Delivering Impacts from Participatory Crop Improvement Projects in Nepal

KD Joshi¹, S Biggs², KP Devkota³ & S Gyawali³

¹DFID Plant Sciences Research Programme, CIMMYT Regional Office, Kathmandu, Nepal.

²International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal.

³Local Initiatives for Biodiversity in Research and Development, Pokhara, Nepal.

ABSTRACT

Participatory crop improvement (PCI) for new varieties and crops started in 1997 in Chitwan and Nawalparasi. Subsequently the results were disseminated (scaled up) in many districts in Nepal. LI-BIRD (an NGO) implemented the project jointly with the Centre for Arid Zone Studies.

Initially the mode of collaboration with the Department of Agriculture (DoA), particularly with its district officers and Nepal Agricultural Research Council (NARC), was consultative. They were not active partners but there was an exchange of ideas and experiences. Collaborative participation, where partners played an active role, started first with District Agricultural Development Office (DADO) Chitwan who actively disseminated project identified rice varieties using the project's participatory approaches. Later other DADO offices became actively involved as well as the National Rice Research Programme (NRRP).

INTRODUCTION

In last year's annual report we presented the results of an impact assessment of the Programme's projects on participatory crop improvement (PCI) in Nepal. These projects involved participatory technology development in agronomy, new varieties and crops, and multipurpose trees. The impact assessment concentrated on the delivery of benefits to farmers. Here we describe the institutional innovations that have resulted from project outputs.

IMPACT IN NEPAL

Background

The total area of rice in the Terai is about 1.1 to 1.2 million ha, i.e. ca. 75% of the total rice area of Nepal. It is estimated that about 70% of the main-season rice in the Terai is grown under rainfed and limited irrigation water conditions.

Participatory surveys revealed that many of the farmers in the project villages of Chitwan and Nawalparasi, were growing old varieties of rice, e.g. *CH* 45 (44 years) and *Masuli* (28 years) or varieties that have not been recommended such as *Ekhattar*, *Kanchhi Masuli*, *Radha 17* and a large number of landraces. The PCI projects have identified an increasing number of rice varieties, using both participatory varietal selection (PVS) and participatory plant breeding (PPB) approaches. Fifteen varieties have been identified that are suited to poorer farmers who cultivate the less productive medium upland and upland conditions. These varieties give increased profits to farmers and where they were first tested (Chitwan and Nawalparasi districts) rates of adoption exceeded 40% of the rice area in many of the 34 villages surveyed in 2002.

Evidence of Institutionalisation of PCI Projects Outputs

Letters of Agreement

- 1. Letter of agreement (LoA) between DADO Chitwan and LI-BIRD: A new feature of this partnership was that a LoA (Box 1) was signed between the district level authority of the government line agency, DADO Chitwan, and with the NGO, LI-BIRD. This may be the first example of its kind. This collaboration is also noteworthy in that it was instigated by DADO Chitwan rather than LI-BIRD.
- 2. Letter of agreement (LoA) between LI-BIRD and Farmer Groups: Another important partnership that is emerging is between NGO-Farmers Groups or community-based organisations (CBOs). LI-BIRD has signed three separate LoAs with three CBOs in Nawalparasi (for example Box 2), one of which was formed by DADO office while the other two were self-organised.

Box 1: Letter of Agreement between DADO Chitwan and LI-BIRD for participatory scaling up.

Roles of DADO

- Fully responsible for the implementation of scaling up activities through their networks.
- Prepare joint annual plan and get approval of the Ministry through regular planning process.
- Periodical monitoring.
- Collect field information and prepare progress and technical reports.
- Provide financial and other institutional support to new, unreleased varieties in exactly the same way as if they had been released.
- Farmer and staff skill development on participatory approaches through orientation, training and exposure visits.
- Organise periodical coordination and review meetings with LI-BIRD.

Box 2: Scaling up through Farmers Groups (FGs) in Nawalparasi.

The process:

- PRAs to identify community-based organisations (CBOs) suitable for participatory scaling up.
- Documentation of profile of short-listed CBOs by PRA.
- Selection of established FGs.
- LoA with three FGs two mixed groups and one women farmers group.
- Implementation of programme through FGs.

Roles of FGs:

- Responsible for carrying out all the field activities: farmer identification (focus on poor and medium farmers), distribution of seeds, record keeping including the monitoring of varietal uptake.
- Seed production and farmer-to-farmer distribution.
- Decision making.

Roles of LI-BIRD:

• Identify FGs and provide seeds of new farmer-preferred varieties.

The Spread of Institutional Innovations to Other District Offices and Organisations

The extent of the innovations differ greatly between organisations and District Offices, but have been taken up in 20 Terai and 9 hill districts. In these initiatives, LI-BIRD, in addition to working closely with DoA, is also collaborating with other NGOs, e.g. FORWARD, CARE and PLAN International.

- 1. A stakeholders meeting was organised in Kathmandu in February 2001 to discuss the possibility of participatory scaling up of the research outputs through GO-NGO partnerships. The meeting agreed on the advantages of participatory scaling up and a joint Working Group of DoA, NARC and LI-BIRD was established. A similar Working Group was formed to look into the policy issues related to the release of varieties identified by PVS or bred by PPB. The first Working Group developed a proposal to scale up the activities in four districts, Dhanusha, Sarlahi, Bardiya and Kailali, which was finally approved by the authorities from DoA, NARC and LI-BIRD at a subsequent workshop. The World Bank funded project 'Agricultural Research and Extension' (AREP) agreed to provide a grant for this work. Farmer-preferred rice varieties were scaled up in 2001 in each of four districts and were evaluated by farmers in major rice growing domains.
- 2. A workshop was jointly organised in January 2002 by DoA and LI-BIRD to share the findings from the five collaborating district offices. Representatives from seven DADOs also participated and developed seven project concept notes for scaling up PVS-identified and PPB-produced varieties. The possibility of incorporating the plan into the regular planning process of DoA to attract funding was discussed. Some of the DADOs have already incorporated this into their regular plan, indicating greater acceptance and uptake of the approach by the DoA.
- 3. A workshop was organised in December 2002 to review the progress made during the 2002 rice season and also plan for 2003. Representatives from 19 DADOs participated in the programme along with several NGOs and INGOs.

Spillover of Institutional Innovations from Nepal to Bangladesh

- 1. DFID-PSP organised a meeting in February 2001 at the Bangladesh Rice Research Institute (BRRI) with the objective of exploring the possibility of sharing rice technologies and experiences between Bangladesh and Nepal. Following this meeting *boro* rice germplasms from Bangladesh and farmer-preferred rice varieties identified from PVS and PPB approaches from Nepal have been exchanged.
- 2. An NGO, PROVA, evaluated seven rice varieties in 2002 from Nepal, in the High Barind Tract (HBT) of Bangladesh and they showed very good promise. In 2003, 19 short duration rice lines, mainly the products of PPB, have been sent to BRRI for evaluation at their Rajshahi Regional Station. This will generate additional data particularly on disease resistances so that promising, short-duration lines can be integrated into their system. Some of those lines have also been sent to PROVA for testing in mother-baby trials, and for dissemination by informal methods.

3. Capacity building on participatory research and scaling up for farmers, support staff, researchers and development professionals has been a regular activity throughout the project. Very recently an orientation workshop for GO and NGO professionals from Bangladesh and Nepal was also organised. These are proving to be very fruitful exercises in terms of developing critical mass for participatory research and scaling up.

Impact of Participatory Research and Scaling up on Rural Livelihoods: Case Studies on Swarna rice.

1. *Parwati and Arjun Kumar Shrestha* of Agauli VDC (village Development Committee) Ward 5, Sherganj, Nawalparasi explained that they only own 6 *Kattha¹* (about one fifth of a hectare) of low lying *Khet²* land where Masuli was grown before adopting Swarna. Masuli never produced more than 15 *Moori³* from the land which was just enough to sustain their six member family for about six months. They heard about Swarna three years ago and tried a small plot in the first year. Parwati says that the variety to her surprise did extremely well even under submerged conditions, where Masuli generally does very poorly. Impressed with the performance of Swarna this couple decided to plant the entire plot to the new variety. The yield from the new variety was nearly double that of Masuli, i.e. 27 *Moori*. This couple comes into the food deficit category, but this year sold nearly 500 kg Swarna and bought corrugated iron sheets for a cow shed. This was possible as they also grew *Chaite* rice and the entire harvest from *Chaite* rice was kept for home consumption. They also distributed nearly 75 kg seeds of Swarna. They are keen to continue with this variety as they see

the clear advantage from this in meeting the food security of their family. While discussing with the Shrestha couple it was that Swarna learnt is becoming popular among the farmers and it has contributed to meet the food needs of about 50% of farmers (like this family) in Sherganj village (the percentage of smallholder farmers in that village is quite high).



¹ Kattha is a local unit used for measuring land area, one Kattha is equivalent to 338 m².

 $^{^{2}}$ *Khet* is bunded and irrigated land where transplanted rice is grown.

³ Moori is a local unit used for measuring volume. One Moori of rough rice is equal to 50 kg.

- 2. Sarswati and Sita Thanet: These two women live in a joint family of 15 members at Bamnauli, Abhiyun. They belong to the food surplus category with a land holding of over 2 ha. Sources of income for the family are: sale of rice, sale of vegetables, income from rice mill, tractor and salary from the Nepal Army. They have been growing Swarna for the last five years. Started with a participatory varietal selection trial (PVS) in 1999, Swarna now covers nearly 55% of their khet land. In spite of diverse sources of income they considered that rice contributes nearly 75% of all the family requirements. All the day-to-day family expenses including labour and inputs for the farm are met through the income from the sale of rice. Both the ladies told us that the family requirements including cash expenditure has nearly doubled over the last five years as the family is ever increasing and cash expenditure has particularly increased due to schooling of children including their clothing, health care etc. They reckon that yield of Swarna is nearly one and a half times more than Masuli. In the past they sold nearly 4 t of rice while it has increased to 6 t after the adoption of Swarna. The increased income has particularly contributed to the education of children and health care. They mentioned one particular instance where Sarswatis' leg was badly fractured, she was in the hospital for nearly two years and this is where the income from the sale of rice was used.
- 3. *Tek Kumari Thanet*, Sherganj also owns 7 *Kattha* of land. Like most other farmers she also grew Masuli in the past. She has been growing Swarna for the last two years. Food requirements of her four member family have increased now and the harvest from Masuli was not enough even in the past when the food need was less than now. Tek Kumari says that after growing Swarna she does not have to buy rice.
- 4. Dhan Kumari and Om Narayan Mahato: This couple belongs to a food balance category. They live in Agauli. Apart from Swarna, this family has been growing a number of new rice varieties introduced by LI-BIRD in their PVS programme, for example, Pant Dhan 10, Barkhe 1027 and BG 1442. Before these new varieties they were growing Sabitri, a variety released by the National Seed Board. They abandoned this variety, as it is highly susceptible to zinc deficiency, is difficult to thresh, is also prone to high leaf folder damage and also yields less than Swarna. They have been growing Swarna for last four years, one year while they were still in a joint family and three years after they got separated from the joint family. They clearly see that Swarna is higher yielding than Sabitri. They also have other sources of income, e.g. vegetables and banana. However, net income from Swarna this year was at least Rs. 10,000. This family used the income from the sale of Swarna over the last three years for several things; e.g. they paid about Rs. 9000 loan that was accumulated from the joint family. This year they spent nearly Rs. 11, 000 to put corrugated iron roofing in their house. They also invested some money while establishing their small banana orchard. They say that their family needs, including cash requirement, has increased due to schooling of the children and for vegetable and banana farming but now they do not see any problem to meet it. "With Sabitri, I was just meeting my family needs but it would have not been possible with out Swarna to repay the loan, go for improved roofing or pay the school fees of my children"