A fine balance: water wisdom from the KAWAD project, India

By Kaushik Mukherjee

This article discusses the findings from a study undertaken by the Karnataka Watershed Development Project. The study examined the impact of changes in water use on rural livelihoods and highlighted the difficult choices that are made and how they impact differently upon everyone within the community.

Water and watersheds

The State of Karnataka, southern India, is made up of vast tracts of arid land. Less than one-quarter of the land which is cultivable has reliable irrigation. Out of sheer necessity, catchment development has become firmly entrenched as an ingredient in agricultural policy. Most of the many catchment-development schemes that operate in Karnataka are funded from federal resources, but there are a few schemes which depend on external donors.

Though small, these externally-funded projects attempt to carve out niches for themselves by innovation. One such project is the Department for International Development (DFID) funded Karnataka Watershed[1] Development Project (KAWAD) which operates in some of the most resource-poor areas of Karnataka - areas where the annual rainfall rarely exceeds 500mm. While KAWAD remains primarily a catchment project, it also attempts to take into account the consequences of a change in water use on rural livelihoods.

Water is scarce within the KAWAD catchment. It is therefore a critical factor in shaping livelihoods and has been studied in some detail accordingly. The most important points of the study (popularly known as the '*water resources audit*') have been shared with all stakeholders. This has been crucial in order to dispel some of the common myths regarding catchment developments; for instance, it is widely believed that all catchment development schemes can harvest water (from run-off due to rainfall) which would otherwise be lost, bringing prosperity to the surrounding drought-prone area. It is not as simple as that.

1. 'Watershed' here is being used in the American sense, meaning a catchment-area.

WaterAid/Jim Holmes

Jessie Haamando from Zambia watering Chinese lettuce. Half is grown for the community and the other half is sold for profit.

Chasing the water table

The catchment success stories, which have shaped the collective mind-set of policy-makers in India, have been based on projects located in regions where the annual rainfall exceeds 800mm. In areas like this surplus run-off can be captured and used for irrigated agriculture. As the irrigated area increases, so also do agricultural incomes. Livelihoods consequently improve. However, as the first sobering conclusion of the water resources audit shows, there is not enough water in many catchments in India to bring about such benefits.

In northern Karnataka, traditional methods of collecting surface run-off for agricultural use are still in place and farmers have been forced to tap into deep aquifers threatening the 'drinking water security' of the rural community. Unfortunately, as farmers chase the water table, it is the poorest that will ultimately be without drinking water. As the water table falls women and children are the first to feel the strain as they are primarily saddled with tasks of collecting water for cooking, cleaning and washing. In this scenario (where the area under irrigation cannot grow in an unbridled manner) hard political decisions would have to be made as to what constitutes the wisest use of this limited resource.

It is clear that the emphasis within

these catchments needs to shift from 'development' to 'management'. This involves addressing a far wider range of livelihood issues than is currently the case. The KAWAD project aims to wean farmers away from 'water-intensive' crops by exposing them to alternatives which would not erode their income, nor that of others. Where they cannot be persuaded to change cropping patterns, farmers are encouraged to use 'water saving' methods like drip irrigation systems.

'As the water table falls women and children are the first to feel the strain'

A future high and dry

It is understood that the run-off from a catchment is generally 30 to 40 per cent of the precipitation – not the case, especially in the case of an arid area. In fact, the run-off in the KAWAD catchments range from two to six per cent of the rainfall while evaporation accounts for 90 per cent of precipitation.

In these areas the use of traditional soil and water conservation methods – gully plugs, nala bunds (long earthen dams without spillways across broad streams) and check dams – which aim to reduce run-off and increase infiltration – would be of limited use. Currently the rate of recharge of groundwater in the KAWAD catchments roughly matches its rate of extraction for agriculture. However, the reserves of groundwater have come under increasingly severe pressure for two main reasons:

- Sizeable state and federal subsidies have been made available for drilling boreholes for irrigation water during the last two decades
- Subsidized (almost free) electric power has been made available to farmers enabling them to extract water at very little cost

In the Chinnahagari catchment alone, the number of boreholes drilled after 1990 exceeded the total number drilled before 1990! Assuming an annual human population growth of 2.5 per cent, the demand for water will double in 30 years raising a genuine threat of 'hydrogeological drought'.

The tanks and ponds once used in the KAWAD catchments for irrigation have silted up. Even if they were de-silted it is unlikely they would refill with water. Open wells, which were used by the poorer farmers as they were a 'cheap' option, are no longer feasible, and we see a perceptible shift in the equity (of access to water) in favour of the rich.

No quick or easy fixes

The path of the decision makers in the KAWAD catchment will be strewn with difficult options in the future. Many of these options aim at increasing the productivity of water and improving equitable access to it. The biggest challenge that lies ahead is to mould the thinking of rural communities so that they perceive groundwater as a community resource. The project is engaged in the process of enabling the rural communities to comprehend the magnitude of the problem and then to consider the tradeoffs between different community groups associated with changing patterns of water use. We who work for the KAWAD project are also in the process of facilitating a mechanism of transparent and participative decision making amongst the stakeholders in the rural communities.

KAWAD may hold some not too subtle lessons for policy makers too. With all kinds of subsidies under severe pressure, the State Governments should be forced to take a hard look at the wisdom of their subsidies and the direct impact they have

about the author

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