

II. GROUNDWATER SOCIO ECOLOGY OF SOUTH ASIA: RESULT OF A SURVEY OF 2630 TUBEWELL OWNERS IN INDIA, PAKISTAN, BANGLADESH AND NEPAL

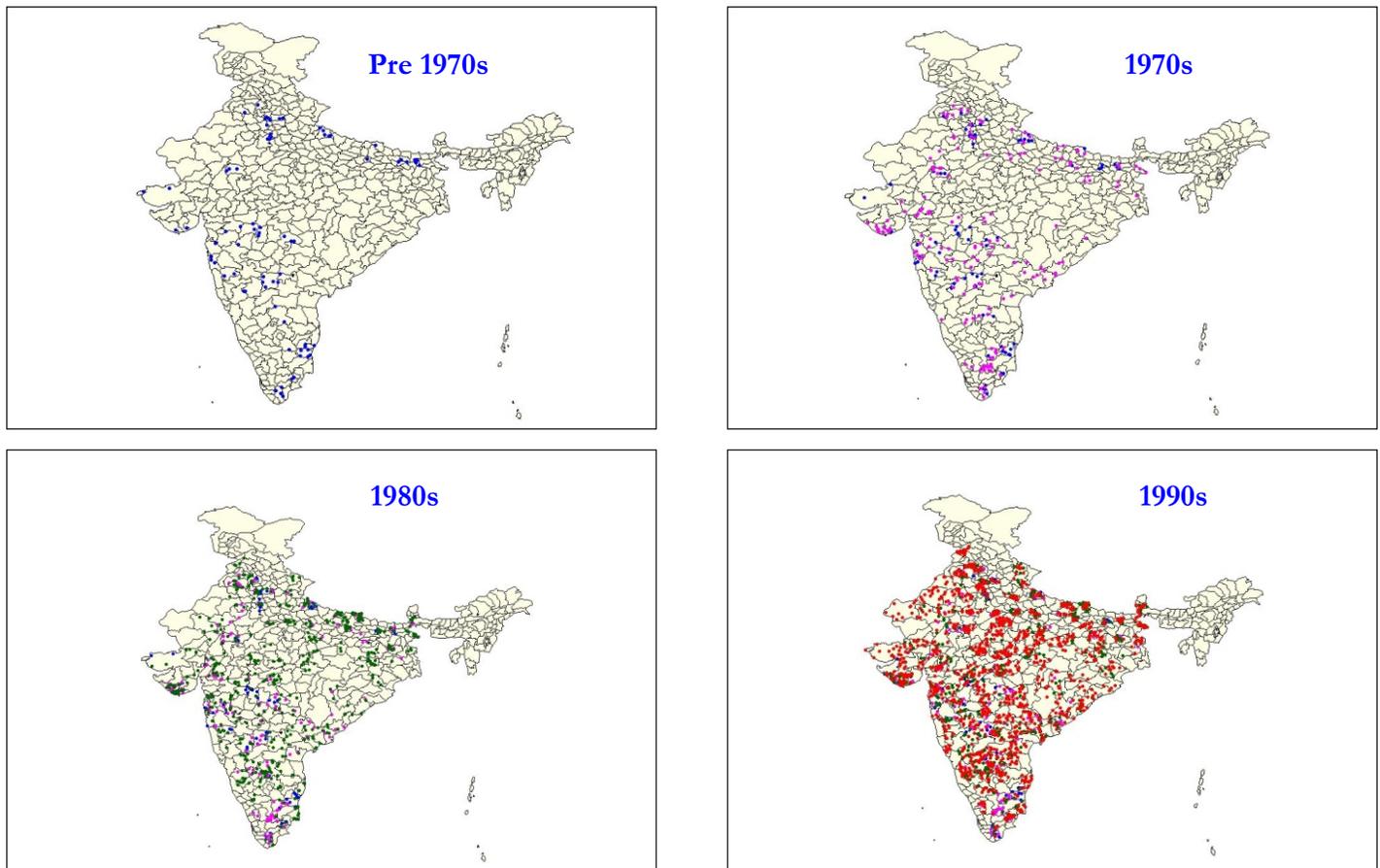
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Growing contribution of groundwater in South Asia's agricultural economy remains both underestimated and understudied. However, in recent years there is an increasing awareness about the important role that groundwater has played in fostering food sufficiency in much of this poverty stricken belt of the world. At the same time, there is a realization that much of this precious resource stands the chance of rapid and irreversible exploitation in many parts of South Asia. The issue is: how long can this good run continue without any mechanism for governing this colossus? What kind of governing structures and mechanisms might help? Refined understanding of the (non)existing governance structure in groundwater and further research into fine tuning this

The findings, based on an extensive region wide groundwater survey will thus, bring out the salient features of groundwater economy and socio-ecology of South Asia. This survey has helped reinforce several facts regarding groundwater irrigation in South Asia and at the same time has helped challenge some myths surrounding it.

Perhaps the most important finding of the survey is the rapid growth of groundwater economy in the last three decades, with peak in 1990s. Thus, 1990s can very well be designated as the decade of "pump explosion". This survey corroborates the findings of Agricultural Censuses of India in that the ownership of groundwater assets were less skewed than the ownership of land, making groundwater

Figure 5: South Asia's groundwater boom is still in the making



Source: IWMI Survey, 2002

understanding in order to try and bring about a modicum of order in the functioning of this booming but anarchic economy is of great urgency. In this quest for better governance, need to understand the spatial variation within South Asia itself is of great importance and indeed was the justification of the country surveys conducted by IWMI in 2002.

an ideal mechanism for poverty alleviation in the water abundant areas. That groundwater economy is primarily self financed came as a revelation to many who maintained that huge government subsidies, either direct or indirect, has played an important role in spreading groundwater irrigation. Perhaps, what this indicates is that, government subsidies might not have reached the targeted

segments and indeed, there is enough evidence for the same. However, there are regional differences in this regard. Evidence from Nepal suggests that government subsidies have played an important role in popularizing groundwater irrigation, while evidence from Bangladesh suggests that government subsidies had hardly any role to play. Another important aspect explored in this survey was the regional variations in distribution of electric and diesel based water extraction mechanisms (WEMs). That there exists a wise “energy divide” in South Asia was clearly brought out. This so called energy divide is quite ironic in nature. Thus, the poverty stricken and water abundant areas in Eastern India, Nepal, and Bangladesh, where groundwater can unleash unprecedented agrarian boom are saddled with low capacity and high operating cost diesel pumps, while regions with depleting groundwater tables have a predominance of electric WEMs, paying negligible power tariff. In this context, “energy irrigation nexus” emerged as an important aspect of the groundwater economy and perhaps the only handle that the government has in managing this huge economy. Water markets in South Asia has been a topic of great interest to scholars and the views expressed as charted seemingly two contradictory paths. On the one hand, water markets have been hailed as important vehicle for

poverty alleviation and on the other hand, it has been condemned as instrument for accumulation of surpluses by rich water lords. Our survey, therefore, quite justifiably concentrated on this aspect of the groundwater economy. The results revealed a change in the regional spread and intensity of the groundwater markets. Eastern India, Nepal and Bangladesh have developed very vibrant groundwater markets over the last decade or so, while, the much documented water markets in the Western and Peninsular India are on a decline. This basically reflects the amount of groundwater availability across regions, and given the widespread overexploitation in the hard rock regions, it is not surprising that scale and intensity of groundwater markets have declined. In fact, in such hard rock regions of South Asia, groundwater has in fact contributed to further immiserization of the rural poor. This is in sharp contrast with the opportunities that groundwater offers in the water abundant parts of the Ganga-Meghna-Brahmaputra basin.

Our findings underscore the need for refined and nuanced analysis of groundwater socio-ecology in South Asia taking into account both the spatial and temporal aspects of change. It recommends adoption of groundwater policies suitable to the regional realities of Asia.