



Policy and Institutions Analysis for the Indus-Gangetic Basin

Water management at the river basin level has undergone several shifts in paradigm over the last several decades, from largely ignoring the hydrological aspects of a river basin and resorting to interbasin transfers on the one hand, to emphasizing the interconnectedness of unique ecological systems and encouraging an integrated approach to planning, on the other. River basin organizations support the integrated physical and technical management of water resources and, if developed adequately, can respond to the growing competition for water among agricultural, industrial, urban and instream uses within basins. However, the Indus-Gangetic basin in South Asia presents very complex management challenges. The geographic and geopolitical challenges of Indian and the neighbouring riparian countries generally do not favour integrated hydrologic perspective. The reasons include a short but intense monsoon season of water availability followed by a long rainless period (instead of steady river flows), and significant decentralized rainwater harvesting in many parts of the basin unrelated to the holistic basin perspective. The basin is also unique in its large-scale dependence on groundwater usage, which is equally seen as seemingly unrelated to the basin perspective. Water resource legislations in the basin countries are also not very effective and conducive to integrated basin management. The more demanding and complex functions related to conservation of water and improvement of water productivity, allocation of water among the competing sectors, integrating environmental and social concerns related to the resources, ensuring equity to access and compensating for losing access or relocating are inadequately addressed.

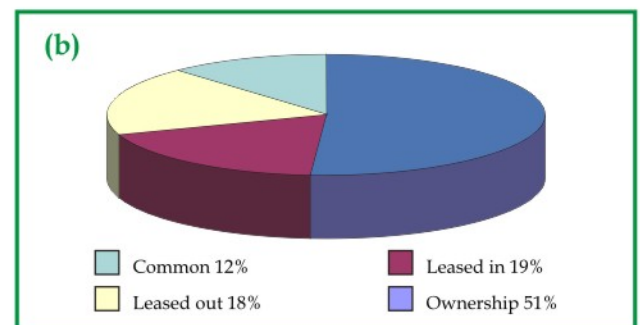
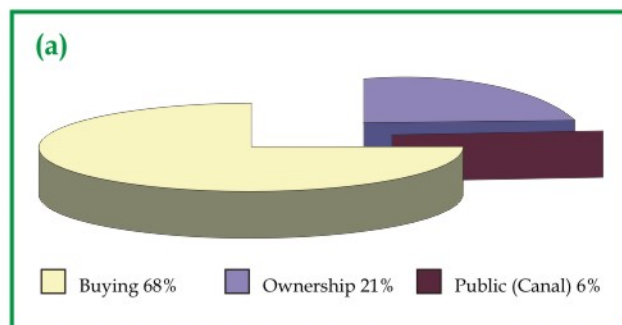
The Basin-Focal Project for the Indus-Gangetic Basin (BBFP-IGB) adopted a broad view of “institutions” to encompass water-related policies, laws and administrative structures but also informal water institutions such as water user organizations, water markets and civil society organizations working in the water resource sector. Both sector specific and basin wide policy and governance analysis were done on some of the relevant themes.

Water Control and Land-lease Markets in IG basin

Primary surveys conducted at the representative sites in the IG basin indicated that the property rights of the land

are quite variable in these countries where farmers own only about 50 to 75% of the holdings and the rest of the land is either ‘leased-in’ / ‘leased-out’ or form part of the common property resources. Ownership of land was only 51% in India (Bihar), 79% in Pakistan (Punjab) and 77% in Nepal. About 20 % of the land holding was leased-in by the farmers in all the three countries. Leased-out land was 18% in India and only 0.5% in Pakistan and 1.28% in Nepal. Common property lands were about 12% in India and practically absent in Pakistan and Nepal.

In the eastern Ganges basin, the access to water resources is also very poor and about 68% of the farmers with smallholdings purchased water from the



Water resources property rights (a) and land property rights (b) in Bihar, India (IGB)



neighbouring farmers with tubewell ownership. Situation is quite similar in Ganges part of Bangladesh but much different in the Indus basin where most farmers have the ownership of land and water resources. In Nepal, mainly three forms of tenancy practices were found in the studied area: mortgage, share crop and contract (Hunda in terai). Irrigation is the major determinant in all the studied areas for leasehold in terms of lessee's preference and the rent it commands. Irrigation availability found to be a must incase of contract farming in all the studied areas. Electric operated shallow tubewell irrigated land is preferred by the contractor for lease than the surface and diesel operated shallow tubewell. It shows that both the availability of assured irrigation and cost effectiveness is the first priority of the lessee.

Evolution of Water Sector Policies and Laws in the Indus-Gangetic Basin – Drivers and Trends

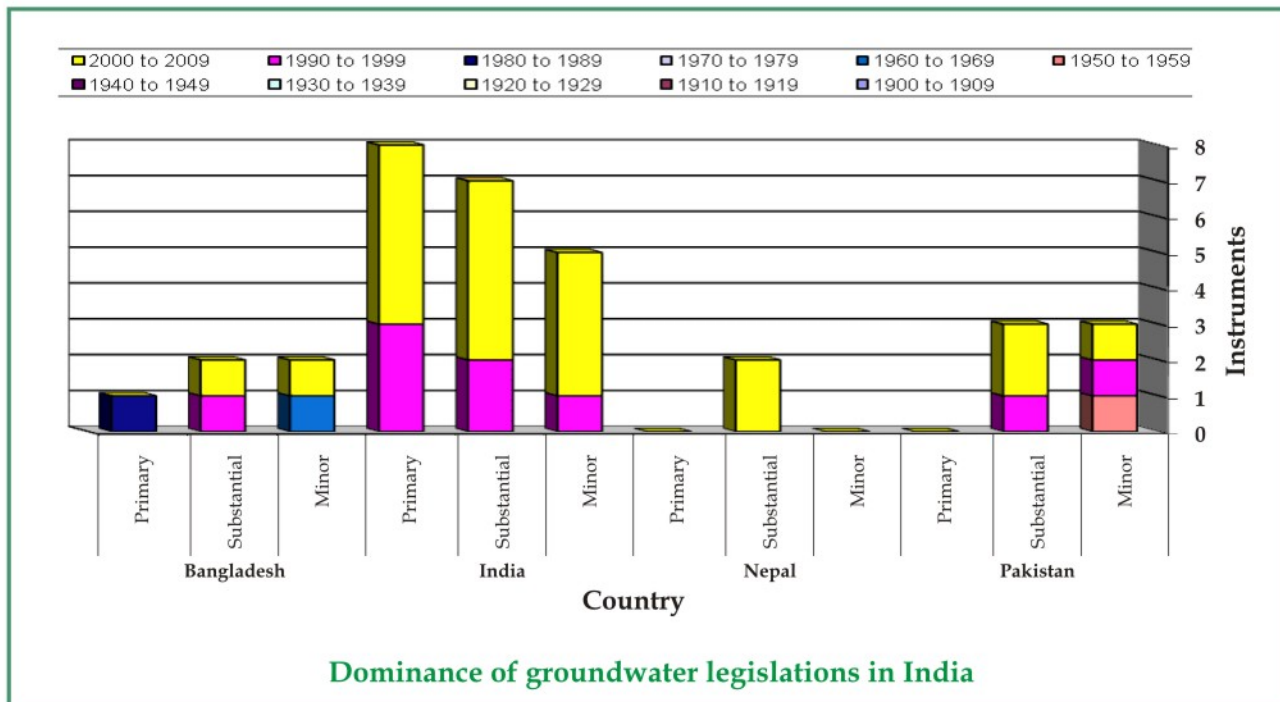
The IG basin countries (India, Pakistan, Nepal and Bangladesh) have witnessed an exponential growth in policymaking and legislation in the recent past, with a significant increase in activity from the 1990s to date. The progression of policy and legal frameworks has witnessed a shift in focus from water development (up

to the 1970s) to water management and water governance. There has been change in priorities from hydropower generation to irrigation and drainage and then to integrated water resources management, participatory irrigation management and more recently to groundwater governance and management.

There has been a general increase in attention to groundwater across the IGB since the 1990s; the most evident feature is the rise of groundwater as a key consideration in India both at the federal and the state levels. It is also noteworthy that groundwater featured in 20 of the 25 instruments assessed for India for the 1990-2009 period, with 15 classified as having either a primary or substantial focus on groundwater. But the relevant instruments identified a substantial degree of similarity in content (and language) between several of the more recent instruments, notably the Model Groundwater Bill of several states.

Governance of Informal Water Economies in the IG Basin

Water governance is the sum total of processes, mechanisms, systems and structures that a State evolves and puts into place in order to shape and direct its water





economy to conform to its near and long term goals. But the core hypothesis is that 'governance capacity' of the state is a scarce resource, which governments ration carefully. Another hypothesis is that all governance of sectoral political economies take the form of three kinds of direct instruments: public production, promotion and regulation, and prices, taxes and subsidies. Under public production, governments build dams and systems/irrigation services that private entrepreneurs are unwilling or unable to supply or the governments want to control for strategic reasons. Under promotion and regulation of water governance, governments may support public-private partnership in water supply, promote participatory irrigation management and regulate energy and water supplies and abstraction through specific laws and operations. For deriving immediate results and ensure some kind of a financial viability the governments may take the route of imposition of prices, taxes and subsidies. Governments tax private actions deemed undesirable (pollution tax), or subsidize those deemed desirable (power subsidy, diesel subsidy, food price support, irrigation water subsidy), levy a water service fee to finance water services (irrigation revenue); subsidise irrigation if farmers need protection.

All these instruments are still in the evolutionary phase in all the four countries and have not stabilised. Often times the instruments deployed by the states may be in conflict with the advisories of the federal governments and can vary considerably within a country; eg., free electricity supply to farmers in Punjab state versus advanced time-of-day-electronic metering of agricultural power in West Bengal, India.

Economics of Irrigation Water and Coping strategies of Small and Marginal Farmers in the Indus-Gangetic Basin

Global debate on "water as an economic good" presumes that irrigation water supply is delivered, controlled, and priced by public institutions; that in the developing world, the price of water is kept so low that water use cost leaves farmers no incentive to use it efficiently. In the eastern Gangetic basin region where irrigation is viewed as an instrument to alleviate agrarian poverty, the dominant emerging trend is the opposite of what the "water-as-aneconomic good" debate highlights. Public irrigation systems and their



Thriving groundwater markets in eastern Indus-Gangetic basin

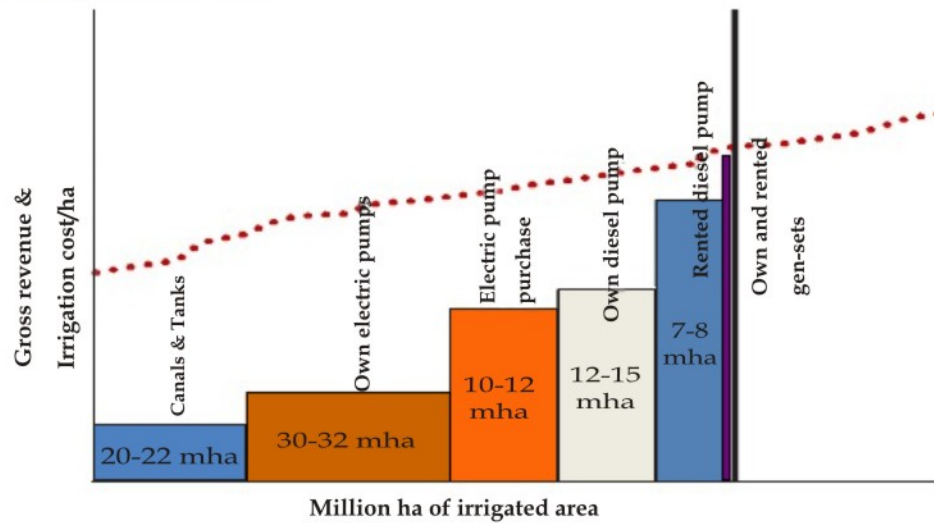
pricing policies are losing relevance to the irrigation dynamics of the Indo- Gangetic basin, including in their command areas.

In the real irrigation economy of the IGB dominated by diesel tube wells and pervasive pump irrigation service markets, the "surrogate water price" facing millions of small-holder irrigators has for quite some time been well above the De Fraiture -Perry "low-threshold," and is now crossing the upper threshold beyond which water demand becomes highly responsive to the "surrogate water price." Particularly post-2000, the energy squeeze --and the soaring use cost of groundwater --is inducing smallholders to adapt/respond in myriad ways. At prevailing irrigation water use cost, small-holders fostering efficiency responses, that is, shifting to water-saving crops, water and energysaving irrigation technologies, and improved conveyance efficiency. But the poorest are also forced into distress responses, that is, switching to high-risk crops, reducing irrigated areas, and even getting out of farming itself.

Since the onset of the 1990s, smallholder agriculture in the IGB has been stressed by an overall input cost-price squeeze anyway; but rising diesel prices are proving the last straw on the camel's back. Here, the major challenge is to find ways of bringing down water use cost below the "upper threshold" beyond which abundantly available water becomes too expensive for the poor to use to maintain livelihoods and food security. Investing in farm electrification and providing rationed electricity at an affordable price -as under Gujarat's new Jyotigram Scheme might provide succour to smallholders in eastern Gangetic basin.



Classes of Irrigators in India



Publications:

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5. De Silva, S., A. Mukherji. 2009. An inventory of national, sub-national and trans-boundary water-related legal instruments in the IG basin countries. Project draft report and an electronic version (under development).

This note forms part of the Challenge Program on Water and Food (CPWF) sponsored Basin Focal Project for the Indus-Gangetic Basin (BFP-IGB). For detailed project report, log on to <http://bfp-indogangetic.iwmi.org:8080> or write to:

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