



Rainwater harvesting has yet to protect India from drought

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Despite huge investments, India's watershed development programmes have had mixed success. Only where projects have been able to benefit the whole community equally, and where returns from activities have been ploughed back into village funds, have sustainable improvements been seen.

India's substantial investment in rural development over the past five decades of the post-independence era has not been matched by results on the ground. The glaring gap between the productivity of irrigated and dryland agriculture is an indication that water conservation measures have not been strategically incorporated into dryland development programmes.

The recent watershed programmes are a policy response to transform the productivity of dryland regions and to reverse the recurrent drought conditions. The experiences, as of now, are quite varied, ranging from about a dozen very successful projects to a large number of failures. But wherever enterprising community groups have decided to better their circumstances with some external assistance, the watershed approach has been able to improve their socio-economic conditions in a relatively short time span.

Watershed development programmes (WDPs) in India and worldwide are increasingly emphasizing flexibility, participatory processes and institution building so as to fulfill 'all the major demands of the Agenda 21' – principles adopted at the Earth Summit in Rio de Janeiro in 1992. While this is a major step towards sustainable development, watershed projects alone may not yield the desired results unless some of the key issues are addressed.

The record so far

Watershed development has been well resourced since the programme began

in 1994–95. The planned allocation for watershed development shot up from US\$55 million in the year 2000 to US\$167 million in 2001. Furthermore, the Ministry of Agriculture has created a federal reserve of US\$42 million as a 'watershed fund' from which the provinces can draw loans as well.

In addition to investment by the government for rehabilitation and development of micro-watersheds, the World Bank, Danida, DFID, SDC and the Indo-German Watershed Development Programme support watershed projects through direct funding as well. Cumulative investment in the watershed sector is close to US\$3.5 billion. No wonder watershed projects are popular among state governments. Andhra Pradesh in south of India has accounted for a 24 per cent share of the investment during the last six years, and with renewed emphasis on the north-east, an additional 500 000 hectares are to be covered in this region as well.

However, despite the best of donor support for soil-and-water conservation based on the watershed approach, land degradation continues unabated. A study by the Centre for Economic and Social Studies indicates that the rate of land degradation in rain-fed areas is likely to have proceeded at more than twice the rate in the 1990s as in the 1980s on account of uninterrupted soil erosion.¹ Furthermore, the continuing thirst for drinking water in several states, notably in those that have garnered maximum support from watershed projects, clearly indicates

that the existing interventions have not performed to expectations.

Performance is clearly linked to the capacity and competence of the implementing agency. Government departments, which remain the main implementers, have often failed, even in the best states. Given their supply-side obsession in implementing watershed programmes, government agencies have failed to integrate water conservation with dryland regeneration. Unless governments and donors wake up to this reality; appraise and evaluate current strategies; and develop location-specific land-use planning modules, three decades of watershed development programmes will all be wasted.

Switching guidelines

The watershed development programme is based on guidelines that typically reflect the per hectare cost of land treatment. These guidelines are reviewed periodically, but the review is often to accommodate cost escalations and to set revised targets. The last revision of the guidelines in 2000 raised per hectare investment from \$83 to \$125. These fixed costs do not take account of wide variability in biophysical and socio-economic conditions. Consequently, most projects do not adapt to the local conditions.

A typical project may include several components relevant for the overall socio-economic development within a watershed boundary. These may include: handpump installation and check dams for surface water storage; microenterprise development for women



Contour ponds have been built to conserve water and halt soil erosion
Photo Credit: IFAD/Anwar Hossein

and the weaker sections; cultivation of economically beneficial crops; energy-saving stoves and biogas digesters; and plantations of fast-growing fuel and fodder species. Including these diverse activities is a distinct departure from the conventional approach of soil-and-water conservation within a watershed, and the per hectare costs have risen. Given this holistic approach, watershed development programmes have become more complex to implement than some of the sectoral schemes.

To accommodate the shift in focus and to justify escalation in investment, some donors have come up with 'watershed plus'. The results of this shift are somewhat mixed. A recent study of a watershed project in Chhattisgarh State revealed the difficulties the implementing agency was having completing the diverse activities within the stipulated time frame.² Subsidies were uniformly spread, irrespective of a household's economic status; and the distribution of benefits was governed largely by the household's landholding rather than by negotiation between households. Such skewed distribution of the benefits has had a negative impact on the project's ownership and sustainability.

In contrast, a project like Sukhomajri in Haryana State used water as a community resource to help design an equitable system that ensured water security for all. With rights over

impounded water in the three check dams equally shared by both landed and the landless households, the benefits of rainwater harvesting were shared equally among the community. The landless in Sukhomajri village gained by selling their share of the water to those with land. A sound land-care system, based on the principle of social fencing (voluntary control over free-grazing cattle), not only regenerated vegetation but also triggered a range of farm and non-farm activities, which were not part of the original project design. The community then made informed choices about utilizing the rejuvenated natural resources to its benefit. Social capital, in the case of Sukhomajri, holds the key to the project's long-term sustainability.

The 'watershed plus' approach of incorporating a range of activities, on the other hand, puts pressure on resources and manpower for their timely execution. Though the diverse activities may add value to the project, it is often at the cost of innovation. Community watershed programmes currently under implementation demonstrate the need to slim down the number of activities according to the local biophysical and socio-economic conditions and bring in innovative approaches that help revive community values to nurture and utilize natural resources on a sustainable basis.

Inequitable sharing

With the success rate of multi-component watershed projects no more than 25 per cent, there is a need to re-visit and re-assess the entire watershed approach towards drought protection and food security. A study in Gujarat State found that check dams, the most-favoured technology for storing surface water in watershed projects, only benefited 15–16 per cent of the households directly.³ Though the size and hence the cost depends on the catchment area and the surface water to be stored, most check dams account for an average of 50 per cent of the entire project cost. The remaining project cost gets thinly distributed over other components of the project, such as thrift and credit groups and micro-enterprises. Whilst the benefits of check dams can still be counted, benefits to individual farmers from other structures, such as gully plugs or contour bunds, may not be so immediate or substantial.

The baggage of activities in a watershed project has become too heavy. Reduction in the number of activities in favour of those that provide maximum benefit is one option to bring down the per-hectare cost of land treatment. Activities should be selected on the basis of their cost and impact on the project area. Since a community contribution (approximately 10 per cent) to the total project cost is required by most donors, choosing activities with the greatest returns is more likely to be approved by communities, as they will want to be sure about the return on their investments. Once the community can see the value of each of the chosen activities, it is more likely to plough back a portion of the profits to create social capital.

In successful projects, such as the CVP in Jharkhand (see Box 1), profits from the rejuvenated land help sustain the system, and also empower the community to spread and replicate the concept. In most other projects, the donor contribution is used to accomplish the project activities, but no more. Such projects rarely go beyond the 'contractor' approach of completing tasks, oblivious of what might happen to the project later. Building water-harvesting structures as part of the

Box 1. Chakriya Vikas Pranali: multi-tier, multi-rooted, multi-layered sustainable cycle

Chakriya Vikas Pranali (CVP), the cyclic system of development, has pioneered a village-development method in the Jharkhand heartland that pursues ecological regeneration as a source of economic growth. It is offering the villagers returns in excess of 20 per cent on their investment. The CVP's basic strategy is to make a one-time investment of cash, plants and technology in a self-perpetuating system of production and reinvestment.

The investment in a 'multi-tiered, multi-rooted, multi-layered' planting cycle guarantees year-round employment for all members of the village society and produces grass and vegetables, fruit trees and timber in the short, medium and longer terms respectively. The success of the system can be gauged from the fact that currently it is operative in more than 600 villages in Palamau district of Jharkhand state in India.

A typical block of 6–12 hectares of pooled land is divided by water-retaining tie-ridges into smaller quadrants and literally filled with plants, intercropped to maximize the symbiotic relationships of nitrogen-fixing and nitrogen-hungry species. Yams and tubers go underground; pulses, beans, fruits, bamboo and timber grow above ground, with the different root systems carefully grown together to prevent overcrowding and to maximize the use of rainwater. Returns from the harvest are shared four ways:

10 per cent goes to the village welfare fund for villagers in dire straits; 30 per cent goes to the owner of the land from which the income is derived; 30 per cent to the workers and 30 per cent to the common village fund for investment in further development. Studies conducted by Delhi's Institute of Economic Growth indicates that the chief value of CVP lies in the reinvestment of surpluses through the village funds, which ensures that land-based activities, biomass production, energy and employment will be maintained on a sustainable basis.

CVP is perhaps the only concept invented to make replication of the programme a reality. CVP is a self-financed scheme: after the first investment, it generates resources to trigger similar initiatives in other villages. It is often questioned whether there is a risk that the landowners will drive away the workers who till the land after harvesting the profits, thus opting out of the sharing system. First, this has not happened in any of the near 600 villages. Second, after getting a good return from land that was until recently barren and yielding no income, the owners do not wish to revert back to those earlier days.

The CVP system has shown that it is possible to transform the environment, substantially improve economic well-being and reduce social tensions through a participatory approach. The success of the Palamau experiment and the prospects for its replication elsewhere depend to a large extent on the support available from the central and state governments.

watershed development projects is a very easy task – any paid contractor can do this. But building an effective structure, and fostering a process of self-management and self-regeneration in a village community is a more difficult task.

In developing effective watershed development projects, traditional practices of water conservation (e.g. ponds)

should not be sidelined. Watershed projects can gain a lot by paying attention to the revival of such traditional practices. Not only is reviving the traditional structures less costly, communities' contribution and participation are more readily given. Furthermore, reviving community structures leads to the rekindling of community spirit and

management – an aspect on which substantial time and resources have been spent in watershed projects.

Conclusion

If the continuing droughts in parts of India are any indication, India's three decades of efforts to protect the country from drought through the watershed approach haven't really worked. Given the fact that failures outnumber successes in watershed projects, the entire strategy needs critical evaluation.

Projects that have been successful recently have been based on the community's traditional conservation practices. Not only are these projects more equitable, ensuring better community participation, but the cost of implementation has been lower too.

By contrast, the WDPs show a clear hierarchy of benefits and beneficiaries, governed by the existing structure of land ownership and associated water rights. What is particularly concerning is that these issues are treated as more or less structurally determined, rather than being placed at the centre of a participatory process. The need to initiate negotiations between different beneficiaries and stakeholders is clear.

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