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Integrated Approach to Groundwater Regulation, Management and Conservation

Executive Statement

Scarcity of freshwater is emerging as a global challenge. Rapidly rising population, industrialisation and climate change effects make the challenge worse in South Asia. The region accounts for nearly half of global groundwater used for irrigation. Yet, per capita water availability in the region is dropping dramatically. Subsequently, depleting water table has emerged as a policy concern at subnational and nation-level, especially in India, Pakistan and Bangladesh. However, these policy concerns and subsequent dialogues have not resulted in much action to address the situation.

Given the transboundary nature of groundwater aquifers, skewed usage in few pockets might have regional implications. Over withdrawal of groundwater in India, with recent shifts in Bangladesh and Pakistan, poses serious threats to water security in the region. This calls for an urgent need to address groundwater anarchy in the region, by bringing up the issue at regional-level and taking up an integrated approach to groundwater regulation, management and conservation. In this backdrop, we propose following priority measures:

- Groundwater crisis, so far, remains a local issue to be dealt by subnational agencies. There is a need to highlight the transboundary nature of groundwater resources and the crisis, and raise the issue in wider regional forums.
- An integrated approach with complementing groundwater regulation, management and conservation strategies is need of the hour. Owing to variation in availability, demand and possibility of recharge across aquifers, it is useful to have aquifer-level planning.
- For better management of groundwater resources, there is need to develop a data base on availability and withdrawal, which has to be developed jointly by affected governments. While planning and implementation has to be done by local agencies, there is need for a regional agency to coordinate and steer the initiatives, and ensure cross-regional learning.
- To address the irrigation and groundwater nexus, countries must move out of the traditional irrigation policy and practice with promotion of modern technologies, at subnational and national-level.
- Given that addressing the groundwater challenge in the region requires change of perceptions and practices at different levels, Civil Society Organisations (CSOs) have an important role in sensitising relevant stakeholder groups, creating a bottom-up pressure for the change and mitigating social oppositions.

Focus Domains of Change

Here, our aim is to contribute to following domains of change, with a focus on groundwater resources:

- Enabling (National and Subnational) policy and regulatory environment for Integrated Water Resource Management (IWRM).
- Facilitate South Asian Association of Regional Cooperation (SAARC) dynamic on the need for data sharing and joint analyses on water resource management.
- Civil society voice for change, reform and standards.

Theory of Change

Problem	<ul style="list-style-type: none"> • Increasing dependence on groundwater resources across South Asia region • Fastest depletion of watertable in Indo-Gangetic plains • Lack of adequate regulation, and management and conservation strategies
Desired Change	<ul style="list-style-type: none"> • Prioritisation of groundwater management in the policy agenda • An integrated approach to groundwater regulation, management and conservation • Sensitivity to the implications of withdrawal in one area for water security in other areas sharing the aquifer
Approach	<ul style="list-style-type: none"> • Raising the issue in regional forums, as part of the dialogue on transboundary water sharing • An integrated approach with complementing groundwater regulation, management and conservation strategies • An updated and dynamic database on groundwater availability, withdrawal and recharge, to support better planning • A regional agency to coordinate and steer the initiatives, and ensure cross-regional learning • Planning to move out of traditional irrigation policy and practice to reduce load on groundwater resources
Change Agents	<ul style="list-style-type: none"> • Governments at national and subnational-level to design effective regulatory policies and incentives, to be implemented by agencies at local-level • International development agencies can provide technical knowledge and international experience • Think tanks can play a significant role in data collection and management • CSOs as watchdog will play an important role through awareness campaigns and sensitisation. • Private sector can contribute to the transformation of irrigation practice through market led investment in modern irrigation technologies
Strategy	<ul style="list-style-type: none"> • Encourage and enable our strategic partners to consolidate their work on groundwater, engage with respective governments and agencies, and highlight regional dimension of groundwater resource and its consumption • Create a regional platform for deliberation and bring up the issue at various formal regional forums • Continue and consolidate engagement of CUTS with subnational and national governments and their agencies in India • Further publication and communication
Outcome	<ul style="list-style-type: none"> • Strong civil society organisation (CSO) voice on need of an integrated and regional approach to groundwater challenge in the region • Integration of groundwater to regional water sharing and security debate in South Asia

Context

Water is projected to emerge, in coming years, as one of the critical drivers of peace and stability in South Asia. The region is home to one quarter of global population, but the available fresh water resources are not ample to meet the need of such huge population. In addition, rapid increase in population, urbanisation, industrialisation and lack of water resources management has posed a serious challenge for the region as far as water resource is concerned. Chronic water-use inefficiencies, coupled with climate change, seem to worsen the situation.

However, the debate on water security in South Asia often focusses on surface water bodies, predominantly on river water, its sharing across national and subnational borders, and the hydro-politics of it. Interestingly, groundwater resources cater to a major part of the water needs in the subcontinent, not just in volume, but also in duration throughout the year (which is estimated to be 57 percent of the total freshwater usage). During past six decades, India, Pakistan and Bangladesh (Nepal to some extent) have seen significant increase in groundwater exploration, predominantly for agricultural usage. Subsequently, India, Pakistan and Bangladesh have nearly one-third of the globally irrigated land. Similarly, agricultural water usage in South Asia is as high as 91 percent of total

freshwater usage, as compared to global average of 70 percent. The Gangetic plain, as a result, is experiencing the fastest rate of groundwater loss in the world. Satellite images show that some 54 cubic km of groundwater are disappearing each year in the region. At this rate of water loss, the region is at the brink of a major crisis.

Public is well aware of the crisis, especially in the worst affected areas. However, public perception on the cause of groundwater crisis varies. Irrespective of the location, farmers need water on time for irrigation as they claim an entitlement over water resources, both surface and groundwater. In case of groundwater, the entitlement is more exercisable. Promotion of high-yielding varieties, coupled with government policies and failure of surface irrigation mechanisms has created greater dependency on groundwater. Public opinion is unanimous on the fact that there is no alternative to groundwater dependency. However, there is a belief that aquifers can be recharged to come out of the crisis, which the governments must do. In recent years, there seems to be a shift from demand for free energy to run the tube wells to demand for timely availability of water. However, farmers' understanding of water use efficiency and rationing is limited.

Subsequently, overdependence on groundwater and subsequent challenges have come up in national and subnational policy priorities, but there is little attention to the matter in regional dialogues. Moreover, given the ownership issue and lack of adequate data on availability and demand, the initiative to address the challenge have failed to achieve success. Many of the existing initiatives are localised, at best operational at subnational-level, lack the vision of a holistic picture, and disjointed at present. Further to this, dispersed withdrawal makes it more difficult to monitor consumption and implementation of the existing minimal regulations.

Given that groundwater aquifers spread across political boundaries, skewed usage in one region affects availability in other regions and could seriously compromise water security of the latter. In this backdrop, it is necessary to think of an integrated approach to groundwater regulation, management and conservation, at the regional-level. This will also help cross country/location learning and experience sharing.

Policy Implications and Recommendations

Further ignoring the issue will have severe consequences for water security in the region and will also compromise water access equity. Subsequently, it will lead to other developmental challenges by affecting agricultural productivity and livelihood of masses in pockets. To address the situation, we propose a holistic view to the emergent challenge and an integrated approach that will involve following steps:

- a. Given the current context, it is important to integrate groundwater resources to ongoing regional debate on water sharing and management. This integration need to happen both at the government-level as well as among the civil society organisations. The debate need to be inclusive from the beginning with participation of multiple stakeholders, including the policy makers, implementing agencies, civil societies, and international development agencies.
- b. Taking a holistic view of the problem is critical to finding a feasible solution. An integrated approach with complementing groundwater regulation, management and conservation strategies is need of the hour. Moreover, owing to variation in availability, demand and possibility of recharge across aquifers, it is useful to have aquifer-level planning, while implementation of such strategies/plans could be taken care of by the political units/offices. This would essentially mean collaborative planning and implementation by national and subnational governments, and engagement of district-level administration.
- c. Unavailability of accurate data on groundwater availability, withdrawal and aquifer recharge has been a serious constraint to regulate and manage groundwater usage. In such context, it is important to prepare a data base of information, which has to be developed jointly by affected governments.
- d. While planning and implementation has to be done by local agencies, there is a need for a regional agency to coordinate and steer the initiatives, and ensure cross-regional learning.
- e. To overcome the current fragmented regulation or absence of it, a regional groundwater regulatory strategy need to be developed with strategic incentives and deterrents, built on real-time data and specific conditions of the aquifer. Such a regulatory strategy must use both carrots and sticks, which could involve indirect strategies to influence, shape, and steer its atomistic irrigation economy in a problem-solving mode.
- f. To address the irrigation and groundwater nexus, such a strategy must move out of the traditional irrigation policy and practice with promotion of modern technologies. Given the social and political opposition to rationing of any service/commodity, the new strategy must seek to bundle policies and integrate interests to mitigate the trade-offs and thus reduce resistance.
- g. Rationalising groundwater withdrawal in the region would require a major shift in public behaviour, to value it as a scarce collective resource. At the same time, governments' attitude towards irrigation must also change. Here, the CSOs can play the role of a catalyst by sensitising communities and other relevant stakeholders, and thus help to reduce social oppositions. They can also create a bottom up pressure and support for the required regulatory reforms.

Change Agents

Given the complexity of the issues, the change here would require engagement and contribution from a wide range of stakeholder. Governments at national and subnational-level have the critical role of putting up creative regulatory policies and incentives to tame the groundwater anarchy. Simultaneously, the governments have to cooperate on data tabulation on availability and demand, and share the burden. Given that consumption/withdrawal occurs at the farm end, government agencies at the local-level will have to ensure that these policies are effectively implemented to achieve the goals.

While the governments have to show willingness and support for data collection, sharing and building policies on real-time data, domestic think-tanks will have the role of data collection and management. The process can be further complemented by the international development agencies by bringing on board the technical knowledge and international experiences.

Though private sector does not have a direct role, they can facilitate the transformation by creating market for modern irrigation technologies that will reduce the demand for water and improve water-use efficiency.

Finally, the CSOs will be a major change agent in shaping public perception, transforming public behaviours and creating public support for regulatory reforms through their engagement at the grassroots. Simultaneously, CSOs can play the critical role of watchdog to implementation of government policies at local-level and also bring in grassroots perspective to policy making and planning.

Action Agenda

Under such circumstances, CUTS action would involve three agenda:

- First, to create a CSO voice on the matter, enable them to visualise and embed the larger dimension of groundwater crisis in their work, and participate in the policy process in the issue.
- Second, to promote a regional dialogue on transboundary nature of groundwater and create a demand for inclusion of groundwater in regional dialogue on water security.
- Third, engagement with national and subnational governments in India to take effective regulatory measures. Simultaneously, CUTS will encourage its partners in different locations to take similar measures.

Operational Strategy

As a first step, we aim to encourage our partner organisations in different locations, across the three basins, and build their capacity to embed the larger dimension of groundwater in their work. While many of them are already working on local groundwater challenges, our goal is to enable them to consolidate this work and their engagement at subnational and national-level. Simultaneously, we will ask them to highlight the regional attributes of groundwater sources and consumption in their future work and make a case for a regional strategy for a challenge that is linked across the borders.

Our second strategy aims to create a regional platform of CSOs to deliberate on the regional nature of groundwater challenge and solutions. Proposed regional CSO network will provide that platform. The objective is to create a platform, bring up the perceived local issue at regional-level, provide a space to the CSOs for engagement and enable cross-country learning and engagement. An integrated approach to groundwater regulation, management and conservation will be a key agenda in the regional conference proposed to be held in Delhi and will continue to be debated in the informal network of CSOs to strengthen support for the agenda.

CUTS will continue and consolidate its engagement with subnational and national governments and their agencies in India on better management and regulation of groundwater resources. We aim to expand our research-based advocacy on the matter, covering more states to present better evidence and a stronger case for immediate action. In addition, we will also present our learning in various regional forums (like SAARC meetings and other regional conferences) to strengthen our message.



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