

## TECHNICAL ASSISTANCE COMPLETION REPORT

Division: Nepal Resident Mission

TA No., Country and Name:  TA 4774-NEP: Economic and Social Inclusion of the Disadvantaged Poor through Livelihood Enhancement with Micro-Irrigation		Original Amount: \$450,000  Revised Amount: \$450,000									
Executing Agency: Department of Irrigation	Source of Funding: Poverty Reduction Cooperation Fund	Amount Undisbursed: \$17,466.97	Amount Utilized: \$432,533.03								
TA Approval Date: 20 March 2006	TA Signing Date: 26 May 2006	Fielding of First Consultant: 6 July 2006	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">TA Completion Date</td> <td style="width: 50%;">Actual: 31 December 2007</td> </tr> <tr> <td>Original: 31 December 2007</td> <td></td> </tr> <tr> <td>Account Closing Date</td> <td>Actual: 28 August 2008</td> </tr> <tr> <td>Original: 31 December 2007</td> <td></td> </tr> </table>	TA Completion Date	Actual: 31 December 2007	Original: 31 December 2007		Account Closing Date	Actual: 28 August 2008	Original: 31 December 2007	
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<p><b>Description</b></p> <p>Agriculture provides livelihoods for almost 80% of rural households in Nepal. However, the majority of households comprise small and marginal farm families practicing traditional and subsistence-oriented agriculture due to lack of infrastructure and limited access to inputs, particularly irrigation water. Most such households are ethnic minorities, <i>dalits</i> and headed by women, and their socioeconomic advancement through increased access to services and income opportunities has been one of Nepal's main development challenges. In this context, micro-irrigation (treadle pump, drip, sprinkler, and water harvesting) technology promoted by non-government organizations (NGOs) had emerged as a promising option for rural smallholders to increase their incomes through production and marketing of cash crops in areas where canal irrigation is not viable. However, efforts thus far had focused on development of delivery mechanisms through the private sector and the technology has not reached the poorest and most disadvantaged. The TA was designed to enhance the livelihoods of the poorest and disadvantaged through micro-irrigation and promote their economic and social inclusion in five districts to provide a basis for broader replication. The TA aimed to (i) demonstrate and disseminate micro-irrigation technology and its effectiveness in enhancing income and inclusion of the target groups; (ii) pilot test effective delivery mechanisms of micro-irrigation and associated agriculture technology; and (iii) develop draft micro-irrigation policy and implementation guidelines based on the lessons learned.</p> <p><b>Expected Impact, Outcome and Outputs</b></p> <p>The TA's expected impact was to reduce extreme poverty and marginalization among socially and economically deprived households in the five TA districts. Its expected outcome was to develop and demonstrate effective delivery mechanisms of micro-irrigation support services to the target groups. The expected TA outputs were: (i) the micro-irrigation technology disseminated in the TA districts to at least 2,200 households; and (ii) draft micro-irrigation policy and implementation guidelines prepared for promoting technology for the poorest and most disadvantaged.</p> <p><b>Delivery of Inputs and Conduct of Activities</b></p> <p>The Department of Irrigation (DOI) and the Department of Agriculture (DOA) were the executing agencies (EAs). A consortium of three national NGOs was the implementing agency (IA). Local NGOs supported implementation of field programs and the private sector supplied micro-irrigation kits. Inputs of the team leader/micro-irrigation specialist, social mobilization and gender specialist, agriculture extension specialist, and policy and institutional specialist were provided on an intermittent basis. A working group comprising of DOI, DOA, Women Development Department, Department of Water Supply and Sanitation, National Agricultural Research Council, and Department of Local Infrastructure Development and Agricultural Roads guided overall TA implementation. A sub-project management unit comprising irrigation development division/sub-division, district development committee (DDC), district agriculture development office (DADO), district women development section, and water supply and sanitation division/sub-division oversaw field implementation. Each farmer group member received a partial grant and an interest-free loan disbursed through local NGOs for procurement of the micro-irrigation kits.</p> <p>A total of 2,200 farm households (organized into 127 groups) installed and operated one microrrigation system (treadle pump, drip system and sprinkler) each. Six multiple use water systems (MUWS) for irrigation and water supply were also built in collaboration with the DDCs and beneficiaries, and proved to be an important approach to access irrigation and drinking water from the same system. Local NGOs facilitated selection of group members for micro-irrigation and MUWS following the project criteria—members must be poorest of the poor and two-thirds should be women. Detailed implementation plans and manuals were prepared outlining activities, methods and the implementation schedule. Training of trainers was provided to local NGO staff on operation and maintenance of micro-irrigation, agriculture technology, market linkages, and bookkeeping, who then trained farmer group members.</p>											

Project progress and lessons learned were disseminated to concerned stakeholders through central and field level seminars and workshops. ADB fielded four review missions during the TA period and monitored TA activities. Some adjustments were made in the TA scope during implementation. The total number of target households was decreased to 2,200 from 2,500 due to increased costs of the micro-irrigation systems. The number of MUWS was increased to 6 from 4, and 24 plastic tunnels and 6 low cost plastic tanks were demonstrated for monsoon vegetable cultivation and irrigation during the dry season, respectively, based on local demand.

#### **Evaluation of Outputs and Achievement of Outcome**

The EAs, IA and consultants prepared inception reports, project implementation manuals, micro-irrigation review reports, and draft micro-irrigation policy and implementation guidelines. Four manuals were prepared for trainers' training to local NGO staff and three booklets for farmer groups. The EA and the consultants prepared a baseline report, trimester reports and a TA completion report, and submitted to ADB on time.

The TA met all the important design targets. It delivered micro-irrigation systems to each of the 2,200 households and increased their annual income by NRs6,100 (\$94 equivalent) on average, an increase of 30%. About 90% of the beneficiaries were women, who were provided institutional development and micro-irrigation installation and operations training. Almost half of the farmer groups were capable of independently managing their financial transactions and keeping records, operating micro-irrigation systems, and continuing their vegetable production as enterprise. The remaining half were registered with DADOs for follow-up agriculture extension services and training to sustain their income and group organizations. About 25% of the group members, who intended to expand their operations, were in the process of being affiliated with local microfinance institutions for continued access to agricultural credit. As per the TA design, draft micro-irrigation policy and implementation guidelines were prepared for finalization by the Government in 2008 after wider stakeholder consultations. Two new micro-irrigation manufacturers, four suppliers and 10 dealers emerged as a result of the increased demand for micro-irrigation systems. A significant demonstration effect was observed at the time of the TA completion – 171 households not directly associated with the TA had installed micro-irrigation, and hundreds of farmers in neighboring areas were interested to install micro-irrigation.

However, about 25% of the group members who joined the TA program toward its latter stages lacked confidence to sustain their micro-irrigation systems. The main reasons were the short period of the TA inputs, their weak socioeconomic condition, and limited knowledge of vegetable production and marketing. DOI has agreed to provide follow-up services to these group members through its Non-conventional Irrigation Technology Program (NITP). Inadequate financial management and reporting capacity of the IA, slow reimbursement of its claims by ADB, and insecurity in some program sites also hindered smooth TA implementation.

#### **Overall Assessment and Rating**

Despite some shortcomings, the TA is rated "successful" because (i) it reached the target households and transferred simple and low cost irrigation technology; (ii) the program was implemented with a leading role by local NGOs and beneficiary households; (iii) the EAs closely monitored the field programs throughout the TA period; (iv) the revised micro-irrigation system delivery target was achieved; (v) beneficiary households' average annual income target was met; (vi) cost effective MUWS were demonstrated in excess of the target; and (vii) draft policy and implementation guidelines were prepared. As the TA generated encouraging results, the tested technologies are worth scaling up for quick impact during this critical transition period in Nepal.

#### **Major Lessons Learned**

In order to achieve sustainability, adequate time is needed for technology transfer and capacity building of farmer groups. While the multi-stakeholder implementation arrangement helped to ensure close monitoring and transparency, it could be streamlined further to make TA program delivery more cost effective and replicable. Linking beneficiary groups with microfinance institutions and service providers is needed to sustain income and facilitate future expansion of farming operations. TA field programs also need to be organized in clusters for cost effective implementation and monitoring. Partner NGOs should have financial management and reporting capacity, and funds flow mechanisms from donors could be simpler and more efficient.

#### **Recommendations and Follow-Up Actions**

As the technology suits the poorest households, the Government should scale up it through its regular program and with the ongoing Loan 2102-NEP: Community Managed Irrigated Agriculture Sector Project (CMIASP). DOI should provide follow-up services through its NITP to those farmer groups lacking confidence to manage and sustain micro-irrigation and income. ADB should monitor the status of the services during review missions of the CMIASP. The Government should finalize the micro-irrigation policy and guidelines in 2008 to facilitate its up scaling, which is being closely followed through regular dialogue with DOI.