficient safe public drinking water supply points. A linkage between community and government stakeholders was developed. Finally, connecting across different projects in the area, a peri-urban water forum was established with involvement of several communities, representatives of all related government authorities and civil society. They would stay engaged with the issue even after the Shifting Grounds project would get over.

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# Increase investment in water and environment sectors: Experts

**Our Correspondent**

KHULNA, Mar 1: Environment and water experts made several suggestions regarding improvement in these sectors during a workshop on Thursday where they urged the government to increase investment in water and environment sectors by increasing the budget allocation.

The need for increasing in the budget allocation is to facilitate raising public awareness and improving coordination among different ministries and NGOs in order to make the urban areas liveable.

The experts also sought nature-based solutions to water crisis.

The suggestions came up at a workshop on 'Peri-urban water forum' held at a city hotel under the project of 'Shifting Grounds: Institutional transformation, enhancing knowledge and capacity to manage ground water security in peri-urban Ganges delta systems'.

Arranged by the implementing organisation JJS, an NGO, the project is funded by Netherlands Organisation for Scientific Research and the technical partners are BUET, SaciWaters, BOTH ENDS, and TUDelft.

The workshop is a phase out meeting of the project for the community negotiation groups to share their success and experiences throughout the project implementation period.

Chaired by Executive Director of JJS ATM Zakir Hossain, the workshop was attended by several stakeholders including government officials, research experts, journalists, NGOs and community representatives who shared their experiences and opinions and proposed suggestions on the entitled issues.

Professor of Environmental Science Discipline of Khulna University Dr Dilip Kumar Datta pointed out four major successes of the project which include raising ownership, leadership skill, empowerment among the community to solve their own problems, and establishing a bridge between the service providers and receivers.

"The government should invest more in green and ecologically friendly infrastructure to achieve Sustainable Development Goals. We should find a nature-based solution for socio-economic development," he further said.

Dr Mostafa Sarowar, professor of Urban and Regional Planning Department of KUET, mentioned that the bright side of this project is that it is an action research based approach where community people are the initiators to solve their own problems. The project output has been turned into an institutional shape for the community empowerment to take necessary steps not only as responsibility but also for their own interests.

"As water is the most important commodity for our life, we have to be alert about water pollution and work to protect the environment," he added.

The Chief Engineer of KDA Kazi Md Sabirul Alam appreciated the project as it has developed a water forum which will serve the community after project completion.

He suggested JJS to provide an identification card to the leader of Community Negotiation Group to get easy acceptance from concerned authority. He also suggested JJS to submit a detailed issue identified plan to the KDA in order to continue the services and to the community to sort the problems based on priority.

Other suggestions were also uplifted during the discussion such as tree plantation alongside the riverbank, canal digging, formation of sluice gate corridor committee, and development of proper waste management system.

Among others, Conservancy Officer of Khulna City Corporation SKM Tasaduzzaman, ex-deputy director of the Department of Agricultural Extension Md Abdul Latif, Assistant Engineer of WASA Md Ashikur, and ex-president of Khulna Union of Journalists SM Zahid Hossain were also present at the programme.



A workshop on 'Peri-urban water forum' was held at a hotel in Khulna City on Thursday. PHOTO: OBSERVER

## 6.2. Community interactions

### Social structure and migrants

The social structure in Hogladanga was represented by two groups: residents and migrants, each group has a different relationship with water. Most people in the village were permanent residents, and were predominantly Hindus. The permanent residents were more dependent on water-based livelihoods than the migrants. Migrants worked in the city; therefore they only needed water for some household purposes. The migrants were not all Hindus, some were Muslim.

Migrants were settling in Hogladanga village from remote coastal areas like Koyra, Shyamnagar, Dumuria and Morolgonj. 57% of total respondents in the Shifting Grounds household survey (JJS, 2016; Banerjee & Jatav, 2017) indicated they were local inhabitants. 43% of households came here for various reasons over the last 10 years. They came to this village because of social reasons like family problems or having their own house, or because of a financial crisis. This migration created pressure on agricultural land.

It was not known if there is division among the groups of permanent residents and migrants in making decisions. JJS engaged mainly the right side of the road through the village. The decision which side to focus on was determined by the fact that the left side had more migrants and that they

were not as well organized as on the right side, where the local people were more homogenous and not many rival groups existed. This made it easier to start the community engagement process with the permanent residents. However, migrants were also invited at certain workshops and an effort was made to identify their problems. Many migrants had a low income, with limited capacity to address water issues. The migrants' main problem was drinking water, a concern that they shared with many of the permanent residents. Most migrants used one of the three shared tube wells in the village and they (as well as other poor persons) needed over one hour to collect water. This was especially a problem for the women, who were responsible for collecting the water.

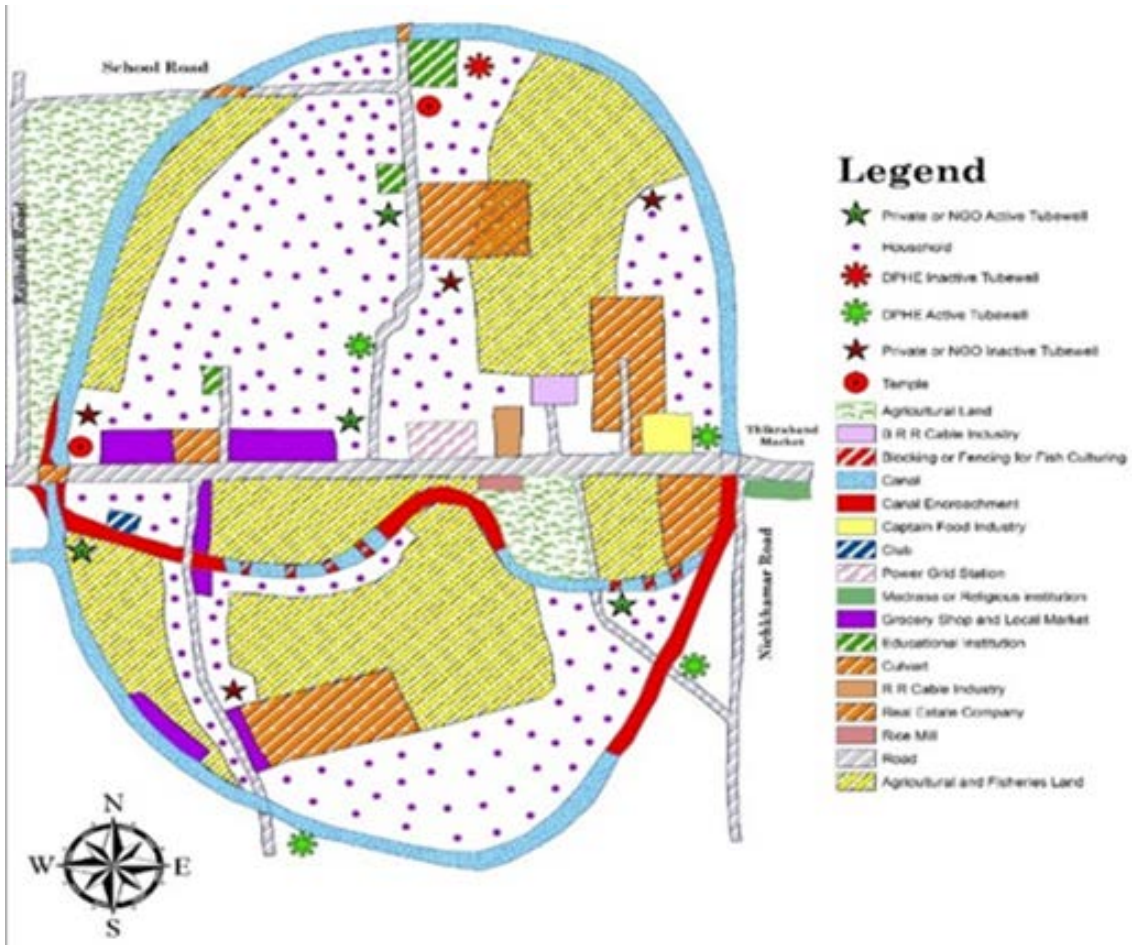


*Figure 4 Map of Hogladanga village, created during NA meetings*


## Local power structures and conflicting interests in fish farming

Fish farming was a common occupation of the people in Hogladanga. However, this occupation was being adversely affected because the land use pattern changed in this village. The price of their land was increasing due to rapid urbanization. Some people were selling their agricultural land to the land developers and others to the migrants. This was causing the cultivable lands to decrease day by day and households were getting interested in occupational diversification.

Shrimp cultivation could be a profitable business in Hogladanga village because of shrimp business opportunities in the vicinity. However, fishermen could not sell their shrimp directly to those potential markets. They would have to sell their shrimp to local influential shrimp businessmen who were not offering fair prices. About 4% fishermen said that they perform shrimp culture whereas about 5% fishermen have stated that they cultivate shrimp, Rui and Katol fish.

Though farmers did not experience any specific problems due to fish farming, it was creating water logging problems in this village. Survey respondents were asked if they faced any problems with the water flow by fish farming. About 80% of households responded that they believed that water flow was indeed being disrupted by fish farming. Actually fishermen were culturing fish in the canal by blocking with fences that reduced the water flow. For that excess water could not drain out during heavy rain and created water logging problems.

A special cause of concern in these water logging problems, was canal encroachment. Branches of the canal were captured by local elites, who put temporary bamboo structures to keep fish (*patas)*. They earned a lot of money and in the process they shared the benefits with local politicians. So open-water fishermen and farmers could not deal with them. JJS and the water group first tried to involve these powerful canal encroachers in the meetings, but they were not interested as they thought they would lose their livelihood. After these initial efforts, JJS did not try much to involve these powerful groups as the project had limited resources, time, and not enough manpower to also include this. The focus was put on capacity strengthening of the more marginalized groups, to help them to negotiate and improve their knowledge.

JJS and the established local NA group eventually bypassed the canal encroachers in order to address the canal barriers. They directed their activities to the government actors to get their support for the canal encroachment problem. Government officials were also hesitant to work on this issue as they get some benefits from the canal encroachers. However, eventually the Upazilla Executive Officer, *UNO* (Upazilla Nirbahi Officer)[7] removed in one instance temporary dykes. Local residents earlier did not go to the Upazilla level but indicated that after the implementation of the NA they would go to the Upazilla because they now knew where to go.

### Power and politics

Political affiliation was less a factor in Khulna than it was in Kolkata. JJS worked in a non-partisan way, and they worked with a group which was not against the ruling party. The role of JJS in the whole process was very important as they had good connections with civil society, media and the government, having worked in the region for 30 years.

There do seem to be power differences and also conflicting interests within the marginalized groups on the left and right sides within the village. On the left side of the village were the migrants, canal encroachers and these people were more linked to local politics. But JJS mainly worked on the right side. It was more difficult to engage the canal encroachers and the migrants, within the time and resource constraints of the project, for reasons indicated above.

### Addressing gender issues in the NA process

When Shifting Grounds started working in Hogladanga village in 2014, the women initially only sat in the meetings but did not actively participate. During the NA process however, they became much more active. In the community negotiation group three of the six members were women. As women were most affected by drinking water problems they were interested in participating. It was observed during field visits however that though women got a voice in Hogladanga, the last word was always with the men.

But there was a clear difference over time. In the first workshop ,the men only spoke and when we asked women to speak, the men did not allow them. But during the gaming workshop towards the end of the project, the women had no problem interacting with the workshop facilitators. This change in participation by women was also visible during the final project stakeholder workshop in September 2018. In a group discussion with (male) government officials, the women from the Hogladanga village group initially sat silent, but gradually spoke up, and were discussing directly with the senior government officials at the table. Knowing the starting point in the project workshops only a few years ago, this seemed a remarkable change.

[7] The UNO is the government official in charge at the Upazilla level from the administrative/executive branch

## Ownership

The initial interest in the community was stimulated by the creation of social maps in the beginning of the project. The participatory approach also made them interested. The project required a lot of time from the community to participate in these meetings. The community did want to invest their time in this instead of, say farming, because they felt they owned their issues. For example if water logging was addressed, it would improve the financial viability of farming. Therefore participating in this process would benefit their income and living environment. They also felt powerful when they had discussions with BWDB, and participated in the conference panel. Their self-esteem improved because their voice was being heard.

When working with communities, an important issue for NGOs and CSOs is to determine the nature and extent of their engagement, more so with a view to sustainability of the interventions. It was the intention of JJS to keep to the background and to take care that the negotiation groups stayed in the front. The Negotiation group took charge of affairs themselves and raised peri-urban issues in the media (TV interviews and newspapers).Water security issues were mentioned generally, and peri-urban issues too, though not groundwater.

JJS did not compensate them financially to be part of the group. The group members also did not expect that. Only if they attended the larger workshops, JJS reimbursed their travel costs and a small compensation for their income foregone. The more regular local meetings were mostly organized when their daily working times were over.

Although there is quite a lot of interest in the NA process it is still unclear if the community owns the process sufficiently to make in sustainable. Within the village community, leadership and capacity has been developed. It shows in the many visits to the Upazilla council and executive officer to take up canal issues and drinking water issues. Family members in other villages also became interested in taking up the NA process, after they heard very enthusiastic stories from Hogladanga. However, they may not be able to take it up on their own. All in all, there is a fair basis of commitment in continuing engaging and owning the process, not only by the community but also by the (local) government.

### Sustainability

The role of JJS changed over time. In the beginning, the JJS worked mostly on knowledge and capacity development. Later, JJS introduced the communities to various departments and institutions, and also introduced the negotiation group to a conference where the community was part of the panel. Here JJS had more of a linking role in the process.

It helped to build long term relations between the advocacy group and JJS to implement the NA. But there was a downside to this as the community could have a feeling that JJS would only contact them for these kinds of projects, and it could make communities dependent on JJS. JJS however, not only works with the community when there is a project, but initiatives are there in the community even without the projects.

JJS also shared a guideline on how to prepare NA. In this handbook the villagers can refer back on how to apply these tools themselves. They will follow the same procedures (steps) but if they have any problems with information about these problems they can go to JJS for inputs on information.JJS can also include in the guideline a list of contacts on which department they can go to for more information.

## 6.3. INTERFACE WITH GOVERNMENT DECISION MAKING

An important part of the Negotiated Approach process, was the creation of a platform where community representatives could speak with the representatives of the government. The step-wise approach followed here, was a crucial part of this process. Ten steps emerged as a way to use the NA for water related problems in Khulna:

1. Engaging Community in the Situation Analysis
2. Social Mapping
3. Prioritization of Issues
4. Stakeholder Mapping
5. Development of an Issue Based Negotiation Plan
6. Development of a small Scale Participatory Water Management Plan
7. Community Negotiation Group Development
8. Negotiation and Advocacy Skill Development
9. Finalization of Water Management Plan with Stakeholders' Suggestions
10. Individual Meeting with authorities

These ten steps were used as basis for a guideline prepared by JJS as a separate document: “Solving water related problems through the Negotiated Approach: Experiences from Khulna, Bangladesh”.

To prepare the community for a purposeful dialogue with other stakeholders, including government actors, the community negotiation group and all the villagers undertook a stakeholder mapping after they had identified their priority issues. Which stakeholders were responsible for which problems was identified through this mapping. Their role and responsibilities and their importance and advancement for solving those problems were also identified.

Next, the community prepared an action plan for solving problems, specifying target organizations, ways to engage with them and expected outcomes (see Table).

*Table 3 Community action plan*

| Priority Issues | Target Organization | How | Expected Outcomes |
|---|---|---|---|
| Accessibility to Safe Drinking Water | ▪ DPHE<br>▪ DoE<br>▪ UpazilaParishad<br>▪ Union Parishad | ▪ Capacity building workshop with community participants<br>▪ Organizing workshop with government authorities and stakeholders<br>▪ Media Mobilization | ▪ Ensure sufficient drinking water<br>▪ Government authorities will provide more focus on this issue<br>▪ Print media will provide more attention on this issue |
| Canal Encroachment and Water Logging | ▪ Deputy Commissioner<br>▪ KCC<br>▪ KDA<br>▪ DoE<br>▪ BWDB<br>▪ UpazilaParishad<br>▪ Union Parisha | ▪ Capacity building workshop with community participants<br>▪ Organizing workshop with government authorities and stakeholders<br>▪ Media Mobilization<br>▪ Discussion with other initiators – Blue Gold<br>▪ Individual meeting with departments | ▪ Adequate water drainage system<br>▪ Canal re-excavation<br>▪ Repair and maintenance of Ramdia sluice gate<br>▪ Government authorities will provide more focus on this issue<br>▪ Print media will provide more attention on this issue |
| City Corporation waste dumping | ▪ Deputy Commissioner<br>▪ DoE<br>▪ KCC<br>▪ KDA<br>▪ UpazilaParishad<br>▪ Union Parishad | ▪ Capacity building workshop with community participants<br>▪ Organizing workshop with government authorities and stakeholders<br>▪ Media Mobilization | ▪ Stop City Corporation Waste Dumping/Modernizing the dumping system<br>▪ Ensure Safe and Sustainable Environment<br>▪ Print media will provide more attention on this issue |

As a necessary complement to their action plan for negotiations with other stakeholders, the villagers also developed a small scale participatory water management plan. Within this plan they identified suitable locations for tube-well installation, identified canal barriers and encroached areas. They also proposed repair and maintenance of Ramdiah sluice gate and identified the dumping site responsible for occurring problems in agriculture and fish culture.

## Community Advocacy and Negotiation Skill Development

The villagers formed a six member negotiation group. This group comprised the representatives from their community. They discussed their problems with authorities and identified expected solutions. Dr. Mustafa Saroar, Head of Urban and Regional Planning Discipline, Khulna University of Engineering and Technology (KUET) provided training on advocacy and strategy development of peri-urban water rights farmers and fishermen group. He said that each and every decision should be taken within the legal framework. We should consider a negotiation process for developing an effective framework. At first we have to identify the water related priority issues of peri-urban areas in Khulna city. After that we have to analyze those priority issues and find out the existing situation of those issues, identify their harmful effects, and the number of affected population and also identify the problems created by those issues. Local people may think about the probable solutions of those

issues and problems. Government and related technical experts should concern about those problems and after that they will take initiatives for mitigating those unbearable problems of peri-urban areas.

To make government authorities and technical experts aware, local stakeholders should identify some strategies. Print and electronic media can play an important role in this matter. They have to publish their issues and problems in newspaper and television channels (if possible) to take into considerations of government authorities. In addition to that, they have to form an advocacy group for negotiation with related government authorities. Before doing that they have to identify the authorities for negotiation purposes. They have to select those persons for advocacy who have presence of mind, networking capacity, and ability to share the real situation of peri-urban areas. The elderly and youth, an equal number of men and women , and respected persons from the locality (local intellectuals/teachers) should be incorporated in this advocacy group. They have to gather people from other peri-urban areas who are faced with similar types of problems. It could add an advantage in their negotiation process with related government stakeholders.

### Meetings with authorities

The Community Negotiation Group shared their water related problems with the identified authorities and agencies during a workshop meeting. The government authorities provided their opinions and also shared their future plan for overcoming those problems. This workshop enabled the community negotiation group to continue discussions with the individual water related authorities after the meeting. During these individual meetings, there was more time and opportunity to discuss the specific problems and the authorities shared their plans and initiatives for overcoming those problems. Priority problems raised in these meetings followed community needs and priorities, and thus were not all directly related to groundwater: Access to safe drinking water, water drainage problems and solid waste dumping by the Khulna City Corporation (KCC).

Through the individual follow-up meetings with the government authorities, all three priority problems were taken up by various participants to meetings. The Public Health Engineering Deputy Commissioner committed to test drillings to establishing a functioning deep tube well for drinking water in Hogladanga village. KCC selected two new sites for landfilling and cleaned the waste dump near Hogladanga. Linkages with the Blue Gold project[8] and the Bangladesh Water Development Board have resulted in an effort to clean up the drainage canal, to alleviate the drainage problems. Illegal activities, especially canal encroachment, were condemned by the officials at the meeting and in later press coverage.

## Results obtained

The above process resulted in some positive outcomes for the communities with whom the project team worked. After this process, the people were well aware about their problems and the responsible authorities. They were well informed and this enabled them to have regular communications with authorities for solving their problems. The initiative to install a deep tube-well over 1000 feet to reach a suitable aquifer at Hogladanga village was taken up by the Department of Public Health Engineering (DPHE). The local upazila administration took the initiative to remove the canal barriers. Another contributor to water logging was also removed. The Bangladesh Water Development Board (BWDB) kept an unused dredger on the gate of the canal. This caused siltation and blocked the gate. After talking with farmers and fishermen they took it away. Financial sustainability also received attention. For example, for the installation of a public drinking water tube well, JJS only facilitated the contact with the Upazilla chairman and executive officer (UNO). There they needed to deposit some money, which was taken care of by the community members themselves.

These are relevant contributions at the local level. They illustrate that peri-urban issues are now in discussion at different levels. The specific solutions reached here for Hogladanga village should, however, be put into the proper perspective. They are all mainly short-term solutions, offering small steps for improvement. Longer-term and more far-reaching solutions will be needed to address the larger scale implications of groundwater management in peri-urban villages. However, with the modest resources available in the project for capacity development, having organized two village communities around water issues, connecting them to local government officials at various levels, whereby government representatives have effectively heard their voices and acted upon those, seems a small but meaningful first step.

## Peri-urban water forum

For safe-guarding the sustainability of the project, JJS formed a Peri-Urban Water Forum with involvement of communities, several related government authorities and civil society. Representatives from JJS, Khulna Water and Sanitation Authority, the Department of Public Health Engineering, Khulna City Corporation, Khulna Development Administration, the Department of Agriculture Extension, Khulna University, Khulna University of Engineering and Technology, the local newspaper the Daily Purbanchol, Bangladesh Protidin, Tarongo, Hogladanga Village and Tentultola Village took a seat in this forum. An important outcome of the project was that in this way, all authorities were linked. Government officials were willing to participate in the peri-urban water forum. However one should realize that this is different from ownership or commitment. But at least this is a first step, indicating interest.

[8] Blue Gold was a collaboration project between the Governments of Bangladesh and the Netherlands to support participatory water management for development. See http://www.bluegoldbd.org/ .


The peri-urban water forum was created to support the NA process, also in the future. If community members in future are not able to get information directly they can bring this up in the forum and ask for assistance on this. The financial sustainability of these forums and the Negotiated Approach was one of the main issues discussed also by the team at Both Ends. This was why the aim was to influence policy, so they could find alternative finances to support the process in the long term. The advocacy group had this in mind from the beginning. By linking the community with universities, government and other key players, they can directly connect with them in the future. In this way, the peri-urban water forum could become sustainable and become self-dependent.

It is too early to get an indication of which direction the NA process will go based on changes seen on the ground. What we see in other cases is the need for more organization and development of water platforms. As we have only one village in this project, it makes it difficult to establish a more regional network that can be stronger. If you are more organized in the region (not just one village but a cluster of villages) then you have a bigger voice in taking up issues and influence in policy making. Therefore, through another project on peri-urban water security in Khulna (CoCooN) JJS contacted another village (Teltultola) and also introduced the NA in this village. They included them already in the forum as Tetultola and Hogladanga have similar kinds of issues. The peri-urban water forum that JJS has established can be sustainable but it is not sure if this can sustain their capacity to intervene with government and institutions.

## 6.4. INTERFACE WITH RESEARCH

From the very beginning, research was driving the Shifting Grounds project, including the Negotiated Approach activities. The research focus was on groundwater management in peri-urban areas. This focus determined some of the criteria for site selection – in addition to criteria aimed at finding suitable sites for working with the Negotiated Approach. Researchers and JJS had discussions about these criteria with the community. From those discussions the community got interested. The initial baseline survey helped to make them feel more linked on issues faced in the village.

The knowledge generated through the research work in the project was used as a basis for creating awareness among the communities with whom the project team was working. Discussions on groundwater with the community were more challenging than on institutions, as groundwater was a black box for them. This was reflected in the glossary of terms which was prepared by the researchers and the facilitating organisations (JJS for Khulna).

## Hydrogeological Research

The hydrogeology researcher was interested in the developments in groundwater extraction and recharge across different sectors. Therefore, he made several field visits for primary data collection. He also gathered information and data from secondary sources. This was done to identify baseline conditions. Awareness on groundwater issues was raised by presentations and discussions with village community members. The researcher also tried to motivate them in this way to be careful about how they were using groundwater. After field visits, the hydrogeologist sent information on groundwater quality and testing results. Also photos on groundwater over-pumping etcetera, were shared which all fed into the NA process, specific to the village. As part of the Negotiated Approach process, the hydrogeological researcher of the project team delivered a lecture on groundwater scenarios to the water group. This deepened their knowledge about groundwater in such a way that they were able to talk about this to the authorities.

During the mid-term meeting in the project, the use of community-based groundwater monitoring was explored and discussed, to support the hydrogeology research. Participatory monitoring might be done as part of the NA process, providing the village water group with a test kit for groundwater quality. This idea did not materialize in the second phase of the project. The absence of any specific plan of how to engage the community in this community-based monitoring made it difficult for the hydrogeology researcher and the NA facilitators to initiate this process. However, the idea of community-based monitoring eventually did feature in the gaming-simulation workshop developed by the institutions researcher, as a way in which communities and government agencies could collaborate for joint benefits (see below).

## Institutional research

For the institutional researcher it is clear that there was a two-way exchange and that this led to discoveries about the problems and the ways of addressing them. In fact, the development of a community-based, or participatory, approach for institutional analysis was a core research objective. This approach was developed with the Kolkata and Khulna sites in mind. The limited time and resources meant it was not possible to apply all steps in the approach in both countries, so there were mostly ‘tested’ with the Khulna community.

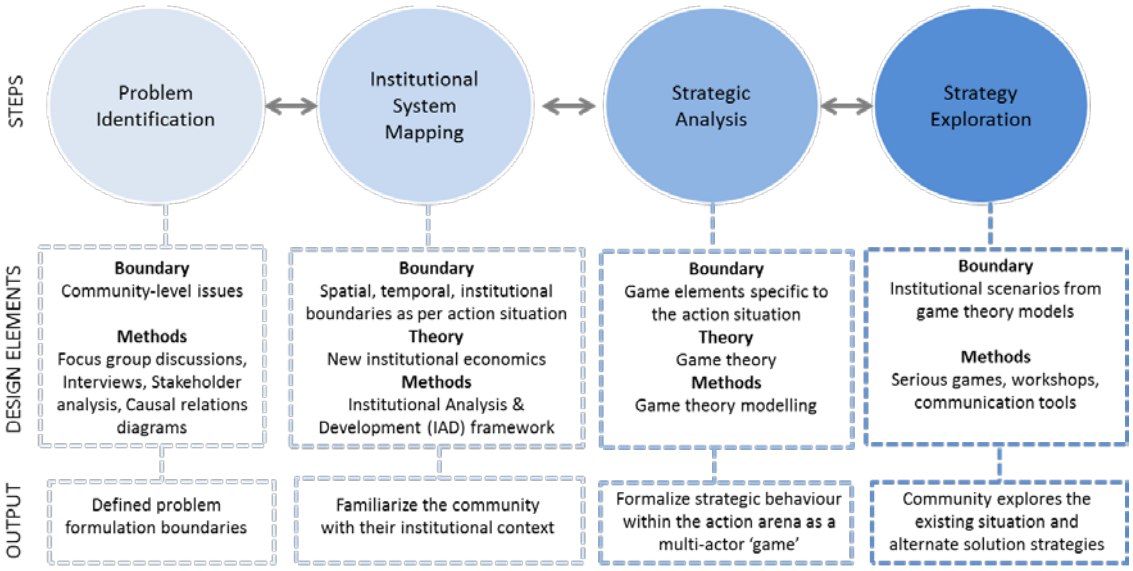


*Figure 5 Approach for participatory institutional analysis (Gomes et al., 2018)*

The approach had four main steps: problem identification, institutional system mapping, strategic analysis, and strategy exploration (Figure 5). Step 1, defines the boundaries of a specific problem faced by the community. Step 2, maps the institutional context of that problem, specifically the formal and informal rules. This institutional context is analysed in terms of multi-actor interactions taking place within a larger system of biophysical and socio-economic conditions using the Institutional Analysis and Development framework by Ostrom (2005). Then, in Step 3, game theory models are constructed to analyse strategic behaviour occurring within these institutional arrangements. In Step 4, strategy exploration is facilitated with local communities using gaming-simulation methods.

Early NA meetings had identified a list of local issues in peri-urban villages. So the first pre-scoping visit in 2015 was conducted to identify the institutions, actors, and problems associated with each of these problems. At the end of the visit, a de-briefing workshop was organized by the researcher and JJS. It was a multi stakeholder workshop with community, government and experts to present the early results. In this workshop, the community could reflect, refute and discuss what was presented and that was actually the first time they heard about the problem from multiple perspectives.

Based on the data collected, both primary and secondary, an institutions brief on water supply and groundwater management was prepared. The brief for Hogladanga was an introduction to the key (formal) institutions related to the rights and responsibilities for water resource management in Bangladesh. It also contained an infographic about the process for tube-well applications in peri-urban areas. JJS translated the brief into the local language and discussed it during mango tree meetings held on June 18th with 12 community participants and 19th , 2016 with 13 participants.

Subsequent NA meetings since then fed into the further analysis process. NA reports were used a lot as a source of data to give the institutional researcher insights into the community, their problems, their perceptions etc. This was needed as she only had limited opportunities to do field visits and because it often takes time for people to develop their ideas (and one meeting is not enough).This helped her follow the villager's thought process and how it evolved over time. Based on this she could also revise her own research. With these inputs, models were developed of the stakeholder interactions around specific issues, using game theory and the IAD framework.

A field visit in 2017 was used to discuss with stakeholders their values mainly in the drinking water problem, as input for these models. The waste management problem was also investigated. A short brief on the waste management projects of KCC was shared with the community through JJS.

A last important link between the institutions researcher and the NA process, were two gaming-simulation workshops in March 2018, organized by the institutions researcher for stakeholders in Hogladanga and Khulna. The first workshop was with residents of Hogladanga village, the second workshop was with government representatives from different agencies involved in drinking water and/or groundwater management at the local level in Khulna. The purpose of these workshops was for participants to explore strategies to address drinking water related problems, experienced in peri-urban Khulna. The workshops provided a platform for research uptake as the results of the game theory analysis were shared with local stakeholders in the form of a role-play game.

For Hogladanga community, the goal was to improve communities understanding about the institutional arenas of the drinking water problem and the actor interactions taking place within them. Moreover, through role-play communities could experience the challenges of negotiating with other actors, and in this way build skills to negotiate in the real world as part of their solution finding efforts. The communication challenges with the community due to language, cultural and educational gaps were substantial. The researcher explained that this was a big problem for her and indeed quite challenging.

Despite these communication barriers, also this final gaming workshop was valued by the community participants. Other people from Hogladanga also wanted to participate in the gaming workshop. Also, after the gaming workshop, participants wanted to share their knowledge with other people in the village. During the final project stakeholder workshops, it was suggested to 'play' the game in the workshop with community members and government representatives together, to learn more and more directly about each other's perspectives.

### Socio-economic research

There has been limited direct interaction between the socio-economic researcher and the Hogladanga community. Nevertheless, the data collected through surveys, executed by JJS as inputs for the socio-economic research, were helpful and important for to get a more complete picture of the village and its access to water. Also, these data, combined with regional level socio-economic data, provided important inputs for the hydrogeological research. The initial findings of these groundwater models, was that regional drivers might be more important than local abstractions, which has of course important potential implications for groundwater management strategies.

### Indirect impacts

Beyond the community briefs and the meeting and workshop, also the other interactions between researcher and communities have had an impact. In the field visits, the interviews of course had an impact on the person being interviewed. And in the focus group discussions and afterwards, in the de-briefing workshops and gaming workshops, the impact was on the wider community. Even wider knowledge sharing was seen in the institutional inputs by the researcher. For example, the seminar and game demo at KUET with academics from both KUET and KU. And in Kolkata, the local village panchayat member often accompanied the institutions researcher to meetings with block level officers etc. So there was wider dissemination in that way.

### Integration of research findings

As part of the transdisciplinary research approach, also integration of research findings was foreseen. The research frameworks used by the three main researchers, indicated that there were obvious

overlaps between the three research components. However, the timing of research activities (esp. the availability of results) and the scale at which this was done made it difficult to integrate findings. Although data sharing between researchers was agreed at the start of the project, this was not without problems. Also, geographic locations of the three researchers, being based in three different countries, made it difficult to communicate. Coordinating field turned out to be complicated because of the time it takes to discuss different research aspects in one hour meetings with stakeholders. A further complication was that the institutions researcher required translation, whereas the groundwater and socio-economic researchers were conversant in Bangla. This made it more difficult for the institutions researcher to follow and co-direct the interviews.

### In sum

There have been direct and frequent interactions between research and capacity building in Hogladanga. On the one hand, the short-term solutions that were realized through the Negotiated Approach process seem to have relatively little to do with research insights and results: Test-drillings for public drinking water supply, a relocation of the waste dump site, and a temporary removal of canal encroachments. On the other hand, the research briefs may have helped to empower the community representatives in their interactions with government representatives. The institutions brief emphasized the right to water and the formal institutional legislation on rights and responsibilities, while the lecture and discussions with the groundwater researcher and the glossary of technical terms may have contributed to a similar empowerment. Still, briefs, lectures and glossaries might also have been made in another way, without a specific specialized academic research behind them.

What might be more unique to the academic research perspectives introduced and used here in the NA, might be the longer term and the larger systems perspectives introduced by the researchers. The awareness within the community of longer-term change processes, both in the urban institutional set-up, as well as in the regional groundwater developments, provides them with relevant context knowledge, which they would not have had if not for the research interventions. The very direct value of these, however, is hard to capture.

# 7. Conclusions

In the preceding sections of this booklet, we have described the experience with transdisciplinary research and the Negotiated Approach in two peri-urban sites, one each in Kolkatta, India and Khulna, Bangladesh. As noted earlier in this report, peri-urban spaces are characterised by changing patterns of natural resource use, shaped by the reallocation of land and water resources. Institutionally such spaces are complex and there is a diversity of social and economic interests. This poses challenges for natural resource access and governance. Local awareness of natural resource issues can be weak and there is need for capacity building of the resource users to better represent their interests to state agencies. Transdisciplinary research thus could provide an appropriate way to address these issues.

We have tried to give a rich account of our experiences. We have learned a lot from the process, and we thought it worthwhile to capture these experiences. Not because we think they are unique, but because there are not that many detailed accounts, and because capturing experiences is a first step towards a better understanding. However, we realize that many of our lessons are similar to the lessons learned by those who engaged in similar trajectories earlier. In this concluding chapter we will try to capture a few of those lessons.

## Research and community development: Whose needs?

The experiences we described, were a mix between a researcher-initiated and a community-initiated process. The research-initiated process was unmistakably there, with our project funded by the Netherlands Organization for Scientific Research and with Delft University of Technology as consortium leader and the participation of Bangladesh University of Engineering and Technology and the South Asia Consortium for Interdisciplinary Water Research. The community-initiated process was also there, clearly. Throughout the project, the Negotiated Approach was, in fact, the main binding force that kept the project team together, with Both ENDS as the international lead partner and the local NGOs JJS and The Researcher primarily engaged for community development through the Negotiated Approach.

Research-initiated processes may be more directly relevant in producing research outputs, but might struggle with continuity after the project; community-initiated processes may lead to more ownership and continuity, but may be more difficult to match with specific research questions that can be brought to a meaningful conclusion in a four year PhD or postdoc research trajectory. In Shifting Grounds, we have tried to mix both types of processes. In doing so, a lesson known from earlier experiences with transdisciplinary research, clearly manifested itself here also: researchers and community members are likely to have different needs and perceptions. In our case, it was clear that researchers focused on long-term sustainable groundwater management, while community members faced acute drinking water problems that required short-term immediate solutions.

We have dealt with these diverging perspectives by trying to accommodate both, by making conscious choices and communicating those as clearly as we could. Accommodating the short-term community needs required us to mobilize additional resources and support, which was done in different ways for Kolkata and Khulna. This enabled us to deliver some tangible results for the community, although of course still limited (Arsenic trainings and mapping in Kolkata, and test drillings and relocated waste dump sites for Khulna). For the research, the focus also followed the needs of the community, in important ways. From a longer-term groundwater sustainability perspective, a focus on water use in agriculture and aquaculture would be important, as these sectors are typically the largest users of groundwater – and our villages seemed no exception.

However, the Negotiated Approach process had shown that these issues were too difficult to tackle and that the communities could not reach an agreement over these issues as community priorities. The choice for drinking water access provided a better basis to start the Negotiated Approach – and thus also the institutional analysis then followed this focus.

### Research and community negotiations: What first?

One of the feelings from the Negotiated Approach process in Kolkata was that the community development results would have been better if research activities would have been undertaken first. A deeper and more profound understanding of social relations and local alliances and networks could have helped in the smoother execution of the Negotiated Approach process. For Hogladanga, JJS did a baseline survey for as the data they got from the Statistics Department was inadequate. Social mapping was an initiative JJS came up with during the approach, which helped keep the NA process open and flexible. As in Kolkata, many of the research results came in very late and if JJS had had to depend on the research results to implement the negotiations, it would have been very late.

Research results earlier in the process could thus have helped the Negotiated Approach to start on a more informed basis. At the same time, important limitations or complications would have remained. Local politics were important, both in Kolkata and Khulna. These would have been hard to observe even if more socio-economic background information would have been available from the start. Although socio-economic research results might have helped to anticipate some of the conflicts that had a clear economic underpinning. Still, a tentative lesson here might be to ensure that research results feed in from the early stages. This might mean that some research would come first.

### Conflicting needs within research, and within the Negotiated Approach

It might seem that the most important challenges all have to do with conflicting needs and perspectives between research and community development. This also seems the basis of challenges identified in earlier experiences with transdisciplinary research such as those captured in Table 1 in the Chapter 1. What we observed in Shifting Grounds, however, were also challenges due to conflicting needs within research and within the Negotiated Approach.

The Negotiated Approach, as an example of a particular approach to community development and bottom-up policy making, has multiple objectives. It aims to be fair, sustainable, inclusive, pro-poor, empowering communities, and establishing self-governance and a self-sustaining process. Those objectives, however, are not necessarily compatible or complementary. Trade-offs and choices are inevitable, at least within the timeframe of a five-year process. Addressing short-term needs, and showing short-term results may be required to build enthusiasm and ownership for self-governance, but these short-term solutions may actually be questionable from a longer term sustainability perspective. Simply relocating a waste-dump, or drilling another public well, are clear examples. Also, ensuring support for a pro-poor and fair process may conflict with inclusiveness: in Khulna, JJS made the conscious choice to focus on the poor members of the community, and not spend much time to also include the powerful elites, given limited resources.

The Khulna conclusions on research contributions point at some conflicts and complications: different researchers will all have to share access to and time with local key respondents and participants. Sharing data might seem laudable at the start, but enabling others to use your data requires quite some efforts and also can create anxiety especially when research results are not being produced at similar paces across researchers.

The main lesson here: Be aware of conflicting objectives, acknowledge that it is impossible to realize all these objectives together at once, and try to consciously balance the multiple success factors

involved. Safeguarding minimum standards may well be more helpful than aiming for maximum success.

### Who is in, and who is not?

The experience with both the sites suggests that developing dense networks of contacts and relationships in the field in which to embed the NA experiences can be crucial to the success of such initiatives. Perhaps the greatest challenge in the implementing the Negotiated Approach seems to have been in dealing with local power structures and the diversity of interests characterising peri-urban spaces. The documentation of this experience suggests the Negotiated Approach to have been a socially embedded process in which social and power relations have a key role to play in influencing the outcomes.

In Khulna, JJS could not work with everyone in the village. This was inherent to the project and not just in the NA process. Limited resources and limited time necessitated choices in who could be included and what could be done. Choices were made for issues to focus on, and for groups within the community to work with. In both villages, some groups thus also were excluded. Sometimes through 'self-selection', as with the powerful elites, the canal encroachers in Khulna and the bottling plant owners in Kolkata. Sometimes because resources simply did not allow to engage an ill-structured group such as the recent migrants in Khulna.

The more powerful groups may be more reluctant to engage in a process that is likely to change the status-quo. The least organized groups are least capable to engage in the process, even if they are most in need. This raises questions of how representative the Negotiated Approach processes are, and how more groups can be reached and mobilized to participate. We have tried personal networks within the communities, political affiliation, direct short-term incentives (arsenic testing, test tubewells), and media attention aimed at the government and more powerful groups.

### Starting from Conflict or Harmony? The Hard Questions or the Easy Ones?

We have, eventually, worked on the easier questions. Especially in Kolkata, but also in Khulna, it became clear fairly soon in the process, that some of the real conflicts, and the really hard questions, were too difficult to tackle. Drinking water issues emerged as problems with a somewhat lower degree of conflict, making those a good choice to start the Negotiated Approach. At the same time, this left the harder issues, the existing conflicts within the communities, untouched. For a real long-term sustainable development and self-governance, these conflicts would need to be confronted.

During the last phases of this project, questions were raised about the applicability or extension of this approach to other peri-urban spaces in India and/or the global South. While no blue -prints are possible, the experience particularly in Kolkata suggests that a stronger research component prior to the initiation of the Negotiated Approach, rather than in parallel to it, may have made it easier to implement the process.

### And still, at the end of the day

All these lessons and insights may give the impression of failure, pointing to all sorts of things that could have been done better, or to many of the inherent limitations of transdisciplinary research and capacity building. Therefore, let us end on a positive and clear note. Despite all the learnings and lessons, all of us, as researchers and development practitioners, look back on our experiences in an overall positive way. If asked again if we would join in "Shifting Grounds", knowing all that we know now, each and every one of us would decide to join again. And we suspect that the very same sentiment exists within the communities with whom we have worked in Khulna and Kolkata. This

should tell you that, at the end of the day, it was hard work with important limitations and lessons learned, but also, that it was all well worth the effort.

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Negotiated Approach for Groundwater Management

Shifting Grounds

## For Further Information

Information and documentation can be found on the Shifting Grounds project website:

http://saciwaters.org/shiftinggrounds/