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Small reservoirs, big impacts? Exploring alternate models of river basin development

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Historically, civilizations have developed around rivers and river basins. In the past century, a particular model of river basin development has tended to dominate planning and policy making. This is the model of developing river basins through large, centralized storages in the form of a dam, connected to a network of man-made canals and hydraulic infrastructure to harness the run-off from catchment areas. Such a model requires large investments of capital and high technical skills to construct and maintain and is usually financed and managed by the State. Users of such centralised systems (mostly farmers, but also other stakeholders like domestic users and industrial users) are often passive recipients of the benefits (or dis-benefits) of the project.

In recent decades, however, certain water scarce regions in India (as well as some parts of Africa) have witnessed an alternative model of river basin development which occurred autonomously and largely independent of the State and involves a large number of decentralized and distributed storages all across the river basin. These storages are created through numerous tiny check-dams which are built by communities themselves, with or without technical and financial inputs from the State. The water captured in these tiny storages is then used for, among other uses, supplemental irrigation. However, the greatest benefit of these storages is argued to be the groundwater recharge which they facilitate. The model is thus largely privately financed and involves much simpler technical inputs from the local communities themselves.

The efficacy of this alternate, decentralized and distributed model has been an issue of debate within academic and policy circles. It has been argued that large-scale and un-

planned harvesting of water by catchment communities lead to negative consequences downstream. On the other hand, proponents of this decentralized model maintain that the negative impacts of these tiny, decentralized structures are negligible. They further argue that these structures benefit poor people, require less investment, improve groundwater situation (even downstream), cause less environmental damage (compared to big dams), are demand driven and are managed by the local communities.

This paper presents the state-of-the-art knowledge on understanding the downstream impacts of small storages in river basins on three counts - hydrological implications, socio-economic impacts and implications for river basin governance.