

***Taming the Anarchy: Groundwater Governance in South Asia***

Tushaar Shah, Resources for the Future, Washington D.C, 2008. pp 302

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With this book, *Taming the Anarchy*, Tushaar Shah achieves what many South Asian water scholars thought impossible - a scholarly yet very readable and provocative book that provides not only an original summary of the impacts and impasse of current groundwater management but also upbeat and positive propositions to facilitate rethinking of groundwater governance options. This book compiles a mass of both the authors' own and also many other scholars' work into an accessible text that will be a boon for a wide audience from students and academics to the interested public. However, the book also lays down a challenge to water resources managers and national and international policy makers - especially related to groundwater and canal irrigation management - with stark criticism of past and contemporary policies based on strong empirical evidence. The book introduces a core new phrase into water planning and economic development - that of 'water scavenging' - to explain the secret of the success of pump irrigation undertaken by small farmers in South Asia. This shows the book's intent to provoke reaction and rethinking among the failing institutions of both groundwater management and canal irrigation. It also targets politicians, even up to the level of Chief Ministers, who are the ones responsible for shaping groundwater management. It is thus, an excellent book for South Asia in general, and India in particular, to usher a fresh perspective on where groundwater and irrigation management may go in the 21<sup>st</sup> century.

The title of the book itself indicates a deliberate aim to depart from the standard line of arguments presented on water policy. Shah's perception of South Asia as a place of 'functioning anarchy' - one that depends not upon the government but on the energy of its people - gives it a real focus on what works in the eyes of these groundwater users and their own political economy of water development. He notes how, for this region, the choice for groundwater governance may not be of one between chaos and stability, as global discourses may label it, but of the humanity we manage in maintaining access for different users. Moreover, Shah wants to reject the images of unmanageable chaos, intolerable disorder, and inhumane anarchy often given as characterizing current groundwater use. To argue these points, Shah delights in documenting both the ingenuity of groundwater users, and the perverse incentives of some formal groundwater institutions. He uses both these analyses to suggest that formalized groundwater alone cannot work in the world of users in today's South Asia. Shah thus concludes with a plea for strategic indirect approaches to groundwater governance - tailored more specifically to socio-ecological regions, thinking about groundwater as part of wider water resources locally, mixing informal and informal institutions as relevant - that he thinks can at least tame or lessen some of this anarchy as it materializes with different faces in different regions. Also that can allow new ideas about governance to evolve and thrive locally to allow for a more 'manageable chaos'. This may better suit the rapidly transforming world of groundwater users in South Asia.

The book revolves around some core arguments, expanded in its chapters. A critical and provocative crux of the arguments is that the heyday of large-scale canal schemes is over. Indeed if they continue or new schemes do materialize, these must be run more with reference to groundwater recharge and understanding of conjunctive use principles. Second, is the case to understand the special characteristics and history of the groundwater boom in South Asia, giving special attention to its socioecology – with reference to different regions as shaped by their hydrogeology and agrarian and political histories. A third argument is that the groundwater development must be understood against scarcity of land and not only water, and the high populations of the many small farmers for whom pump sets offer the chance to scavenge water more reliably and lucratively than permitted by canal irrigation. The fourth argument is to understand the nature of the informal water economy and distributed governance that Shah sees operating in groundwater governance in the region. Shah aims to present farmers' real economic responses and options under different contracts emerging around the relationship around land and water access, water markets, and the water-energy nexus. His case is that we must understand these economic institutions better, if we are to understand what new governance mechanisms may emerge as the regional water economy transforms. They are also central to understanding prospects for further future poverty alleviation of marginal farmers through groundwater development

The book is structured around eight chapters that build these arguments and provide evidence towards the 10 propositions that close the book. The book starts with three chapters that set the scene, with a skilful synthesis of the hydraulic past and the role of irrigation and state formation, the rise of the colossus of pump-based groundwater-irrigation in the region alongside canal irrigation, and a very provocative chapter on the uncertain future of canal irrigation and its problem fields. These chapters weave together a good overview of historical and political studies from a wide authorship. They provide not only useful and sometimes startling data but also bring in core ideas from development theory and planning, that can and have been used to study these fields. South Asian irrigation is discussed also within the wider global context of irrigation development (of other hydraulic societies like Egypt and Sudan) as well as experiences from US and Australia. Shah is especially adept at bringing in contemporary political economy into the analysis and challenging the reader to think about how and why canal irrigation is experiencing such problems in its management in the last fifty years and why groundwater irrigation is now surpassing the area under large-scale systems.

The next 3 chapters focus more specifically on groundwater development, looking at the welfare impacts of wells, the concerns over diminishing returns from groundwater development, and the relationship of aquifers and institutions. Here, Shah also weaves some newer syntheses and perspectives into the book, even to those who know his work overall. These chapters provide some fascinating reflections on the different socioecologies of groundwater, particularly with reference to India, and again provide some new insights into what kinds of institutions are working or not in these regions. These socio-ecological regions include the Indo-Gangetic plains, arid alluvial aquifers, and the hard-rock and confined aquifers, whose prevailing institutional histories are studied from perspectives of institutional economics rather than conventional sociological perspectives and development approaches. In a highly readable style, Shah looks at institutional responses in relation to atomistic, opportunistic, and gaming strategies. He asks the reader to look for collective possibilities and different Coase outcomes reflecting how property rights and understandings of externalities outcomes might reshape possibilities, rather than assume the worst under Prisoner Dilemma outcomes. However, these chapters also bring in a political economy perspective alongside institutional economics, analysing how farmers' movements have interacted or not with state policies to shape groundwater governance outcomes. These chapters bring some new energy into the older debates around the water-energy nexus to see how differences play out in different socio-ecological regions. These chapters have laid the empirical argument for the final two chapters.

The last two chapters ask whether the anarchy can be tamed and whether irrigation in South Asia can thrive in such anarchy. These chapters first present a serious critique of the global discourse on Integrated Water Resource Management (IWRM) and its standard tools. They make the case instead for much better understanding of processes happening and possible in the different socio-ecologies of groundwater in the region. Shah makes a clear case to see South Asia as still in the largely 'informal' stage of water economies, for which the prescriptions of IWRM hold little promise. He makes a clear and strong plea for indirect approaches, far more than integrated ones when building groundwater governance, tailored to and built from what has worked in different groundwater socioecologies. This is how and why the author sees groundwater governance as 'work in progress'.

Nevertheless, there are some gaps that this deliberate orientation leaves bare, which may frustrate some readers. Despite Shah's calls for recognizing indirect governance as more able to bring 'humane anarchy' than formal institutions, many small farmers have lost access to groundwater or face deteriorating terms in accessing water markets, and he could have written more about the struggles here. For the five institutional responses that Shah portrays (page 154) as playing out in different aquifer/socio-ecological regions, the poor are potentially negatively affected in at least three of these with few options also for political mobilization outside energy subsidies. We are given no figures of the likely numbers affected by changes or who might benefit, nor how wider public agency can act to support these dynamics in less perverse ways than subsidies. The new agrarian economies emerging around middle-sized but wealthier farming families also embedded with wider economic and political structures in the villages in these different socio-ecologies remain less examined. Shah has used the quote of Ashis Nandy (page 208) about chaos, anarchy, and disorder with wonderful literary elegance. The chaos may have seemed manageable and the disorder tolerable on the epic scale of India given the benefits many have obtained from groundwater use. However, clearly the anarchy of some groundwater development had, and will continue to have, some quite inhumane impacts on many individual poor farmers. How do we record those impacts and look for adaptive strategies against them in future, to remain sensitive on who gains and who loses?

Alternative perspectives on surface canal irrigation and whether there are any perspectives for its change are not really presented, rather, just demolished. While it is easy to criticize the operation of large-scale systems, it hardly seems possible to replace the livelihood of millions of small farmers still dependent on them from additional groundwater development and exit strategies will not be a choice or public or individual strategy in the short-term. Shah is right to emphasise the need for better attention to conjunctive use as a key design and policy issue, but more discussion on operational changes for water supply could have been provided from other country experiences. Also, leaving analysis of public and funding agencies to comments like 'ostrich-like, business-as-usual approach', however true in the short-term, meant there was no systematic analysis of how agencies can interact in providing water services. This imparted a weakness in the argument and evidence on how South Asian countries will transform institutionally in comparison with other water economies, which Shah discusses in Chapter 7, and how this 'distributed governance' between formal and informal institutions can emerge. Shah has an interesting diagram in Chapter 7 on the stages in the transformation of water economies, but does not analyse what enables these transitions, or how distributed governance helps in bringing them about. For example, what phenomena have shaped the shift between the 'largely informal' stage (as South Asia is seen) and 'formalising water economies' (as countries like Mexico are seen)? The question of whether states can become industrialized nations while still having largely informal water economies dependent on local institutions of informal markets, mutual help, and community management institutions, and what role larger public agencies (including irrigation ministries) play in such transitions, still needs an answer. Thus, one felt the general lack of attention to higher level institutions – something is needed at higher than village or local aquifer level to coordinate resources use and data management but this is hardly touched upon. The State and public agencies in general, whether at national or state level

get little attention beyond the criticism of past initiatives. The examples of positive experiences from beyond the region sometimes seem presented with far less critical analysis of the role of surface irrigation agencies than applied to those from the sub-continent.

There is virtually no discussion of groundwater hydrology, and the issues in getting better information on this into the informal water economy that Shah writes about. Hydrologists and engineers get rather a telling off in this book in that they are seen to view resource use differently from farmers and not design for them. However, this under-represents some efforts to promote participatory assessments and local management of groundwater. Some readers may feel that there is a deeper story to tell here of efforts to promote better planning and governance that may have failed, but where there are also lessons to be learned. More importantly, how do we change this involvement of public agency in their scaling up? Shah does call for a platform for scientists and farmers to work together after showing how they think differently – but does not discuss what can make such platforms sustainable.

Finally, while the book is strongly and perhaps rightly focused on agrarian questions linked to groundwater governance, it largely ignores new environmental demands and the issue of water quality (although the subject is raised briefly). Once again, the reader might question how strategic indirect approaches will tackle the management of deteriorating groundwater quality, or the complex interactions between groundwater and surface water in questions of water pollution in general, or the environmental impacts of widespread groundwater use. These impacts are not mentioned in the book, although 70% of people in South Asia depend on groundwater for drinking purposes. These environmental issues, of course, have not been the real focus of most 20<sup>th</sup> century groundwater research in South Asia or of the author. However they are important issues for future management. The book therefore presents a challenge to others to build up an ecological understanding as sound as the societal analysis in this book, so transformations in these socio-ecological groundwater regions give their current groundwater users a future.

The strength of the book lies not only in the accessibility of arguments, especially economic and political economy perspectives, but also the power of these arguments to challenge existing water agencies and planning departments on their approaches. It shows clearly and unequivocally the vulnerability and problems of large-scale services schemes and argues their increasing irrelevance as reliable suppliers of irrigation water unless groundwater is also considered with them. As already mentioned, it introduces the concept of the ‘scavenging water’ as it can be achieved by farmers with pumps, which might be felt as something of an affront to those who have developed the models of pump selection and groundwater modeling, although they also know these models have not been that much updated or stood the test of time. It provides a very interesting historical overview of Asian irrigation, well linked in with theoretical ideas and locates South Asian groundwater development in a wider context. There is a very good exploration of what is unique about the South Asian irrigation economy (with its millions of small users within a seasonal water regime etc).

The broader lessons that can be applied from South Asia and elsewhere are not really a focus of the book, except insofar as the institutional models can be compared elsewhere. Rather the book aims to build up and demonstrate where action can still come in the future, using wider comparisons from other regions and groundwater development regimes. It also provides a unique set of clear examples for a number of institutional economic analyses applied to groundwater governance. Having all these together in one book, written in a provocative but simple prose, accompanied by good supporting argument and data, gives it great impact and the power to engage and challenge the reader especially those involved with groundwater and large-scale irrigation developments.

Looking towards the future, Shah does not try to forecast what new government institutions might come or exhort particular new models. Instead, he tracks emerging patterns of behaviour by decision-makers and representatives and bases propositions on these - to avoid tokenism; look for institutional innovation as locally developed; and ensure learning as well as action. He pleads for a model of what he calls 'distributed governance' made up from various types of formal and informal rules. This can only come with the breaking of what he describes as the 'path dependency' in the behaviour of agencies and their following of ideas of groundwater governance developed so far. Thus, we should not see the book merely as being provocative and argumentative, or fallible given certain gaps in coverage. Tushaar Shah is, in fact, motivating us to think differently. In seeking to challenge the reader, he is first and foremost playing the role of an advocate for thinking about new groundwater governance. With this book, Tushaar Shah is 'handing on the baton' to a new generation of researchers, agencies and civil society groups to think differently and innovatively. Let us hope we can take up the challenge in the same spirit, and with the same commitment to good research and honesty, with which he has written this book.