

Final Impact Evaluation of UDWDP

Executive summary

This report presents the findings of the Final Impact Assessment of the Uttarakhand Decentralized Watershed Development Project (UDWDP), undertaken by The Energy and Resources Institute (TERI), New Delhi, during 2011-12, the final year of the seven-year project.

Project background

As mentioned in the Project Appraisal Document (PAD), the Project Development Objective (PDO) was to 'improve the productive potential of the natural resources and increase incomes of rural inhabitants in selected watersheds through socially inclusive, institutionally and environmentally sustainable objectives'. The three components of the project were Participatory Watershed Development and Management, Enhancing Livelihood Opportunities, and Institutional Strengthening. The project covered 2.34 lakh hectares of 76 micro watersheds, spread over 18 remotely located Development Blocks of 11 hill districts of the state (Uttarakhand). The project was implemented over a seven-year period, beginning in 2004 September. A total of 468 Gram Panchayats (GPs) were covered by the project.

The project was built on the experiences of earlier projects implemented in the Uttarakhand hills but with a few value additions. These include the role of the GP as the main implementing agency, the significant responsibilities given to NGOs, the adoption of a strong multidisciplinary approach and the coordination across various line departments, a special emphasis on Vulnerable Groups and a thrust on agribusiness and post-harvest techniques.

The key results towards this objective are summarized below (sectorwise, following the structure of this report):

Agricultural and farm activities

The productivity and irrigated area under almost all key crops show an increase. A general shift towards vegetable cultivation is observed across the sampled GPs. The key reason for such increase is the increased availability of water due to soil and water conservation activities. In several sampled GPs, it was observed that farmers have earmarked a portion of their lands for vegetable cultivation. Community fruit plantations and homestead plantations have been key interventions and fallow lands in several GPs have been gainfully utilised for this purpose. Poly houses and poly tunnels have been a major contributing factor to the growth of offseason vegetables.

Post-harvest technology has been introduced in the project. Wherever processing centres have been established, post-harvesting operations have been successfully adopted in the grading and packing of vegetables, spices, pulses, etc., grinding and packing of spices, preservation of fruit juices, and making of pickles. Commercial packing with different trade names proved to be attractive for sale of these products in local markets, fairs and even in the outside market. The agribusiness activity in Garsain deserves particular mention on account of its innovative arrangement of 'reverse profit'.

Livestock and fodder

The number of livestock belonging to improved breeds showed a notable increase. Members of Vulnerable Groups have been major beneficiaries. The breed improvement programme has met with a high degree of success and livestock shelters were seen to be widely adopted in the sampled GPs.

Due to the introduction of improved fodder grasses and crops on farm boundaries and uncultivated land, increased availability of agriculture waste residues and protection of common land from grazing, there has been an overall 9.6% increase in fodder availability over the baseline.

The average fodder production ranged between 0.5 and 5.67 quintal/hectare/year across different land uses. The highest percentage change (24.18%) in the availability of fodder was recorded for irrigated agriculture land suggesting that farmers in the project area have been motivated to grow fodder crops/trees on the bunds/risers of their agriculture, resulting in increase in fodder availability. The average time taken for fetching fodder has reduced. On an average, there has been 11% reduction in time spent on collecting fodder by a household.

Forestry and biomass

It was observed (based on remote sensing techniques) that the biomass of the treated areas has increased by 9.37% from 2004-05 to 2011-12 (across treated micro watersheds). This biomass increase excludes the areas under reserve forest, agriculture and habitation. The areas which have been covered are van panchayat forests, civil and soyam forests and barren/fallow lands. These changes were on account of increase in vegetation cover due to new plantations under the project and natural regeneration of grasses, shrubs and tree seedlings because of the protection against grazing and overuse.

Soil and water conservation

The impact of soil and water conservation measures is seen in terms of increased amount of irrigated land (increase of 24.7%), an increase in crop yields and an increase in access to domestic water. The time spent in collecting water has significantly reduced with a sharp increase (48%) in the number of households taking < 1 hour to collect water and a similar decrease (39%) in the number of households taking between 1-2 hours. In terms of efficacy of impacts, it is seen that turbidity levels during monsoon months have reduced significantly in the case of successful catchment treatments.

Increase in incomes of rural inhabitants

The total increase in income across all categories is 57%, but increase in farm income is overall higher (61.1%) than non-farm incomes (56.6%). The total increase in income of 57% translates to a real income increase of 17% when adjusted for inflation using the Consumer Price Index (CPI) for rural labourers, using agricultural year average values, and accounting for the impact of non-project interventions. There is almost a doubling in the ownership of consumer durables, indicating a general increase in living standards.

The economic analysis of the project includes benefits from agriculture, livestock, horticulture, forestry, soil conservation, domestic water and employment. Following the approach used in the PAD, aggregate level economic analysis has been done. The Benefit Cost Ratio ($r = 8\%$, $t = 10$ years) works out to 2.63 including the employment benefits. The Economic Rate of Return is estimated at 18.5%. Economic analysis has also been done for selected interventions as well as for selected IGAs (income generation activities). Irrigation channels and irrigation tanks return BCR (benefit cost ratio) values of 1.36 and 1.54, respectively, over a 10 year horizon, indicating their economic viability

even in the medium run. Almost all IGAs return favourable BCR values with traditional/caste based IGAs such as carpentry and blacksmith, returning the highest values, indicating that project support to buttress existing skills provides quicker returns.

Socially inclusive, institutionally and environmentally sustainable objectives

The project has laid great emphasis on adopting an inclusive and participatory approach that entails community involvement at all stages, that is, starting from project planning up to implementation. It has adopted a decentralised institutional setup with the GP as the main planning and implementing agency. Such an approach has helped to enhance participation at various levels. Participation in Gram Sabha and GP meetings shows a sharp increase.

The assessment also points towards a high degree of transparency in various project processes. Formation and successful functioning of a large number of SHGs (self-help groups) under the project with a majority of women members is an indication of awareness generation among the women. The Income Generating Activities for Vulnerable Groups have led to significant livelihood enhancement for weaker sections and led to high economic returns in the short run.

The credit for strong involvement of women and weaker sections of society in the project activities goes in large measure to the Financial Non-Governmental Organisations (FNGOs). The involvement of partner NGOs in two divisions could be seen as an important innovation and a progressive feature of the project. Farmers' Interest Groups have been formed at the Revenue Village level in project villages which include all those farmers who are adopting new technologies and improved seeds from the project to increase their production. The level of transparency in the project has been quite high largely on account of different levels of auditing and regular Participatory Monitoring and Evaluation.

Most of the interventions undertaken under the agriculture and horticulture components have strong potential of sustainability. The soil conservation structures that withstood the heavy rainfall in 2010 and 2011 have served their purpose to a large extent, and the formation of UGs (user groups) for maintenance of these structures is a step towards ensuring post-project sustainability. In the case of plantations, most of the activities have been taken up in van panchayat areas, managed by van panchayat committees with strict codes of conduct and usufruct sharing. It could be expected that these institutions would ensure adequate upkeep of the plantations.

In one word, while the project has performed well in terms of achieving enhanced potential of natural resources and enhanced incomes, the standout feature would be its effective social mobilisation strategy, leading to broad-based participation in various project processes, and, significantly, the inclusion of vulnerable groups.