

**Strengthening Institutional Capacity of
Farmers' Research Committees (FRCs) in
Promoting Farmer-led Participatory Maize Breeding in
the Middle Hills of Western Nepal**

Final Technical Report
(January 2004 to December 2006)

Submitted by:

Anu Adhikari, Bharat Bhandari and Dr Pratap Kumar Shrestha



Local Initiatives for Biodiversity, Research and Development (LI-BIRD)

January 2007

ACKNOWLEDGEMENTS

The project team highly acknowledges the valuable time, active participation and support of all the members of the farmers' groups of the project area. The contributions of Mr Bala Bhadra Poudel, Community Organizer and Mr Krishna Prasad Aryal, Motivator of LI-BIRD in facilitating the implementation of the project and facilitating the farmers at the grassroots level are duly acknowledged. The team is grateful to Mr Tara Lama, Mr Resham Gautam, Mr Bimal Regmi and Mr Govinda Shrestha and other LI-BIRD professionals for their input and support during the project period. Similarly, support of National Maize Research Programme (NMRP)/NARC, Rampur, International Maize and Wheat Improvement Center (CIMMYT maize) and District Agriculture Development Office, Gulmi is also acknowledged. We extend our appreciation to Dr Barun Gurung of CGIAR Systemwide Program on Participatory Research and Gender Analysis for Technology Development and Institutional Innovation (PRGA Program) for his technical inputs during the institutional analysis of the farmers groups.

Last, but not the least, sincere thanks go to FRC members and farmers of Darbar Devasthan and Simichaur of Gulmi District, who were the key players in the successful implementation of the programme. Finally, the PRGA Program, Cali, Columbia is acknowledged for providing the financial support.

ACRONYMS

ASC	Agriculture Sub Center
ARS	Agriculture Research Station
CB	capacity building
CBD	Convention on Biological Diversity
CBO	community-based organization
CBSP	community-based seed production
CGIAR	Consultative Group on International Agricultural Research
CIAT	<i>Centro Internacional de Agricultura Tropical</i> (International Center for Tropical Agriculture)
CIMMYT	International Maize and Wheat Improvement Center
CVT	Co-ordinated Varietal Trial
DADO	District Agriculture Development Office
DLSO	District Livestock Services Office
DSCO	District Soil Conservation Office
DIO	District Irrigation Office
DAG	Disadvantages Group
DDC	District Development Committee
DISSPRO	District Seed Self Sufficiency Program
FGD	Focus Group Discussion
FRC	Farmers' Research Committee
GARDP	Gulmi Arghakhanchi Rural Development Project
HHs	households
HMRP	Hill Maize Research Project
IAAS	Institute of Agriculture and Animal Sciences
ID	institutional development
IPR	Intellectual Property Right
IRD	informal research and design
JT	Junior Technician
KDS	Kami, Damai and Sarki
LI-BIRD	Local Initiative for Biodiversity, Research and Development
MMFG	Malika Multipurpose Farmers Group
NARC	Nepal Agricultural Research Council
NMRP	National Maize Research Program
PPB	participatory plant breeding
PRGA	participatory research and gender analysis
PRGA Program	CGIAR Systemwide Program on Participatory Research and Gender Analysis for Technology Development and Institutional Innovation
PVS	participatory variety selection
QPM	Quality Protein Maize
RARS	Regional Agriculture Research Station
SARO	South Asia Regional Office (CIMMYT)
SGP	Small Grant Program
SMMC	Seed Management and Marketing Committee
SPG	Seed Producer Group

UNDP
VDC
VDRC

United Nations Development Programme
Village Development Committee
Vijay Development Resource Center

CONTENTS

ACKNOWLEDGEMENTS	II
ACRONYMS	III
LIST OF TABLES.....	VI
LIST OF APPENDICES.....	VI
INTRODUCTION	1
ACTIVITIES AND ACHIEVEMENTS.....	2
Training	2
Exposure visits.....	4
Support to poor farmers.....	5
Building capacity of FRCs to cope with the changing roles and responsibilities	8
Documentation of intellectual property right of Resunga Composite and other PPB-bred materials	12
OTHERS	14
EFFECTIVENESS OF CAPACITY BUILDING PROGRAM.....	15
LESSONS LEARNED.....	21
CONCLUSION	21
REFERENCES	23
ANNEXES	24

LIST OF TABLES

Table 1: Vegetable seed distributed by FRCs to the farmers.....	5
Table 2: PVS and IRD packet distribution by farmers committee in different years.....	6
Table 3: Wealth categories of farmers involved in PVS and IRD activities in the project area by season	7
Table 4: Seed production (kg) of maize varieties in the two VDCs.....	7
Table 5: Wealth categories of farmers involved in seed production at Darbar, Simichaur and Arkhale VDCs.....	8
Table 6: Quantity of seed (kg) sold by SMMC from production	8
Table 7: Summary of crossing and improvement.....	12
Table 8: Overall ranking of maize varieties in 2005	14
Table 9: Name of new farmers' and women's groups included and mobilized by FRC, Gulmi, 2004.....	17

LIST OF APPENDICES

Annex 1. List of farmers involved in farmers research committee (FRC) from each site, Gulmi	24
Annex 2. Lists of farmers involved in seed management and marketing committee (SMMC) from both the sites, Gulmi.....	25
Annex 3. Community-based seed production details of Simichaur VDC in 2004 season	25
Annex 4. Community-based seed production details of Darbar Devisthan VDC in 2004 season	26
Annex 5. Community-based seed production details of Darbar Devisthan VDC in 2005 season	27
Annex 6. Community-based seed production details of Simichaur VDC in 2005 season	29
Annex 7. Community-based seed production details of Darbar Devisthan VDC in 2006 season	30
Annex 8. Community-based seed production details of Simichaur VDC in 2006 season	31
Annex 9. Participants in the stakeholders monitoring program (August 15–18, 2004)	33
Annex 10. Participants in the stakeholders monitoring program (August 29 to September 1, 2005).....	33
Annex 11. Participants in the stakeholders monitoring program (August 13–16, 2006)	34
Annex 12. Participants in the maize seed production training-cum-exposure visit (Asoj 1–7, 2006)	34
Annex 13. Farmer exposure visit schedule	35
Annex 14. List of participants in Account-keeping training.....	36
Annex 15. List of participants in Social-mobilization and group dynamics training.....	37
Annex 16. List of participants in Group management for organization development training	38
Annex 17. Organizational structure of FRCS in 2004.....	39
Annex 18. Organizational structures (two) of FRCS in 2006	40
Annex 19. Sphere of collaboration of FRC in 2004	41
Annex 20. Sphere of collaboration of FRC in 2006	42

INTRODUCTION

The project on “Strengthening Institutional Capacity of Farmers’ Research Committees (FRCs) in Promoting Farmer-led Participatory Maize Breeding in the Middle Hills of Western Nepal” was signed between *Centro Internacional de Agricultura Tropical* (International Center for Tropical Agriculture, CIAT) Projects office and Local Initiatives for Biodiversity, Research and Development (LI-BIRD) on March 2004 with the financial support from the CGIAR Systemwide Program on Participatory Research and Gender Analysis for Technology Development and Institutional Innovation (PRGA Program) for a period of 3 years. The project was implemented by LI-BIRD in collaboration with Farmers’ Research Committees (FRCs).

Maize (*Zea mays* L.) is the second most important crop and is grown largely in intercropping system in Gulmi district of Nepal. Maize plays a vital role in the livelihood strategy of the people in living in the hills of Nepal. The project area (Gulmi district) represents remote hill districts with poor access of information and materials. *Bari* is the main cultivated land type, constituting 81.5% of the total cultivated land at Darbar Devasthan and Simichaur Village Development Committees (VDCs). *Bramin, Chetteri, Magar* and disadvantage group (KDS) represent major ethnic groups at Darbar and Simichaur sites, constituting about 80% of the total households (Shrestha, 1999).

LI-BIRD initiated farmer-led participatory plant breeding (PPB) in maize in the middle hills of western Nepal in 1999 with financial support from the PRGA Program for 3 years. Since the end of PRGA funding in 2002, LI-BIRD has been supporting farmers’ breeding initiatives from its own core funds. Since 2001, the Hill Maize Research Project (HMRP)/CIMMYT-SARO Nepal has provided small grants to support farmers’ initiatives on seed production and marketing in the area, with the objectives of expanding and further strengthening community-based seed production and marketing system among farmers and farmers’ groups, and scaling-up improved varieties through participatory varietal selection (PVS) and informal research and design (IRD) activities on a wider scale in various VDCs of Gulmi.

The roles of the Farmers’ Research Committees (FRCs) were collectively defined during the village workshop:

- supporting farmers’ breeding initiatives as local institutions;
- taking the lead in setting breeding goals and selection of local parents for maize breeding through organizing training and exposure visits;
- creating variability through crossing and recombination of maize, selection and evaluation (blending scientific and local knowledge in collaboration with research institutions), and seed management, to facilitate the gene flow among farmer-breeders, conventional breeders and seed producer groups.

The role of FRCs has therefore become important in regulating and managing the flow of the genetic materials in the local maize population developed through farmer-led PPB initiatives of the first phase of the project, which aimed to minimize the losses to lodging. Field activities are being carried out at two VDCs of Gulmi District, Darbar Devasthan VDC and Simichaur VDC,

with the objective **to strengthen the FRCs and subcommittees on group mobilization, resource generation and marketing their expertise and/or PPB products.**

The progress made in the technical aspects of the project “Strengthening Institutional Capacity of Farmers Research Committees (FRCs) in Promoting Farmer-led Participatory Maize Breeding in the Middle Hills of Western Nepal” for the period of January 2004 to December 2006 is presented in this report.

What is Capacity Building?

Capacity refers to the skills and capabilities of individuals. For individuals, capacity building may relate to leadership development, advocacy skills, training/speaking abilities, technical skills, organizing skills, and other areas of personal and professional development. Similarly, for an organization, it refers to an organization’s ability to achieve its mission effectively and to sustain itself over the long term. For organizations, capacity building may relate to almost any aspect of its work: improved governance, leadership, mission and strategy, administration (including human resources, financial management, and legal matters), program development and implementation, fundraising and income generation, diversity, partnerships and collaboration, evaluation, advocacy and policy change, marketing, positioning, planning, etc. Community capacity is defined as a community’s current ability (as opposed to its inherent ability) to respond to certain pressures. According to Philbin (1996), capacity building is defined as the “process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to survive, adapt, and thrive in the fast-changing world,” or activities that improve an organization’s ability to achieve its mission or a person’s ability to define and realize their goals or to do their job more effectively.

According to UNDP (1997), capacity development is the process by which individuals, organizations, institutions and societies develop abilities (individually and collectively) to perform functions, solve problems and set and achieve objectives. Capacity building also takes place across organizations, within communities, in whole geographic areas, within the non-profit sector, and across sectors. It involves individuals and groups of individuals, organizations, groups of organizations within the same field or sector, and organizations and actors from different fields and sectors. There is a large range of capacity-building approaches—a continuum—that includes peer-to-peer learning, facilitated organizational development, training and academic study, research, publishing and grant-making. Among the different approaches of capacity building, this project focused on facilitated organizational development and training.

ACTIVITIES AND ACHIEVEMENTS

Training

Training is an important approach for the capacity development of individuals, communities and organizations. Training can be conducted for different areas and topics, but this project focused on training in social mobilization, group dynamics and leadership development, resource

generation and transparent account-keeping systems, and seed production and marketing. A study conducted in 1999 by LI-BIRD revealed that, in Gulmi, women are the prime decision makers and their contribution to decision-making activities related to maize production and utilization is higher than that of their male counterparts in the family. Therefore, more focus was given to women and their groups, while giving training to the community and distributing seeds for PVS and IRD activities. It is estimated that more than 60% females participated in the project activities. The activities carried out during the project period are as follows.

Training on social mobilization: Training on social mobilization and group dynamics was organized on December 11, 2004. Altogether 53 participants participated in this training, among them 30 participants were male and 23 participants were female (Annex 15). Disadvantaged groups (DAGs) also participated in the training. A separate training on social mobilization and group dynamics was also given to the field-based staff. After receiving the training, field-based staff of LI-BIRD and members of FRCs jointly organized follow-up training on social mobilization and group dynamics for the purpose of monitoring the training effects. After the training, the participation of DAGs members in the group meeting increased.

Training on group dynamics and leadership development: Training on group dynamics and leadership development was organized during December 18–20, 2006. Altogether 36 participants participated in the training (Annex 16), among them 13 were male and 23 were female. Participants from the lower caste also participated in the training. Two types of participant—people holding a responsible position in the group and general members of the group—participated. Resource persons were hired from other organizations for the training. The training course was designed for 3 days. During the training, the field staff member who is working as a community organizer also participated. The main objective of the training was to develop the basic skills and knowledge regarding group mobilization and organizational developments, and the specific objective is to raise the awareness among group members and other members about the importance of group, the concept of right based group approach, and the importance of leadership development with the group member for the sustainability of the group.

Training on resource generation and transparent account keeping systems: Training on account keeping was organized on December 10, 2004. Altogether 12 participants participated in the training (Annex 14). Participants in the training were those who hold responsible positions in the group and were members of the group. A local resource person was hired for facilitation of the training. As one of the objectives of the project was capacity building of the group, the resource person was hired from the group of Simichaur. After the training, some follow-up training was organized by the facilitators to build more confidence among the participants, as well as to provide further guidance to the participants. After receiving the training, they have initiated a clear account-keeping system.

Training on seed production and marketing: A 1-day seed production and marketing training was organized by LI-BIRD at NMRP Rampur Chitwan on September 3, 2006. NMRP scientists from Rampur and an agronomist from LI-BIRD provided training to the participants. The training was organized at the time of farmers' exposure visit. They also observed the maize research and seed production activities at NMRP farm. There were 33 participants, among which 56.6% were female.

Likewise, the project team members provided informal orientation training on seed production and distribution, quality maintenance, social mobilization, marketing of farmer-led PPB-bred technologies and institutional capacity development in both project sites. FRC and Seed Producer Group (SPG) members participated in the training. The objectives were to create awareness among seed growers about the need for decentralized seed production and distribution, to impart skills for quality seed production and marketing system, and to introduce the concept of group mobilization and group strengthening. After this training, FRC and SPG members organized onsite coaching for their subgroup members in other villages and for the rest of the members in the project areas.

Training on mass selection: Informal refresher training on mass selection was organized for the members of FRCs, SPGs and other selected farmers of the project sites separately. The objective of the training was to strengthen skills and capacity of the farmer breeders to select superior population, produce and maintain quality maize seed. The training covered maize plant morphology, floral morphology, pollination, and the concept of inheritance parent selection, detasseling and its importance, stages of plant and seed selection.

Exposure visits

Exposure visits are another important approach for capacity building of individuals, groups, communities and organizations. From exposure visits, people can learn and share different community activities. Exposure visits were used for institutional strengthening of the FRCs in Gulmi district. Seed-producing farmers of Darbar Devasthan and Simichaur VDCs, with support from LI-BIRD, organized a week-long farmer observation tour in September 2006 with the objective of acquiring and sharing technical knowledge and skills on maize seed production, quality control and marketing, group mobilization and community development activities, along with other options of maize-based income-generation activities. Thirty-three farmers participated in the exposure visits, among who 16 were female and 17 were male. They visited Radha Krishna Female seed-producers groups of Palpa district (*deurali*) and farmer seed-producer group at Madhavpur of Chitwan district to understand seed production, processing and marketing systems and their constraints. During the visits, all the participants also interacted with the member Sriram seed producer group, Parbatipur and Unnat Seed Producer Group, and Patiyani of Chitwan district to share knowledge among them. They also visited the Vijay Development Resource Center (VDRC) at Nawalparasi to understand the social mobilization and community development activities. They also observed Madanpokhara, IAAS Rampur, RARS Lume, ARS-Horticulture, Malepatan in Kaski and their various research and extension activities. After the exposure visits, participants prepared a poem in local language describing all the activities and exposures during the visit period (Annex 12).

After the completion of exposure visits, farmers of both sites organized a 1-day sharing meeting for the other farmers who did not participate in the exposure visits, with the objective of sharing the knowledge and skills acquired from the visits. During the time of sharing meeting, they also developed the action plan for the following year, based on the experience of the exposure visits. The exposure visits also became a source of motivation for further organizational development to the farmers of that areas.

Every year, during August and September, inter-site exposure visits were organized by the FRCs themselves. On September 2004, the FRCs of Darbar and Simichaur jointly organized a 2-day field visit program to interact with the other groups who participated in the PVS program and to monitor the activities. There were 14 people in the team, consisting of members from the FRCs and SPGs of both VDCs and site-based LI-BIRD staff. They visited Arkhale, Dubichaur, Gaudakot and Chilaunepokhara villages. Similarly, for the years 2005 and 2006, the FRCs of Darbar and Simichaur jointly organized a 1-day field visit program between their working areas to enable interaction between the groups and others who participated in the PVS program, and also to monitor the field activities.

Support to poor farmers

Another activity carried out during the project period for the capacity building of FRCs was support to poor farmers. Under this activity, we have conducted different activities in different years.

Revolving fund: To help the farmers' initiative as a self-sustaining activity for the long term, LI-BIRD provided Rs 60,000 seed money. The FRC of each site received Rs 30,000 as a revolving fund in their bank account. The FRCs and SPGs decided to use the seed money for buying source seed, seed collection from farmers, storage, seed-selling activities, and other group organizational activities.

Diversity kit distribution: Upon the request of farmers groups, LI-BIRD provided diversity kits of vegetable seeds for both sites. We provided 200 packets of vegetable seeds of bean and swisschard during the project period. Farmers groups then distributed the seed to farmers, charging nominal prices for raising group funds. This has helped in strengthening home gardens to supply vegetables to farm families.

Distribution of vegetable seeds to farmers: Seed of different vegetables were distributed to the FRC of both sites. The FRCs of Darbar Devasthan and Simichaur distributed those seeds to the farmers to enrich their home gardens. Altogether, 270 kits of different vegetables (e.g. radish, cauliflower, bean and broad-leaf mustard) were distributed during the project period (Table 1).

Table 1: Vegetable seed distributed by FRCs to the farmers

S.N	Variety	No. farmers	No. packets	Remarks
1	Radish – 40 days	50	50	5 g/packet
2	Radish – <i>minuearly</i>	50	50	5 g/pkt
3	Cauliflower	20	20	5 g/pkt
4	Bean – <i>chaumase</i>	50	50	10 g/pkt
5	Bean – <i>kentuki</i>	50	50	10 g/pkt
6	Broad-leaf Mustard – <i>Marpha</i>	50	50	5 g/pkt
Total		270	270	

Potato and pea production in winter season: Upon the request of farmers, seeds of varieties of potato and pea were provided for PVS in 2004 winter season. The objective was to provide varietal choices to farmers so that they can choose suitable varieties for themselves. This will also help to increase production and productivity of these crops. Among the varieties tested, farmers preferred potato varieties MS 42.3 and Cardinal. They are planning to purchase and sell seed of these varieties through groups in the coming season. The groups of both sites also started potato and pea production from 2004. Under this activity, 2 quintals of potato seed of varieties MS 42.3 and Cardinal and 10 kg pea seed of Arkel and Sikkim local have been provided to the FRC of Darbar VDC and the seed has been distributed to the farmers of that area by the FRC. Similarly in Simichaur, 4 quintals potato seed of varieties MS 42.3 and Cardinal and 10 kg pea seeds of Arkel and Sikkim local have been provided to the FRC and those seed have distributed to the farmers of that area by the FRC.

Participatory variety selection (PVS) in wheat: Farmers of both sites were involved in the PVS of wheat. The purpose of PVS is to compare the performance of various improved wheat varieties with their own local variety, and identify farmers' preferred variety through participatory approaches. Under the PVS, 200 kg seeds of three wheat varieties (BL-1473, BL-1923 and BL-1887) were provided to the FRCs of Darbar and Simichaur VDC during September. Among the varieties tested, farmers preferred wheat varieties BL 1473 and BL 1923.

Participatory variety selection (PVS) in maize: The FRCs of both sites have been implementing PVS and IRD activities of maize varieties by focusing on the disadvantaged groups (i.e. women and KDS) and ethnic minorities, i.e. KDS groups at Darbar-2 and Janajati (Magars) at Simichaur. They conducted the PVS and IRD activities with the active participation of farmers of the village and in collaboration with other farmers groups and cooperatives in all VDCs and adjoining villages. Furthermore, the FRC has distributed 100 sets of seed for PVS activities to *Dalit* families only in the initial year of the project activities, which is extra to normal PVS distribution. Similarly, in the preceding years they also increased the PVS sets for other *Dalit* families. For monitoring of the transplantation of PVS seed, the group identified an individual person within the *Dalit* groups. Before giving the PVS and IRD sets to the farmers, they recorded the farmers' names, addresses, economic categories and ethnicities. This information is used during the time of monitoring of the activities in the field. The FRCs conducted the monitoring program in the field where the PVS sets and IRD sets were given.

Table 2: PVS and IRD packet distribution by farmers committee in different years

VDC	2004	2005	2006	Total
Darbar	100	143	65	143
Simichaur	101	271	131	271
Arkhale	82	75	39	75
Birbas	25			
Total	308	489	235	489

Note: One PVS set contains 2 kg seed.

During the distribution of PVS sets, the group charged Rs 5 per set of PVS seed to the farmers, as decided in the planning meeting. They charged this amount to raise funds in their group. In the case of Dalit groups, the funds received from PVS sets were collected by themselves and kept in their own group and mobilized, which is facilitated by the FRC of Darbar Devasthan. The varieties included in PVS and IRD were Rampur Composite, Resunga Composite, Manakamana-3, Deuti, Sitala, POP-45, Hill Pool Yellow and Hill Pool White. In total, 359 households (HHs) participated in PVS and IRD activities in 2006. Among the 359 HHs, 64% farmers represents 'C' category in their wealth ranking (see Table 3) with 35.7% female participation. While conducting PVS and IRD, priority was given to poor, disadvantaged groups (KDS) and ethnic minorities—58.6% of HHs represented disadvantage communities (*Dalit*) and ethnic groups, particularly of Magar community.

Table 3: Wealth categories of farmers involved in PVS and IRD activities in the project area by season

Category	2005	2006	Total	% in total
A	64	24	88	11.4
B	151	104	255	33
C	199	231	430	55.6
Total	414	359	773	100

Notes: A=Rich, B=Medium, C=Poor.

Community-based seed production and marketing: A major activity is community-based seed production (CBSP) and marketing. Farmers of both sides have been involved in community-based maize seed production and marketing (Table 4). Seed producer groups of Darbar and Simichaur have started producing seed of PVS and PPB varieties since 2002 with the aim to disseminate farmers' preferred varieties in the area. Seed production of four farmers' preferred varieties (Rampur Composite, Resunga Composite, ZM 621 and Manakamana-3, from PVS) has been conducted at Darbar, Simichaur since last 2002. In addition, a new farmers' cooperative, Agriculture Multipurpose Cooperative, also started producing seed of Resunga Composite and Manakamana-3 in Arkhale VDC, Gulmi from 2004 with support from LI-BIRD and the FRCs of both Darbar and Simichaur sites.

Table 4: Seed production (kg) of maize varieties in the two VDCs

Variety	Darbar			Simichaur		
	2004	2005	2006	2004	2005	2006
Rampur composite	500	200		2500	1405	3500
Resunga Composite	1050	578	2400	700	996	1000
Manakamana-3	650	794	1200	0		
Deuti (ZM-621)	0				300	700
Total	2200	1659	3600	3200	1948	5200

FRCs are taking lead in implementing all the activities related to seed production, with technical and material support from LI-BIRD and District Agriculture Development Office (DADO) Gulmi. Farmers' groups have decided to return 50% of source seed provided to seed-producing farmers, after harvest, to the group. The majority of farmers involved in seed production are from B category in their wealth ranking; only 12.3% farmers are from poor representing C category (Table 5).

Table 5: Wealth categories of farmers involved in seed production at Darbar, Simichaur and Arkhale VDCs

Category	Darbar	Simichaur	Arkhale	Total	% in total
A	5	9	4	18	31.6
B	14	16	2	32	56.1
C	0	7	0	7	12.3
Total	19	32	6	57	100

Note: A, B, C see Table 3.

SPGs collected 4.23 tonnes, 3.5 tonnes, 4.2 tonnes maize seed of the four varieties from farmers in 2004, 2005 and 2006, respectively. Experiences in CBSP have shown that only 15% seed is being collected and marketed by farmers groups in Gulmi. Another 5–7% seed might be exchanged in the villages through farmer-to-farmer networks. Thus, in total, 20–22% of total production is being used for seed purpose. In total, they have produced more than 8 tonnes of seed in both Darbar and Simichaur in 2006 season. Farmers' groups have produced 8.8 tonnes of seed, of which 4.2 tonnes has already been collected in their groups by mobilizing their group fund.

Table 6: Quantity of seed (kg) sold by SMMC from production

Variety	Rampur composite	Resunga composite	Manakama na-3	Deuti (ZM-621)	Total
2004	924	680	603	14	2221
2005	1719	1280	634	0	3633
2006	1322	1029	992	330	3673

Building capacity of FRCs to cope with the changing roles and responsibilities

The FRCs were established with certain guiding principles and norms to facilitate the farmer-led maize breeding initiatives in the past. However, with the progress in the maize breeding program, new maize varieties have been identified and developed that has led to the initiation of seed production and marketing as an income-generating activity in the region. New sub-committees, such as seed management and marketing committees and seed producer groups, have been developed under the umbrella of the FRCs. The participants suggested that the FRCs needed revision and updating in their norms, rules and regulation to mitigate the new challenges

in the present context. So the project also implemented capacity building by facilitating them and to enable them to cope with institutional growth, and changing roles and responsibilities in this institutional growing condition.

Revision of roles and responsibility: After the training on social mobilization and group dynamics, FRC members realized that there should be discriminate role within the FRC. They reviewed their current roles and responsibilities, subcommittees' roles and responsibilities, farmers' roles and responsibilities, and identified their position-based responsibilities. They have started to make their constitution and agreed on different roles and responsibilities of different member within the committee. Then, they started to take their responsibilities and act on them according to their positions. An initial level management procedure within the group was formulated by the FRCs of both sites. Under this, they feel that coordination of the monitoring of the program activities is necessary, therefore they kept the monitoring activities under their responsibility and planned to organize at least four field monitoring activities during one season:

- First monitoring before maize planting – purpose is to select field and farmers for different activities and orient them;
- Second monitoring after maize planting – purpose is to verify whether field activities are going on as per planning;
- Third monitoring during tasseling stage of maize – purpose is to advise farmers on detasseling and rouging on maize field;
- Fourth monitoring during maturity stage of maize – purpose is to organize participatory monitoring program in the maize field. At this monitoring, different stakeholders will be invited.

For the purpose of capacity building of the group members, LI-BIRD advises them to submit the report of their work to LI-BIRD. In this report, they provided the progress made so far by the FRCs on the activities implemented by them. The field-base staff of LI-BIRD are responsible for facilitating farmers to cope with changing roles and responsibilities.

Meetings: FRC, with the involvement of LI-BIRD staff, conducted numerous meetings at different times in different events.

Sharing meeting: Sharing meetings were organized on August 5 and 6, 2004 at Darbar and Simichaur, respectively, with the FRCs and other subcommittees. The project team informed about the support provided by the PRGA Program and its activities, which were mainly focused on capacity building of the group. The project team also explained project activities and the role of the groups for implementation of the project.

Participatory planning meetings: A Participatory Program Planning meeting was organized by farmers' groups of Darbar Devisthan and Simichaur independently in each year. These meetings were held in the project sites with the participation of representatives from LI-BIRD and FRC members, SPG members, as well as farmers of that area. The meetings were organized for the purpose of planning of crop improvement activities, seed production, PVS and IRD activities, and training and other capacity building related at Darbar Devisthan and Simichaur. FRC members and other farmers

were involved in planning of the activities to be conducted by themselves at field level and LI-BIRD staff from site office Gulmi attended these meetings for the facilitation of the farmers' meeting and activities they have made. In the meeting, women and *Dalits* also participated in all the sites. So the FRCs of Darbar Devasthan and Simichaur sites have developed their annual plans by themselves, which were to be implemented in 2004/05, 2005/06 and 2006/07 fiscal years. LI-BIRD facilitated on the preparation process of the annual plan at each site. At the time of planning, the FRCs also planned the activities based on the activities envisioned in the project. After planning the activities, they forwarded the plans to LI-BIRD for their consideration and approval.

Wide-ranging meeting: After the planning meeting of FRCs, they jointly organized meeting including the representatives of different CBOs, clubs and other groups existing in their village. The meetings succeed in giving information about their work, as well as enabling discussion and exploring of future possibilities with little support from LI-BIRD. The mass meeting was organized on April 7, 2004 at Darbar and on April 10, 2004 at Simichaur.

Farmers and seed entrepreneurs sharing meeting: CIMMYT-SARO and SGP implementation partners, including LI-BIRD, jointly organized a sharing meeting at DADO Palpa on September 25, 2005. In this meeting, CIMMYT scientist, representative farmers, site-based staff and seed entrepreneurs from Palpa, Pokhara and Syanjya participated. Two farmers from each FRC of Darbar and Simichaur participated in the farmers' seed entrepreneurs sharing meeting at Palpa. This was effective for sharing experiences among producers and entrepreneurs, and will help for seed marketing in future. The main objective of the meeting was to share the experiences of farmers and seed entrepreneurs.

Preparation of Group constitution: Before the project, neither group had its group constitution, so the Group felt that for the institutional strengthening the group constitution is essential. Each FRC, i.e. Darbar and Simichaur, has prepared its own group constitution to implement group activities in their working areas effectively and for the sustainability of the group. Before finalizing the constitution and before registration in DADO office, they circulated the draft constitution among the committed members and LI-BIRD field staff for review and for comments and feedback. During the preparation of group constitution, LI-BIRD played a facilitation role. Feedback was duly incorporated and the constitution finalized. It was then shared among the group members for agreement from them.

Renaming of farmers' groups: The then FRCs of Darbar and Simichaur VDCs have changed their names to *Resunga Multipurpose Innovative Farmers Group* (RMIFG) and *Malika Multipurpose Farmers Group* (MMFG), respectively. Both RMIFG and MMFG have been registered in District Agriculture Development Office Gulmi.

Source seed collection, packaging and distribution: As per the planning, LI-BIRD facilitates farmers' groups in collecting seed of promising released and pre-released varieties for distribution to farmers through their groups. We purchased foundation seed from NMRP and Pakhribas for the farmers' groups for CBSP activities. Similarly, truthfully labeled seed

produced by the farmers' groups of Darbar and Simichaur were used for PVS and IRD activities. Before distributing the seeds to farmers groups, seeds of promising released and pre-released varieties was packed in poly bags (labeled with information on variety).

Formation of seed quality monitoring and evaluation committee: Every year, farmers of both sites formed a two- to three-member committee for to monitor and evaluate seed quality. Full responsibility of monitoring the quality of seed in farmers' fields was given to this committee by the group. The committee members organized the monitoring program at various times as necessary.

On-farm trails: Farmers' groups of both sites are involved in on-farm trial management of maize. Under the on-farm trial they conducted the Mother and Baby Trials, Quality Protein Maize (QPM) trials, and distributed PVS and IRD sets in collaboration with local farmers' and women's groups. The varieties included in trials and IRD were Rampur Composite, Resunga Composite, Manakamana-3 and ZM-621.

The mother trials were jointly designed by researchers and farmers under farmers' management conditions. The objective of Mother Trial is to generate simple data for comparing varieties. Seeding date, inputs used and other management practices were followed by each collaborating farmer. Farmers' groups conducted preference ranking in each mother trial separately. They ranked all the varieties to identify farmers' preferred varieties.

In baby trials, individual farmers had freedom to grow the PVS variety along with their local maize side by side. Single test entry (Design I) was adopted (one variety per farmer) in baby trial and farmers compared the test variety with their own local landrace and/or adopted improved variety in many cases. The QPM trial was conducted by the farmers to see the suitability and farmers' preferences on QPM varieties. The sets of QPM trial were provided by CIMMYT.

Generation advancement of farmer-bred populations: Both FRCs are also involving in the generation advancement of farmer-bred populations, which includes cross-generation advancement, including head-to-row in Resunga Composite. Besides Resunga Composite, other populations are Rampur Composite/Thulo pinyalo and POP-22/Thulo pinyalo at Darbar and Thulo pinyalo/Ganesh-1 at Simichaur.

Table 7: Summary of crossing and improvement

Crossing and improvement	Year								
	1999	2000	2001	2002	2003	2004	2005	2006	
1 Thulo Pinyalo × Ganesh-1	Crossing	F1	F2	F3	F4	F5	F6	F7	
2 Ganesh-1 × Thulo Pinyalo	Crossing	F1	F2	F3	F4	F5	dropped		
3 Rampur Composite × Ganesh –1	Crossing	F1	F2	dropped					
4 Thulo Pinyalo × Khumal Yellow	Crossing	F1	F2	dropped					
5 Pop-22 × Thulo Pinyalo	Crossing	F1	F2	F3	F4	F5	F6	F7	
6 Rampur Composite × Thulo Pinyalo		Crossing	F1	F2	F3	F4	F5	F6	
7 Improvement of Resunga Composite	F1 seed obtained from NMRP	F2	F3	F4	F5	F6	F7	F8	

Participatory monitoring and evaluation of on-farm activities: FRCs annually organized joint field monitoring program during crop maturity stages. FRCs of Darbar, Simichaur and LI-BIRD jointly organized a 2-day monitoring program on August 16–17, 2004, August 30–31, 2005 and August 14–15, 2006 to evaluate the activities and suggest future improvements. The representatives from HMRP/CIMMYT-Nepal, NMRP/Rampur, DADO/Gulmi and Palpa, researchers from LI-BIRD, members of FRCs, SPGs, SMMC, Agrovet personnel and farmers participated in the monitoring program. The farmers, extensionists and researchers jointly observed, discussed and evaluated the seed-production activities, Mother trial, QPM trial, PVS and other field activities in both sites. Comments and suggestions obtained from field visit and discussions were taken as feedback for further improvement of the program.

Documentation of intellectual property right of Resunga Composite and other PPB-bred materials

With the successful breeding of Resunga Composite and its high potential of being commercialized, FRC raised concern over its commercialization by other seed-producer groups. Simultaneously, FRC desired to commercialize the varieties developed by farmer-led breeding program. However, under the Nepalese informal seed supply system, FRCs are not able to protect and commercialize their varieties. In this context, FRCs are in need of facilitation on IPR of PPB-bred varieties and equitable benefit sharing. So, the project documented the history and works of both farmers' groups, focusing on the Resunga Composite maize variety and raised

awareness on IPR and equitable sharing of benefits acquired from IPR among the farmers. The legitimacy of farming community's rights on agriculture-related aspects have become increasingly apparent in recent years. They also have major implications for national policies on sharing of benefits derived from the agriculture and its end-products. Guaranteeing the right of farmers to save and re-use seed is crucial in these connections. In this context, the project implemented following activities.

Video documentation: The FRC of Darbar Devasthan showed their interest in video documentation of farmer-developed variety Resunga Composite, as well as of their group activities. In their interest, LI-BIRD has facilitating farmers' groups in preparing one documentary of these groups in 2005. Altogether, two video documentaries were prepared—one is related to group history and their work, and the other is related to IPR issues and farmers' rights. The first captures all the initiatives of the community of Darbar Devasthan and Simichaur VDCs in improving maize crop, selecting varieties, seed production and marketing in Gulmi district, and the second the IPR issues on the farmer-bred PPB varieties Resunga Composite and farmers' rights. LI-BIRD and farmers' groups jointly prepared the script for video documentation. This will be a very good dissemination material and also helps to motivate farmers' groups from other areas as well.

Village-level workshop: A 1-day village-level workshop on IPR issues and equitable sharing of benefits acquired from IPR was organized on December 21, 2006, with the objective of raising awareness about IPR issues and equitable sharing of benefits among the farmers of the project areas. Both male and female farmers participated equally in the workshop. During the workshop, two sessions were organized: one focusing on the IPR issues and another one on equitable sharing of benefits acquired from IPR. Farmers were interested in the subject matter and raised several questions for further clarification. In addition to this, FGDs on IPR issues and farmers' rights were carried out in both site groups. The objective of the FGDs were to raise awareness among the farming community about the IPR issues, farmers' rights and equitable benefit sharing. During the time of FGD, the farmers were grouped by category for discussion purposes. The categories and criteria were as follows:

- Category I: Farmers directly involved in PPB (Selection of lines/crosses, managing PPB lines and crosses, growing lines on own land, taking lead in the process)
- Category II: Farmers having knowledge and partially involved in PPB (such as providing land, involved in selection process but not involved in management of crosses and lines and not leading the process)
- Category III: Farmers not involved in PPB process, but have been involving in PVS or Mother trials, may not know about PPB.

National workshop on IPR: Two participants (Hira Bahadur Khatri and Manju Khatri) from Darbar and two participants (Hari Prasad Pandey and Bhojindra Bahadur Pandey) from Simichaur participated in a national workshop on Biodiversity and Farmers' Rights: Access, Benefit Sharing and Prior Informed Consent, jointly organized by LI-BIRD, Pro-Public, GRPI Nepal and SAWTEE, August 14–15, 2006, at Pokhara. The objectives of the workshop were to

share the various policy provisions at national and international level on plant genetic resources with the farmers (e.g. ITPGRFA, CBD, TRIPS); and the draft the PVP and ABS policies of Nepal. The workshop also shared the various research experiences of and issues raised by LI-BIRD, GRPI-Nepal and Pro-Public to establish farmers' rights at the community level.

Flyer on Resunga Composite: Farmers' groups, with the support from LI-BIRD, have prepared a flyer on Resunga Composite, to provide information about Resunga Composite to other areas, farmers and stakeholders, as well as wider masses. It includes a brief history about the variety, production potential and farmers' responses to it. The leaflet has been distributed to the district-level stakeholders. Information on other PPB-bred varieties have been documented, but not published yet.

Briefing Paper: One briefing paper was published during the project period. The briefing paper is related to PPB and farmers' rights. The paper focuses mainly on the farmer-led PPB-bred new maize variety Resunga Composite. It also covers the IPR issues on this material. This briefing paper was widely circulated among the different stakeholders.

OTHERS

Preference ranking of maize varieties: A Chinese team from China Academy of Sciences visited the FRC of Darbar and Simichaur VDC in November 2005, under an inter-institutional technical exchange scheme. During the visit, farmers of the area conducted post-harvest preference ranking of maize varieties. Separate groups of five male and female farmers were made and provided ten maize grains to each participant to put in the five displayed varieties (name not disclosed) for overall ranking. Similarly, seven Chinese scientists also ranked these maize varieties in the same way. After ranking, each person was asked about their criteria for ranking. The rank was then converted into percentage scores for each variety. There was constantly the same preference among all the groups: they all preferred Resunga Composite, followed by Manakamana-3 and cross-population of Rampur Composite/Thulopinyalo. The criteria for ranking were yield potential, attractive and bold grain.

Table 8: Overall ranking of maize varieties in 2005

Variety	Preference ranking in percentage		
	Male	Female	Chinese team
Resunga composite	40	37.9	42.2
RC/TP	4	13.8	12.7
Manakamana-3	34	24.2	29.6
POP-22/TP	16	15.5	14
Local (Thulopinyalo)	6	8.6	1.5

Note: RC/TP=Rampur composite/Thulopinyalo; POP-22/Thulopinyalo.

Network analysis: Institutions are usually defined as the rules and enforcement mechanisms that together govern human interaction in a more or less predictable manner. Institutions can be defined as organizations or sets of conventions, policies or legislation that regularize social behavior. Institutions operate at all levels from the household to the international arena, and in all spheres from the most private to the most public. In this respect, the challenge of development policy is 'getting the institutions right.' Since the beginning of the 1990s, there has been a noticeable increase in development policy debates and activities with a focus on topics such as 'institutional development' (ID), 'capacity building' (CB), and 'governance.' In this area, conferences, publications and the formulation of principles of development cooperation, but also financing schemes and new approaches to project work abound.

Institutional analysis at pre-project and planning stage is important for identifying key partners, networks and information flows, and to decide on the appropriate institutional setting for the proposed activity of the project. Analysis at this stage will also provide a baseline, which can be used to monitor, review, make changes and evaluate change throughout the project's life. So, under this activity, we have also carried out institutional analysis of the group by using network analysis. At the initial stage of the project, network analysis was carried out to find what changes have been made regarding the networking and coordination of these groups (Appendix 20). From the analysis we have found that the capacity of the group has been strengthened.

EFFECTIVENESS OF CAPACITY BUILDING PROGRAM

Increased collaboration with different organizations: For strengthening linkages with district-level line agencies, the FRCs of both sites have formally visited DADO office, DDC and other line agencies and briefed them about their activities. During each visit, they also requested for possible support, which they can provide in future for long-run sustainability of the groups. Farmers' groups' collaboration among different government line agencies such as District Agriculture Development Office (DADO), NARC, District Livestock Service Office (DLSO), District Soil Conservation Office (DSCO), District Irrigation Office (DIO), and District Development Committee (DDC) and private agrovets has been initiated. Recently, DSCO Gulmi has supported farmers' group by giving the hedgerow technology to improve soil fertility through terrace improvement in Darbar Devasthan VDC, and DIO has approved their small irrigation proposal for Darbar site. They are now requesting DLSO, DDC Gulmi to support them in a livestock program. Both of these groups have been registered in DADO Gulmi and are taking technical support and services.

The FRCs have good collaboration with NARC. The collaboration with National Maize Research Programme and Regional Research Centers (Lumle and Pakhribas) located in hill sites was facilitated by LI-BIRD. The seed of Resunga Composite has been provided to them to test under Coordinated Varietal Trial (CVT). In comparison to the year 2003, the collaboration of both groups with other organizations around the area or outside the area has been increased and strengthened.

Resource generation and group fundraising: Both farmers' groups are raising funds through maize seed production and marketing activities. Before the group starting, the individual farmers

of the CBSP program were involved in maize production and they are selling maize at the price of grain and grain at cheaper price. Yet seed production has become profitable activity to the farmers and seed-producer groups involved in the maize seed production program. Every year, farmers groups collected the maize seed of farmers' preferred varieties (Manakamana-3, Rampur Composite, Resunga Composite and ZM 621) from farmers at the time of maize harvesting and stored for marketing in the next season. The collected seed was sold through different outlets (DADO, Agrovets, LI-BIRD and farmers). The joint meeting of SPG and SMMC collected the maize seed and fixed the purchasing prices and selling price. Generally they purchased the maize seed at 17.00–18.00 NRs/kg and sold at 22.00–23.00 NRs/kg after 3 months of storage. But from the year 2005, they have started collecting maize seed at Rs. 20/kg and fixed selling price Rs 24/kg. The fund derived from the marketing of seed was kept in the group and mobilized for the next year's activities. The seed production activity has opened an opportunity for raising the group funds. The groups are planning and moving towards the long-term production of maize seed in the area and they are expanding this seed business from year to year. They have started to collect demand from DADOs of Gulmi, Palpa, and LI-BIRD, DADO Arghakhanchi and other local private agro-vets for seed. This kind of support has contributed to the sustainability of the activities and communities are self-motivated for further resource generation and have increased their income and revolving fund.

Farmers' groups of both sites are trying their best to raise their group fund as well as strengthening physical resources. In 2005, Malika Multipurpose Sirjanshil Farmers Group of Simichaur successfully tapped DISSPRO fund of Rs. 60,000 from DADO Gulmi. DADO granted this fund for them to produce and supply maize seed in the district. So, the farmers' group of Simichaur village was able to link CBSP with the DISSPRO program of DADO. Beside these activities, both farmers' groups have operationalized monthly group savings from their members. Now, Darbar and Simichaur groups have rupees Rs 85,000 and Rs 118,700 (including DISSPRO fund) in their group funds, respectively.

Received innovative farmer group and farmer award: From 2004, LI-BIRD initiated and established an award program for innovative farmer group and individual farmer. The award is established to recognize or encourage individual farmers, farmers' groups or cooperatives which have continuously engaged in research and development of new innovations with their own enthusiasm and resource management, and/or made concerted efforts in helping others in making productive use of these innovations. The main objective of the award is to promote local knowledge, initiatives and innovations. The award amounts to Rs 10,000.00 and a Certificate of Honour. Similarly, from 2005 LI-BIRD has initiated and established another award program for innovative female farmer. The award was established to recognize or encourage individual farmers, particularly women farmers, who are continuously engaged in research and development of new innovations. The award is Rs 5000.00 and a Certificate of Honour. Both the awards are distributed once in a year during 'LI-BIRD Day.'

In 2004, the innovative farmer group award was awarded to the FRC of Darbar Devasthan for their outstanding performance among LI-BIRD's 46 partner CBOs. Similarly, in 2005, innovative female farmer award was awarded to Mrs Lal Kumari Basnet, member of MMFG of Simichaur VDC for her innovative works. This shows that capacities of farmers in the areas are strengthening and they are able to recognize their works.

Mobilization of local farmers' and women's groups: The FRC of Darbar Devisthan VDC has included and mobilized many small farmers' and women's groups existing in and around the project villages in the program since 2004. Similarly, the FRC of Simichaur VDC has included and mobilized many small farmers' and women's groups existing in the project villages in the program since 2005. The FRCs organize a meeting every year to orient new groups about PVS and IRD and monitoring of activities through these approaches. The FRCs provides seed for distribution to farmers through these groups. These groups also conduct mother trials for demonstration in each village, with support from the FRC and LI-BIRD. The FRCs also monitor the PVS work done by these groups and collect feedback as well.

Table 9: Name of new farmers' and women's groups included and mobilized by FRC, Gulmi, 2004

SN	Name of group	Location	President
1	Machhapuchre Mahila Jagriti Tatha Ayaarjan Karyakram	Darbar Devisthan VDC-1, Deurali	Mrs Kalpana Aryal
2	Kalika Samuha	Darbar Devisthan VDC-8, Belpokhara	Mr Git Bahadur Kunwar
3	Shiva Shakti Samuha	Darbar Devisthan VDC-6, Gortepokhara	Mr Lal Bahadur Thapa
4	Shishu Kalyan Samuha	Darbar Devisthan VDC-4, Bhalayachaur	Mr Bir Bahadur Khatri
5	Shime Bhume Samuha	Gaudakot VDC-7, Gaudakot	Mr Top Bahadur Thapa
6	Shiddha Baba Samuha	Dubichaur VDC-9, Urlen	Mr Khim Bahadur Basnet
7	Ishowri Samuha	Darbar Devisthan VDC-7	Mr Dol Nath Kandel
8	Malika Samuha	Darbar Devisthan VDC-9	Mr Thaneshwor Gyawali
9	Mahila Jagriti Samuha	Darbar Devisthan VDC-2, Thulachaur	Mrs Hira Panthi
10	Kalika Farmers Group	Simichaur VDC- 9	
11	Dalit Farmers Group	Simichaur VDC-4	
12	Janajati Farmers Group	Simichaur VDC-8,9	
13	Manab Ghumti Group	Simichaur -6	

In addition, other groups—like home garden management group, seed production group, seed marketing group—also work under the FRC of Darbar Devisthan. These groups are subgroups of FRCs. The overall management of the organization was done by the 11-member committee named as main committee.

Inclusion of poor and disadvantage communities: Farmers' groups (former FRCs) of Darbar Devisthan and Simichaur VDCs have identified poor and disadvantage communities in their respective villages and included them in program activities. A separate *Dalit* women farmers subcommittee was formed by the FRC of Darbar Devisthan and identified the role and

responsibilities to the group. The subcommittee has seven members, and its major responsibility is to assure the activities within the *Dalit* groups and monitor the program activities in this group. There are altogether 100 households of *Dalit* families. As the male members of the *Dalit* group are involved in outside activities, i.e. wage labor, the subcommittee has only female members. The subcommittees report the activities to the FRC through a responsible person. The FRC has already facilitated the group on how to conduct meetings and about the importance of meeting.

Increased group and social cohesiveness: The community-based seed production initiative has motivated farmers to work in groups. From the capacity-building activities, the communities are socially much empowered. The communities have started working together and have developed strong social cohesiveness through FRC and CBSP. The inclusion of lower-caste families in the CBSP, PPB, PVS and IRD activities and FRCs is a noticeable social change to enhance social cohesiveness, without which the leadership of farmers' maize improvement, seed production activities and other group activities would not have been successful. All the community members agree to working through group approach.

Box 1 : Upper and lower caste sat together

At the initial stage of the project, there was discrimination between the castes, mainly upper caste (Brahmin/chhetri) and lower caste (KDS), in both the areas. At that time, they would not touch each other and would be seated separately in the meeting period, as well as at the time of eating (including tea and biscuits). After taking tea, the lower caste must wash the glass in which they have taken tea and put it in a sunny place to dry. But after including them in to the different group activities and receiving the training on social mobilization and group dynamics, both caste groups' awareness were raised and empowered. Now they are sit together and touch each other and take tea in the same place during the meeting period. This is good example of social cohesiveness.

Information dissemination for publicity: (See also Increased collaboration with different organizations above.) During the time of seed marketing the FRCs broadcast information on seed through the local FM radio station from Palpa. They also made plan for advertisement of this material through local newspapers.

Community empowerment: The implementation of the capacity-building project in Gulmi has empowered farming communities and increased self-confidence in the area. The farmers of the area were already trained in technical aspects of maize seed selection and seed production before implementing this project, but during this project farming communities were also trained on social aspects of different activities and organization development. Technically, the farmers have developed skill and self confidence in seed selection, varietal testing (PVS) and dissemination (CBSP). Training on social mobilization, group dynamics, group management, account-keeping and resource-mobilization have developed the confidence level of farming communities for implementing group activities and making the group work sustainable. After the project, the

communities were empowered and excited about further expansion of group activities. From the project activities, both male and female farmers of the community were empowered. From 2005, Simichaur group hired a part-time staff member (one person, from the same group) to oversee and run all the group activities. Although they pay only small amount of money to the hired person, it is good example of community empowerment and understanding of the importance of organizational development. Likewise, from 2005 and 2006, the groups of Darbar and Simichaur, respectively, started to celebrate the anniversary of the program in their group. During the time of the annual function, they also organized the general assembly and distributed prizes to the group member who are able to perform innovative works in different sectors (like breeding program, seed production, taking group leadership, play active role for group management). Now the group of Simichaur VDC is planning to establish an agriculture inputs shop for their group.

Increase in participation: The project is able to empower the farming community so that the result of this empowerment and awareness the level of participation is increasing in both areas. Today, female participation is increasing. Both types of participation (physical and decision-making level) are increasing. Females were given more interest to the group activities. The fact that the number of female participants was more than the males in training and other activities is one example of increased participation of female farmers. Before this project, most of the female farmers could not speak their name in front of a group or outsiders, but now they easily speak their name and besides this they also can explain about their group and its activities. Similarly, due to the increased in awareness about the importance of participatory work and organizational development among the farming community, there is change in attitude, which is helpful to increase participation of females in the group.

Box 2 : Change in perception

Mr Prem Raj Marasini, age 65 of Simichaur VDC was involved in the FRCs of Simichaur from the initial stage of the group formation. He was involved in all the group activities from seed production to mother-and-baby trial management. He is one of the active members in the group. But before the capacity-building projects, he did not allow female members of his household to attend meetings and other group activities, like training and exposure visits. After the project, his perception regarding women's participation in the group has been changed and now he has participated with his son-in-law in the meeting.

Change in organizational structure: In the initial phase of this project, there are two groups in Darbar VDC—maize farmer research committee and home garden research farmer committee. The activities and committees of these groups were different, but both groups' work was run through the same office, so they made one main group and other subgroups for the sustainability of the group and efficiency. The main group cares for all the management activities and the subgroups are related to individual work or activities (like home garden group, maize production group, maize marketing group, livestock group); those subgroups were included in their previous structure (Appendix 18).

Raised community awareness on IPR issues and farmers' rights: The FRCs have been made aware of IPR issues in general and crop varieties in particular. The committees are aware of the contribution of different stakeholders in this maize breeding program. As a result of increased awareness on IPR and farmers' rights, the FRCs gave seed of Resunga Composite to the District Agriculture Development Office (DADO) of Gulmi and Palpa (the government agency at district level) with formal written communication of sharing of seed between two parties. The FRCs agreed to share the farmer-bred population with the DADOs, while the DADOs agreed to share the performance of PPB-bred varieties. The FRC now invites concerned stakeholders into monitoring programs of maize. FRCs have included Resunga Composite in seed-production programs and are willing to scale it up through their own seed production groups. There is clear indication that FRCs are aware of the farmers' property rights. Resunga Composite is near to varietal release stage; and therefore the mechanism of sharing benefits from this variety and the IPR issues are going to be developed by the community soon.

Increased production and productivity of maize: According to farmers, PVS and CBSP have increased the availability of improved maize seeds in the area that resulted in increased production and productivity in maize. The maize production has been increased by 12–25% in the PVS area. Farmers used to harvest 2 quintals of maize if they planted local maize in a *ropani* area. Now they are harvesting 225–250 kg maize from PVS varieties. Improved maize has now been disseminated widely through PVS and IRD activities in *manu* VDCs of Gulmi and Palpa, through farmer-to-farmers seed exchange, and seed sold and distribution through agrovets and DADO in the district. Besides, by growing these maize varieties, farmers feel more secure about the prospect of harvesting maize, because their local maize is more prone to lodging.

Box 3: Seed production a profitable activity

Mr Prem Raj Marasini, age 65 of Simichaur VDC, was involved in seed production of Deuti variety of maize. He sold 150 kg seed to FRC at Rs 19/kg and was able to received Rs 2850. He explained that if he sold that amount of maize for grain purpose it would cost only about Rs. 1500. So he was paid double the grain price for maize seed and feels that, compared to grain production, seed production is a more profitable activity. He said that from seed production anyone could earn more benefit whether they are producing much or little. He is willing to continue producing maize seed in coming years.

Source of cash income and support to livelihood: On one hand, production has been increased and, on the other, farmers are benefited economically by selling seed at premium price (Box 3). They are selling seed at Rs 22–24/kg, whereas the market price of maize grain in the area is Rs 12/kg. So, the seed-producer farmers got net Rs 7/kg cash benefit from improved variety. Furthermore, there is yield advantage from PPB-bred varieties and other improved varieties due to reduced lodging. In Darbar, 15 farmers sold 1.5 tonnes of seed to their group, whereas there are more farmers (28) selling 2.7 tonnes of seed in the groups. In 2006, farmers of Darbar and Simichaur sold seed equivalent to Rs 94,000 to their groups. This is the additional income for most of the farmers from maize production. In the past, they used to consume all the maize produced at household level. The seed production activity has opened an opportunity to the farming community for income generation.

Wider testing of Resunga Composite in the region: The FRCs of both sites are involved in the wider testing of Resunga Composite in collaboration with the District Agriculture Development Offices (DADOs) and facilitation of LI-BIRD to test this farmers' developed variety, to see its adaptability as well as to popularize it in this region. LI-BIRD has provided 30 kg seed for testing to each DADO of four districts—Gulmi, Palpa, Syangya and Kaski. LI-BIRD officially provided seed along with the information and feedback form to be returned after crop harvest.

LESSONS LEARNED

- Farmers can take the lead even in the research if they are given exposure and provided basic technical backstopping and training on both social and technical aspects as and when needed.
- Although only a limited amount of seed of PPB-bred varieties and planting materials has been provided to resource-poor farmers free of cost, it has been suggested that more support is needed to involve them in the process.
- Creating networks among farmers' group and other stakeholders from the beginning of the project (empowerment) helps ensure the sustainability of the program.
- Working through a group is more effective in achieving the output of the project.
- Practical training and exposure visits at strategic place will have effective impact in group capacity building.
- Self assessment of the group mid-project would help to identify further gaps, and help and guide both researchers and farmers for further improvements.
- Handing over the leadership role to the community to make the program more effective and successful (conflict situation and resource-poor condition).
- Recognition for community initiatives will encourage the groups for more effective outputs.
- Voluntary participation is useful for sustainability and effectiveness of the program.

CONCLUSION

As the groups are involved in crop research activities, there are certain uncertainties for the success of the project. The climatic conditions may hamper the project activities. The group capacity is strengthening. Before the implementation of the capacity-building project, the group did not have any written rules and regulations for groups and subgroups, but they now have their own constitution with all the rules and regulations in it. Each and every member of the group has realized their roles in their group for the successful implementation of group activities and also started to carry out their proper role in their groups. FRC has built up their capacity for problem identification, program planning, monitoring and evaluation of activities independently. The group has been working through participatory approaches. The participation of women and lower-caste member in the group and groups' activities has been increased. The FRCs formed in the initial stage of the project became a main committee and under this committee there are many subcommittees (e.g. home garden, seed production, seed marketing). Now, the FRCs have changed their names to Resunga Multipurpose Innovative Farmers Group at Darbar and Malika Multipurpose Farmers Group at Simichaur. The number of group members has also increased. In

Darbar, there are 150 members in total (80 male and 70 female) and in Simichaur there are 105 members (46 male and 49 female).

Farmers' groups are being empowered and their collaboration among different district line agencies (DADO, DLSO, DSCO, DIO, DDC, Agrovets, etc.) initiated to take services. They have developed their capacity to tap resources from various sources available in the districts as well as at national level. Farmers' groups perceived seed production as an income-generating activity and they have planned to develop Darbar Devasthan and Simichaur as maize seed production pocket areas for the region. SMMC started seed business through different networks (e.g. DADOs of Gulmi district and other neighbouring districts, local agro-vets, NGOs and farmers of the region). FRCs now have their own revolving funds for research, seed production and marketing activities. Their own revolving funds have been utilized for seed collection. SMMC has established a formal communication system with DADOs, local private agro-vets and other institutions like NGOs, for demand collection and sale of seed. Hill Maize Research Project (HMRP/CIMMYT, Nepal) has supported seed production and marketing activities of the varieties identified through PVS, and Resunga Composite at community level. During the project period, a number of other supporting organizations of farmers, such as Seed Producers Groups (SPGS), Seed Management and Marketing Committee (SMMC), women' subcommittee, have also evolved.

Community participation is appreciative. The FRCs are now capable of mobilizing their communities for research activities. Farmers' groups of Darbar and Simichaur are taking the lead role in all the group activities related to seed production, with focus on producing seeds of farmers' preferred varieties (Manakamana-3, Resunga Composite, Deuti and Rampur Composite) in Darbar and Simichaur VDCs. They have produced more than 8 tonnes of seed and also have collected 4.2 tonnes seed in their groups. Now they are also involved in scaling-up of farmers' preferred varieties through PVS and IRD, and priority has been given to poor farmers to involve them in the PVS and IRD activities. In total, 489 households participated in PVS and IRD—that helped greatly in disseminating improved maize in Gulmi. In case of poor farmers, FRCs purchase more seed of whatever they have and give cash to them, but in case of other farmers, FRC gave money *after* marketing the seed. The FRCs purchase seed for different amounts, considering the status of farmers. The FRC of Simichaur also hired a part-time staff member to support group activities. Farmers of both areas strongly emphasized that there is need for recognizing the farmers' contribution, granting rights to use and sharing the benefits with the farmers when a new variety is developed with little contribution from the breeders and scientists.

The program focused on empowering and strengthening institutional capacity of the FRCs in promoting farmer-led participatory maize breeding in Gulmi districts through capacity building. The FRC's still face challenges in organizational development and sustainability (creation of effective long-term partnerships among local organizations, government agencies, research institutions and other stakeholders, resource generation, etc. for long-term group activities). In this scenario, the group of Simichaur is planning to conduct agro-vet business through the group.¹

¹ Agro-vet business is the retail trade of agricultural inputs, and is usually conducted by (private sector) individuals.

REFERENCES

- Ann P, 1996. *Capacity building in social justice organization*. Ford Foundation.
- Shrestha PK; Subedi M; Poudel D; Sunwar S, 1999. Users and gender perspective of maize production at Darbar Devistan and Simichaur research sites in Gulmi district of western hills of Nepal. Baseline report on Farmer-led Participatory Plant Breeding in Middle Hills of Nepal.
- UNDP, 1997. Capacity development. *Technical Advisory Paper 2*. New York: United Nations Development Programme – Management Development and Governance Division, and Bureau for Policy Development.

ANNEXES

Annex 1. List of farmers involved in Farmers Research Committee (FRC) from each site, Gulmi

A. Darbar site

S.N	Name	Designation
1	Mr. Chetman Singh Khatri	Chairperson
2	Mr. Yuba Raj Chudali	Vice-Chairperson
3	Mr. Hari Prasad Aryal	Secretary
4	Mr. Chabilal Aryal	Member
5	Mr. Dil Bahadur Khanal	Member
6	Mr. Hira Bahadur Khatri	Member
7	Mrs. Gita Aryal	Member
8	Mrs. Jamuna Chudali	Member
9	Mrs. Jhabindra Aryal	Member
10	Mrs. Sita Gyawali	Member
11	Mrs. Manikala Gyawali	Member

B. Simichaur site

S.N	Name	Designation
1	Mr. Hari Prasad Pandey	Chairperson
2	Mr. Prem Raj Marasini	Vice-Chairperson
3	Mr. Giri Prasad Aryal	Secretary
4	Mr. Jaya Prasad Aryal	Member
5	Mr. Thakur Prasad Aryal	Member
6	Mr. Chhabilal Pandey	Member
7	Mr. Rishi Ram Pandey	Member
8	Mrs. Lal Kumari Basnet	Member
9	Mrs. Namkala Balal	Member
10	Mrs. Bimala Kunwar	Member
11	Mrs. Asha Basnet	Member

Annex 2. Lists of farmers involved in Seed Management and Marketing Committee (SMMC) from both the sites, Gulmi

S.N	Name	Designation	Representative site
1	Mr. Hari Prasad Pandey	Coordinator	Simichaur, Gulmi
2	Mr. Hari Prasad Aryal	Secretary	Darbar, Gulmi
3	Mr. Rishi Ram Panthi	Member	Darbar, Gulmi
4	Mr. Chetman Singh Khatri	Member	Darbar, Gulmi
5	Mr. Krishna Prasad Aryal	Member	Simichaur, Gulmi
6	Mr. Ram Prasad Pandey	Member	Simichaur, Gulmi
7	Mrs. Nirmala Pandey	Member	Simichaur, Gulmi

Annex 3. Community-based seed production details of Simichaur VDC in 2004 season

SN	Name of Farmer	Name & location†	Gen-der	Area (Rop)	Variety	Source of Foundation seed
1	Mr. Ram Chandra Aryal	Raiya	M	8	Rampur Composite	NMRP
2	Mrs. Ambika Aryal	Raiya	F	10	Rampur Composite	NMRP
3	Mrs. Govindi Panthi	Raiya	F	8	Rampur Composite	NMRP
4	Mr. Hom Nath Aryal	Raiya	M	12	Rampur Composite	NMRP
5	Mr. Krishna Aryal	Raiya	M	5	Rampur Composite	NMRP
6	Mr. Babu Ram Aryal	Raiya	M	8	Rampur Composite	NMRP
7	Mrs. Gita Aryal	Raiya	F	6	Rampur Composite	NMRP
8	Mr. Hutaraj Aryal	Raiya	M	4	Rampur Composite	NMRP
9	Mrs. Jamuna Arual	Raiya	F	3	Rampur Composite	NMRP
10	Mr. Him Lal Aryal	Raiya	M	5	Rampur Composite	NMRP
11	Mr. Dandapani Aryal	Raiya	M	6	Rampur Composite	NMRP
12	Mrs Mira Aryal	Raiya	F	3	Rampur Composite	NMRP
13	Mr. Dil Bahadur pandey	Raiya	M	2	Rampur Composite	NMRP
14	Mrs. Mana Kala Aryal	Raiya	F	3	Rampur Composite	NMRP

15	Mrs. Jamuna Kunwar	Raiya	F	4	Rampur Composite	NMRP
16	Mr. Krishna Kunwar	Raiya	M	6	Rampur Composite	NMRP
17	Mrs. Durga Aryal	Raiya	F	4	Rampur Composite	NMRP
18	Mr. Dhaneshowr Pandey	Amdanda	M	5	Resunga Composite	FRC, Darbar
19	Mr. Hari Prasad Pandey	Amdanda	M	5	Resunga Composite	FRC, Darbar
20	Mr. Mitralal Pandey	Amdanda	M	5	Resunga Composite	FRC, Darbar
21	Mr. Lila Mani Pandey	Amdanda	M	5	Resunga Composite	FRC, Darbar
22	Mr. Chandra Mani Pandey	Amdanda	M	5	Resunga Composite	FRC, Darbar
23	Mrs. Nirmala Pandey	Amdanda	F	6	Resunga Composite	FRC, Darbar
24	Mr. Chhabilal Pandey	Amdanda	M	6	Resunga Composite	FRC, Darbar
	Total (Ropani)			124		

† Raiya = SPG, Simichaur-5, Raiya; Amdanda = SPG, Simichaur-4, Amdanda.

Annex 4. Community-based seed production details of Darbar Devasthan VDC in 2004 season

SN	Name of Farmer	Name and location†	Gen-der	Area (Rop)	Variety	Source of seed
1	Mr. Rishi Ram Panthi	Khritip	M	5	Resunga Composite	Foundation seed FRC, Darbar
2	Mr. Chandra Mani Panthi	Khritip	M	3	Resunga Composite	Foundation seed FRC, Darbar
3	Mr. Durga Prasad Panthi	Khritip	M	3	Resunga Composite	Foundation seed FRC, Darbar
4	Mrs. Sabitra Panthi	Khritip	F	3	Resunga Composite	Foundation seed FRC, Darbar
5	Mrs. Dam Kumari Aryal	Khritip	F	2	Resunga Composite	Foundation seed FRC, Darbar
6	Mr. Netra Prasad Aryal	Khritip	M	7	Resunga Composite	Foundation seed FRC, Darbar

7	Mr. Rishi Ram Aryal	Khritip	M	5	Resunga Composite	Foundation seed FRC, Darbar
8	Mr. Tulsi Ram Aryal	Khritip	M	2	Resunga Composite	Foundation seed FRC, Darbar
9	Mrs. Dhana Maya Karki	Khritip	F	4	Resunga Composite	Foundation seed FRC, Darbar
10	Mr. Hira Bahadur Khatri	Khritip	M	3	Resunga Composite	Foundation seed FRC, Darbar
11	Mr. Bhuddi Bahadur Khatri	Khritip	M	2	Resunga Composite	Foundation seed FRC, Darbar
12	Mrs. Shiva kala Khatri	Khritip	F	5	Resunga Composite	Foundation seed FRC, Darbar
13	Mr. Chhabi Lal Aryal	Khritip	M	4	Resunga Composite	Foundation seed FRC, Darbar
14	Mrs. Mangala Devi Khatri	Thulachaur	F	3	Manakamana-3	Certified seed I
15	Mr. Top Bahadur Thapa	Thulachaur	M	5	Manakamana-3	Certified seed I
16	Mr. Git Bahadur Thapa	Thulachaur	M	5	Manakamana-3	Certified seed I
17	Mrs. Hira Panthi	Thulachaur	F	3	Manakamana-3	Certified seed I
18	Mr. Laxman Aryal	Thulachaur	M	3	Manakamana-3	Certified seed I
	Total (Ropani)			67		

† Khritip = SPG, Darbar-5, Khritip; Thulachaur = SPG, Darbar-2 and 3, Thulachaur.

Annex 5. Community-based seed production details of Darbar Devasthan VDC in 2005 season

SN	Name of Farmer	Location	Wealth category	Gender	Area (Rop)	Variety	Seed source
1	Mr. Rishi Ram Panthi	Darbar-2, Thulachaur		M	5	Resunga Composite	Foundation seed FRC, Darbar
2	Mr. Dhurba Pd. Panthi	Darbar-2, Thulachaur	A	M	4	Resunga Composite	Foundation seed FRC, Darbar

3	Mr. Chandra Mani Panthi	Darbar-2, Thulachaur	B	M	3	Resunga Composite	Foundation seed FRC, Darbar
4	Mrs. Sabitra Panthi	Darbar-2, Thulachaur	B	F	3	Resunga Composite	Foundation seed FRC, Darbar
5	Mrs. Sita Aryal	Darbar-2, Thulachaur	B	F	3	Resunga Composite	Foundation seed FRC, Darbar
6	Mrs. Dam Kumari Aryal	Darbar-5, Khritip	B	F	2	Resunga Composite	Foundation seed FRC, Darbar
7	Mr. Netra Prasad Aryal	Darbar-5, Khritip	B	M	2	Resunga Composite	Foundation seed FRC, Darbar
8	Mr. Rishi Ram Aryal	Darbar-5, Khritip	B	M	5	Resunga Composite	Foundation seed FRC, Darbar
9	Mr. Tulsi Ram Aryal	Darbar-5, Khritip	B	M	2	Resunga Composite	Foundation seed FRC, Darbar
10	Mrs. Dhana Maya Karki	Darbar-5, Khritip	B	F	3	Resunga Composite	Foundation seed FRC, Darbar
11	Mr. Hira Bahadur Khatri	Darbar-5, Khritip	A	M	2	Resunga Composite	Foundation seed FRC, Darbar
12	Mrs. Shiva kala Khatri	Darbar-5, Khritip	A	F	6	Resunga Composite	Foundation seed FRC, Darbar
13	Mr. Tika Ram Aryal	Darbar-5, Khritip	B	M	4	Resunga Composite	Foundation seed FRC, Darbar
14	Mrs. Mangala Devi Khatri	Darbar-2 and 3, Thulachaur		F	3	Manakama na-3	Certified seed I
15	Mr. Top Bahadur Thapa	Darbar-2 and 3, Thulachaur	A	M	6	Manakama na-3	Certified seed I
16	Mr. Jit Bahadur Thapa	Darbar-2 and 3, Thulachaur	B	M	6	Manakama na-3	Certified seed I
17	Mrs. Hira Panthi	Darbar-2 and 3, Thulachaur	A	F	3	Manakama na-3	Certified seed I
18	Mrs. Sita Panthi	Darbar-2 and 3, Thulachaur	B	F	2	Manakama na-3	Certified seed I
19	Mr. Laxman Aryal	Darbar-2 and 3, Thulachaur	B	M	3	Manakama na-3	Certified seed I
20	Mr. Ram Chandra Aryal	Darbar-2 and 3, Thulachaur	B	M	3	Manakama na-3	Certified seed I
	Total (Ropani)				62		

Annex 6. Community-based seed production details of Simichaur VDC in 2005 season

SN	Name of Farmer	Address	Gen-der	Wealth category	Area (Rop)	Variety	Source of Foundation seed
1	Mr. Ram Chandra Aryal	Simichaur-5, Raiya	M	A	8	Rampur Composite	NMRP
2	Mr. Agni Prasad Aryal	Simichaur-5, Raiya	M	B	8	Rampur Composite	NMRP
3	Mr. Ghanashyam Aryal	Simichaur-5, Raiya	M	C	4	Rampur Composite	NMRP
4	Mr. Tika Ram Aryal	Simichaur-5, Raiya	M	A	5	Rampur Composite	NMRP
5	Mr. Krishna Bahadur Kunwar	Simichaur-5, Raiya	M	A	5	Rampur Composite	NMRP
6	Mr. Gopal Bahadur Kunwar	Simichaur-5, Raiya	M	B	5	Rampur Composite	NMRP
7	Mr. Ram Lal Aryal	Simichaur-5, Raiya	M	C	3	Rampur Composite	NMRP
8	Mr. Man Bahadur Pandey	Simichaur-5, Raiya	M	C	3	Rampur Composite	NMRP
9	Mr. Dil Bahadur Pandey	Simichaur-5, Raiya	M	B	4.5	Rampur Composite	NMRP
10	Mr. Devi Ram Aryal	Simichaur-5, Raiya	M	C	4	Rampur Composite	NMRP
11	Mrs. Kalpana Aryal	Simichaur-5, Raiya	F	C	4	Rampur Composite	NMRP
12	Mr. Ram Pradsad Aryal	Simichaur-5, Raiya	M	B	5	Rampur Composite	NMRP
13	Mr. Danda pani Aryal	Simichaur-5, Raiya	M	A	5	Rampur Composite	NMRP
14	Mr. Mira Aryal	Simichaur-5, Raiya	M	A	4	Rampur Composite	NMRP
15	Mr. Huta Raj Aryal	Simichaur-5, Raiya	M	B	3	Rampur Composite	NMRP
16	Mrs. Kamala Aryal	Simichaur-5, Raiya	F	B	3	Rampur Composite	NMRP
17	Mr. Govinda Aryal	Simichaur-5, Raiya	M	B	2	Rampur Composite	NMRP
18	Mr. Gurga Datta Aryal	Simichaur-5, Raiya	M	B	3	Rampur Composite	NMRP
19	Mr. Babu Ram Aryal	Simichaur-5, Raiya	M	B	8	Rampur Composite	NMRP
20	Mr. Krishna Prasad Aryal	Simichaur-5, Raiya	M	B	5	Rampur Composite	NMRP
21	Mr. Padam Aryal	Simichaur-5, Raiya	M	B	4	Rampur Composite	NMRP

22	Mr. Dev Bahadur Bhusal	Simichaur-5, Raiya	M	C	2	Rampur Composite	NMRP
23	Mr. Top Lal Panthi	Simichaur-5, Raiya	M	A	8	Rampur Composite	NMRP
24	Mr. Dhaneshowr Pandey	Simichaur-4, Amdanda	M	B	5	Resunga Composite	Darbar
25	Mr. Hari Prasad Pandey	Simichaur-4, Amdanda	M	A	5	Resunga Composite	Darbar
26	Mr. Lila Mani Pandey	Simichaur-4, Amdanda	M	A	5	Resunga Composite	Darbar
27	Mr. Chandra Mani Pandey	Simichaur-4, Amdanda	M	A	5	Resunga Composite	Darbar
28	Mrs. Bina Pandey	Simichaur-4, Amdanda	F	B	5	Resunga Composite	Darbar
29	Mrs. Nirmala Pandey	Simichaur-4, Amdanda	F	B	6	Resunga Composite	Darbar
30	Mr. Chhabilal Pandey	Simichaur-4, Amdanda	M	B	6	Resunga Composite	Darbar
31	Mr. Tomlal Pandey	Simichaur-4, Amdanda	M	B	2	Resunga Composite	Darbar
32	Mr. Biniram Pandey	Simichaur-4, Amdanda	M	C	2	Resunga Composite	Darbar
	Total (Ropani)				145.5		

Annex 7. Community-based seed production details of Darbar Devasthan VDC in 2006 season

SN	Name of Farmer	Address	Wealth category	Gender	Area (Rop)	Variety
1	Mr. Rishi Ram Panthi	Darbar	B	M	5	Resunga Composite
2	Mr. Dhurba Pd. Panthi	Darbar	A	M	4	Resunga Composite
3	Mr. Chandra Mani Panthi	Darbar	B	M	3	Resunga Composite
4	Mrs. Sabitra Panthi	Darbar	B	F	3	Resunga Composite
5	Mrs. Sita Aryal	Darbar	B	F	3	Resunga Composite

6	Mrs. Dam Kumari Aryal	Darbar	B	F	2	Resunga Composite
7	Mr. Netra Prasad Aryal	Darbar	B	M	2	Resunga Composite
8	Mr. Rishi Ram Aryal	Darbar	B	M	5	Resunga Composite
9	Mr. Tulsi Ram Aryal	Darbar	B	M	2	Resunga Composite
10	Mrs. Dhana Maya Karki	Darbar	B	F	3	Resunga Composite
11	Mr. Hira Bahadur Khatri	Darbar	A	M	2	Resunga Composite
12	Mrs. Shiva Kala Khatri	Darbar	A	F	6	Resunga Composite
13	Mr. Tika Ram Aryal	Darbar	B	M	4	Resunga Composite
14	Mrs. Mangala Devi Khatri	Darbar	A	F	3	Manakamana-3
15	Mr. Top Bahadur Thapa	Darbar	A	M	6	Manakamana-3
16	Mr. Jit Bahadur Thapa	Darbar	B	M	6	Manakamana-3
17	Mrs. Hira Panthi	Darbar	A	F	3	Manakamana-3
18	Mrs. Sita Panthi	Darbar	B	F	2	Manakamana-3
19	Mr. Laxman Aryal	Darbar	B	M	3	Manakamana-3
20	Mr. Ram Chandra Aryal	Darbar	B	M	3	Manakamana-3
	Total (Ropani)				62	

Annex 8. Community-based seed production details of Simichaur VDC in 2006 season

SN	Name of Farmer	Address	Gender	Wealth category	Area (Rop)	Variety	Seed sold to group (kg)	Remarks
1	Mr. Ram Chandra Aryal	Simichaur-5, Raiya	M	A	8	Rampur Composite	150	
2	Mr. Agni Prasad Aryal	Simichaur-5, Raiya	M	B	8	Rampur Composite	13	Seed return
3	Mr. Ghanashyam Aryal	Simichaur-5, Raiya	M	C	4	Rampur Composite	100	
4	Mr. Tika Ram Aryal	Simichaur-5, Raiya	M	A	5	Rampur Composite	135	
5	Mr. Krishna Bahadur Kunwar	Simichaur-5, Raiya	M	A	5	Rampur Composite	157	
6	Mr. Gopal Bdr. kunwar	Simichaur-5, Raiya	M	B	5	Rampur Composite	11	Seed return

7	Mr. Ram Lal Aryal	Simichaur-5, Raiya	M	C	3	Rampur Composite	4	Seed return
8	Mr. Man Bdr Pandey	Simichaur-5, Raiya	M	C	3	Rampur Composite	2	Seed return
9	Mr. Dil Bdr. Pandey	Simichaur-5, Raiya	M	B	4	Rampur Composite		Rejected
10	Mr. Devi Ram Aryal	Simichaur-5, Raiya	M	C	4	Rampur Composite	43	
11	Mrs. Kalpana Aryal	Simichaur-5, Raiya	F	C	4	Rampur Composite	123	
12	Mr. Ram Prasad Aryal	Simichaur-5, Raiya	M	B	5	Rampur Composite	6	Seed return
13	Mrs. Sarashowti Aryal	Simichaur-5, Raiya	F	A	5	Rampur Composite	113	
14	Mrs. Mira Aryal	Simichaur-5, Raiya	F	B	4	Rampur Composite	30	
15	Mr. Huta Raj Aryal	Simichaur-5, Raiya	M	B	3	Rampur Composite	169	
16	Mrs. Kamala Aryal	Simichaur-5, Raiya	F	B	3	Rampur Composite	6	Seed return
17	Mrs. Gtia Aryal	Simichaur-5, Raiya	F	B	2	Rampur Composite	221	
18	Mr. Gurga Datta Aryal	Simichaur-5, Raiya	M	B	3	Rampur Composite	100	
19	Mr. Babu Ram Aryal	Simichaur-5, Raiya	M	B	8	Rampur Composite	100	
20	Mr. Krishna Prasad Aryal	Simichaur-5, Raiya	M	B	5	Rampur Composite	46	
21	Mr. Padam Aryal	Simichaur-5, Raiya	M	B	4	Rampur Composite	41	
22	Mr. Dev Bdr Bhusal	Simichaur-5, Raiya	M	C	2	Rampur Composite	10	Seed return
23	Mr. Top Lal Panthi	Simichaur-5, Raiya	M	B	8	Rampur Composite	80	
24	Mr. Dhaneshowr Pandey	Simichaur-4, Amdanda	M	B	5	Resunga Composite	100	
25	Mr. Hari Prasad Pandey	Simichaur-4, Amdanda	M	A	5	Resunga Composite	130	
26	Mr. Lila Mani Pandey	Simichaur-4, Amdanda	M	A	5	Resunga Composite	52	
27	Mr. Chandra Mani Pandey	Simichaur-4, Amdanda	M	A	5	Resunga Composite	16	Seed return
28	Mrs. Bina Pandey	Simichaur-4, Amdanda	F	B	5	Resunga Composite	35	
29	Mrs. Nirmala Pandey	Simichaur-4, Amdanda	F	B	6	Resunga Composite	81	
30	Mr. Chhabilal Pandey	Simichaur-4, Amdanda	M	B	6	Resunga Composite	202	
31	Mr. Tomlal Pandey	Simichaur-4, Amdanda	M	B	2	Resunga Composite		Rejected

32	Mr. Biniram Pandey	Simichaur-4, Amdanda	M	C	2	Resunga Composite		Rejected
33	Mr. Netra Pandey	Simichaur-4, Amdanda	M	B	2	Resunga Composite		Rejected
34	Mr. Hom Nath Aryal	Simichaur-3	M	B	4	Deuti (ZM621)	71	
35	Mr. Loknath Aryal		M	C	2		43	
36	Mr. Bhim Lal Aryal		M	B	4		78	
37	Mrs. Sharashowti Aryal		F	B	2		106	
38	Mr. Dandapani Aryal		M	B	4		58	
39	Mr. Krisha Prasad Aryal		M	B	2		48	
40	Mr. Prem Raj Marasini		M	B	4		100	
	Total (Ropani)				147.5			

Annex 9. Participants in the stakeholders monitoring program (August 15–18, 2004)

Name	Organization	Designation
Mr. Dilip Chandra Poudel	NMRP, Rampur	Senior scientist
Mr. Bam Dev Nepal	Acting chief	DADO, Gulmi
Ms. Anu Adnikari	Socio-economist	LI-BIRD, Pokhara
Mr. Bharat Bhandari	Project Officer	LI-BIRD, Pokhara
Mr. Bala Bhadra Poudel	Community Organizer	LI-BIRD, Gulmi
Mr. Tharka G. C	JT	DADO, Palpa
Mr. Hari Prasad Shrestha	JT	DADO, Gulmi
Mr. Shiva Banjade	JTA	DADO, Gulmi

Annex 10. Participants in the stakeholders monitoring program (August 29 to September 1, 2005)

Name	Organization	Designation	Remarks
Mr. Chandra kanta Devkota	DADO, Gulmi	Chief	
Mr. Purushottam Gautam	NMRP, NARC	Scientist	
Mr. Baikuntha Nath Khanal	DADO, Palpa	Extension Officer	
Mr. Tika Ram Khanal	DADO, Gulmi	JT	ASC, Darbar
Mr. Yagya Prasad Panthi	Milan Agrovet	Proprietor	Tamghans

Mr. Krisha Prasad Pantha	Krisha Agrovet	Proprietor	Baletaxar
Ms. Anu Adhikari	LI-BIRD	Program Officer	
Mr. Bharat Bhandari	LI-BIRD	Project Officer	
Mr. Bala Bhadra Poudel	LI-BIRD	Community Organizer	

Annex 11. Participants in the stakeholders monitoring program (August 13–16, 2006)

Name	Organization	Designation	Remarks
Mr. Damodar Neupane	DADO, Gulmi	Protection Officer	
Mr. Babu Ram Pandey	NMRP, NARC	Technical Officer	
Mr. Baikuntha Nath Khanal	DADO, Palpa	Extension Officer	
Mr. Tika Ram Khanal	DADO, Gulmi	JT	ASC, Darbar
Mr. Krisha Prasad Pantha	Krisha Agrovet	Proprietor	Baletaxar
Ms. Anu Adhikari	LI-BIRD	Program Officer	
Mr. Bharat Bhandari	LI-BIRD	Project Officer	
Mr. Bala Bhadra Poudel	LI-BIRD	Community Organizer	Darbar site

Annex 12. Participants in the maize seed production training-cum-exposure visit (Asoj 1–7, 2006)

SN	Name	Remarks
1	Mr. Krishna Bahadur Kunwar	Simchaur
2	Mr. Chabbilal Pandey	Simchaur
3	Mr. Romnath Aryal	Simchaur
4	Mr. Krishna Prasad Aryal	Simchaur
5	Mr. Babu Ram Aryal	Simchaur
6	Mr. Hut Raj Aryal	Simchaur
7	Mr. Netra Bahadur Basnet	Simchaur
8	Mrs. Ranjana Pandey	Simchaur
9	Mrs. Amba Aryal	Simchaur
10	Mrs. Top Kala Aryal	Simchaur
11	Mrs. Usha Kiran Sharma	Simchaur
12	Mr. Gurga Panthi	Simchaur
13	Mrs. Gita Aryal	Simchaur
14	Mrs. Mina Pandey	Simchaur
15	Mr. Hari Prasad Gyawali	Darbar Devisthan

SN	Name	Remarks
16	Mr. Dilli Raj Aryal	Darbar Devisthan
17	Mr. Santa Bahadur Twata	Darbar Devisthan
18	Mr. Dil Bahadur BK	Darbar Devisthan
19	Mrs. Suntali Khanal	Darbar Devisthan
20	Mrs. Manikala Gyawali	Darbar Devisthan
21	Mrs. Buddhikala Aryal	Darbar Devisthan
22	Mrs. Goma Gyawali	Darbar Devisthan
23	Mrs. Isowara Khatri	Darbar Devisthan
24	Mrs. Kamala Khatri	Darbar Devisthan
25	Mrs. Laxmi Panthi	Darbar Devisthan
26	Mrs. Sita Aryal	Darbar Devisthan
27	Mrs. Mina Khatri	Darbar Devisthan
28	Mr. Bhoj Bahadur Khadka	Kushumkhola Palpa
29	Mr. Shambhu Pacchavaiya	Kushumkhola Palpa
30	Mrs. Khagishora Pachhavaiya	Kushumkhola Palpa
31	Mr. Tika Ram Khanal	DADO staff, Gulmi
32	Mr. Bishnu Prasad Subedi	DADO staff, Gulmi
33	Mr. Bala Bhadra Poudel	LI-BIRD staff

Annex 13. Farmer exposure visit schedule

Date	Time	Activity	Observation/ learning	Facilitators	Night stop
1/05/063	7.00– 8.00 8.00	Introduction and orientation about observation tour Departure to Palpa Visit to Radha Krishna Women Farmers Group, Deurali, Palpa	Maize seed production and marketing by women groups and other integrated income generation activities (plastic pond, vegetable production)	Mrs Radha Nepal (Deurali)	Palpa
2/05/063	6.30	Palpa to Rampur, Chitwan (NMRP) Visit to VDRC at Nawalparasi on the way	Group mobilization and community development at VDRC, Gaidakot		Chitwan (NMRP)
3/05/063	8.00– 11.00	Field visit to NMRP National Maize Research Program (NMRP), Rampur	Maize research and seed production activity at Rampur	Diwakar Sharma, NMRP	Chitwan

	12.00–5.30	Training	Maize seed technology (12.00–2.00)	Diwakar Sharma, NMRP	
			Agronomic practices for maize production (2.00–3.30)	Agronomist, NMRP	
			Community based seed production and marketing (4.00–5.30)	Krishna Devkota, LI-BIRD	
4/05/063	7.00–11.00	Pithuwa field visit, Pokhara	Group mobilization, seed production, quality control and marketing by farmers groups		Chitwan
	12.30–2.00	Unnat seed producers group at Patihani		Prakash Poudel	
	2.30–4.30	CBSP Sree Ram Group		Chiranjivi Poudel	
5/05/063	6.00	Departure to Pokhara	Maize research and seed production activity at Lumle		Lumle
	2.00–5.30	Visit to RARS Lumle			
6/05/063	10.00–12.00	Visit to ARS Malepatan	Horticultural research and development activities at ARS Malepatan		Pokhara
	2.00–3.30	LI-BIRD Office, Pokhara		Interaction at LI-BIRD Office and closing	
7/05/063		Return back to Gulmi			

Annex 14. List of participants in Account-keeping training

SN	Name of participant	Group	Designation
1	Mrs. Bimala Panthi	Darbar Devasthan	Member
2	Mr. Bhojindra Bahadur Pandey	Simichaur	Member
3	Mr. Chabbilal Sharma	Darbar Devasthan	Treasurer
4	Mr. Chetman Singh Khatri	Darbar Devasthan	Chairman
5	Mr. Dev Prasad Basyal	Arkhale	Member
6	Mr. Hari Prasad Pandey	Simichaur	Chairman
7	Mr. Hari Prasad Aryal	Darbar Devasthan	Member

8	Mr. Hira Bahadur Khatri	Darbar Devisthan	Secretary
9	Mrs. Hira Panthi	Darbar Devisthan	Member
10	Mr. Krishna Prasad Aryal	Simichaur	Member
11	Mr. Netra Bahadur Basnet	Simichaur	Member
12	Mr. Rajendra Gautam	Arkhale	Secretary

Annex 15. List of participants in Social-mobilization and group dynamics training

SN	Name of participant	Address	Sex
1	Mr. Ram Chandra Aryal	Darbar Devisthan	Male
2	Mr. Rikhi Ram Panthi	Darbar Devisthan	Male
3	Mr. Raj Aryal	Simichaur	Male
4	Mrs. Sharada Khatri	Simichaur	Female
5	Mrs. Saraswoti Aryal	Simichaur	Female
6	Mr. Rajendra Pandey	Simichaur	Male
7	Mrs. Nirmala Pandey	Simichaur	Female
8	Mrs. Gita Pandey	Simichaur	Female
9	Mr. Chura Bahadur Basnet	Simichaur	Male
10	Mr. Prithivi Gurung	Darbar Devisthan	Male
11	Mr. Dhan Bahadur Basnet	Darbar Devisthan	Male
12	Mr. Jiban Aryal	Darbar Devisthan	Male
13	Mr. Dev Prasad Basyal	Arkhale	Male
14	Mr. Rajendra Gautam	Arkhale	Male
15	Mr. Hiramani Bhattarai	Simichaur	Male
16	Mr. Tek Raj Pandey	Simichaur	Male
17	Mr. Rikhi Ram Pandey	Simichaur	Male
18	Mr. Shet Bahadur Khatri		Male
19	Mr. Madhu Buchha		Male
20	Mr. Durga Bahadur B.K		Male
21	Mr. Dhruva Prasad Aryal	Darbar Devisthan	Male
22	Mr. Hira Bahadur Khatri	Darbar Devisthan	Male
23	Mrs. Laxmi Chudali	Darbar Devisthan	Female
24	Mrs. Mani Kala Gyawali	Darbar Devisthan	Female
25	Mrs. Ruma Kala Gyawali	Darbar Devisthan	Female
26	Mrs. Sabitra Gyawali	Darbar Devisthan	Female
27	Mrs. Sita Gyawali	Darbar Devisthan	Female
28	Mrs. Dan Kumari Aryal	Darbar Devisthan	Female
29	Mrs. Top Kala Aryal	Darbar Devisthan	Female
30	Mrs. Dhana Maya Karki	Darbar Devisthan	Female
31	Mrs. Gita Aryal	Darbar Devisthan	Female
32	Mr. Krishna Prasad Aryal	Simichaur	Male
33	Mr. Ram Prasad Pandey	Simichaur	Male

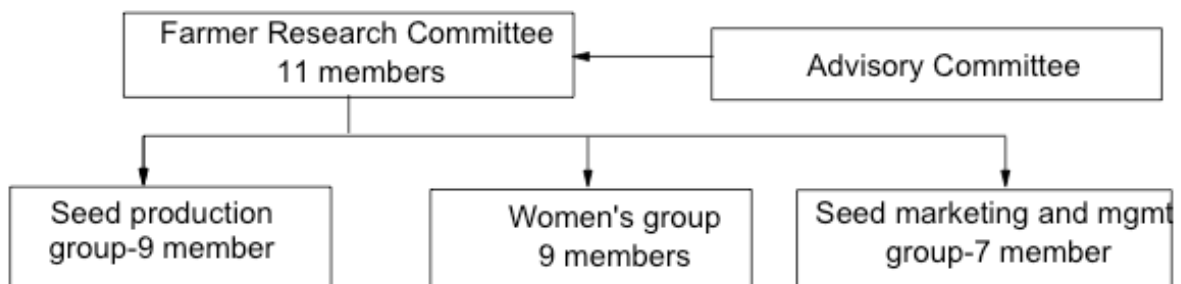
34	Mr. Netra Bahadur Basnet	Simichaur	Male
35	Mr. Laxman Aryal		Male
36	Mr. Jit Bahadur Thapa	Darbar Devisthan	Male
37	Mrs. Bel Kumari Aryal		Female
38	Mrs. Goma Panthi		Female
39	Mr. Durga Prasad Panthi	Darbar Devisthan	Male
40	Mr. Chet Man Singh Khatri	Darbar Devisthan	Male
41	Mrs. Gita Aryal		Female
42	Mr. Bhupal Singh Tandon	Darbar Devisthan	Male
43	Mr. Om Bahadur Khatri		Male
44	Mrs. Thami Kala Nepali	Darbar Devisthan	Female
45	Mr. Top Bahadur Nepali	Darbar Devisthan	Male
46	Mr. Moti Lal B.K.		Male
47	Mrs. Phul Kumari B.K.	Darbar Devisthan	Female
48	Mrs. Mani Kala Gyawali	Darbar Devisthan	Female
49	Mrs. Pabitra Khanal		Female
50	Mrs. Jamuna Chudali	Darbar Devisthan	Female
51	Mr. Hari Prasad Aryal	Darbar Devisthan	Male
52	Mrs. Bhima Chudali		Female
53	Mrs. Chhabilal Sharma Aryal	Darbar Devisthan	Female

Annex 16. List of participants in Group management for organization development training

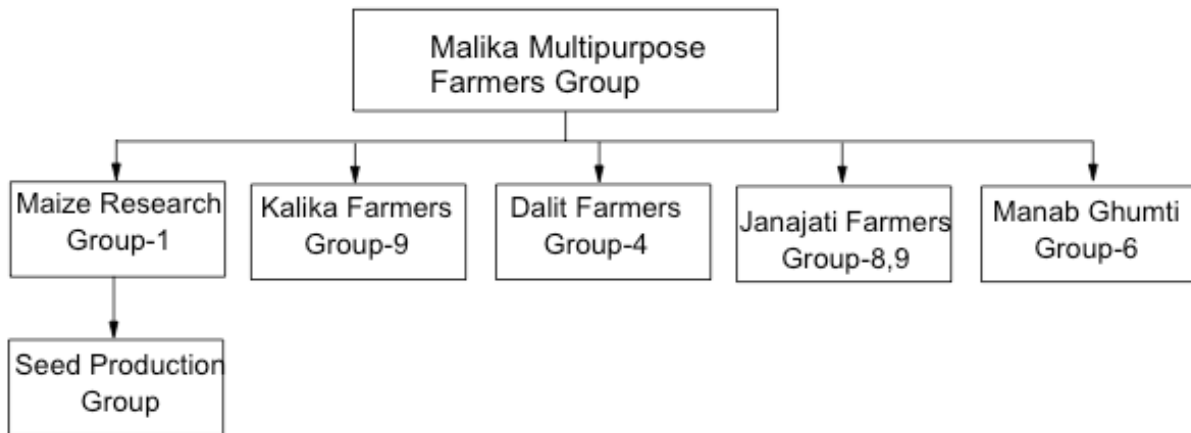
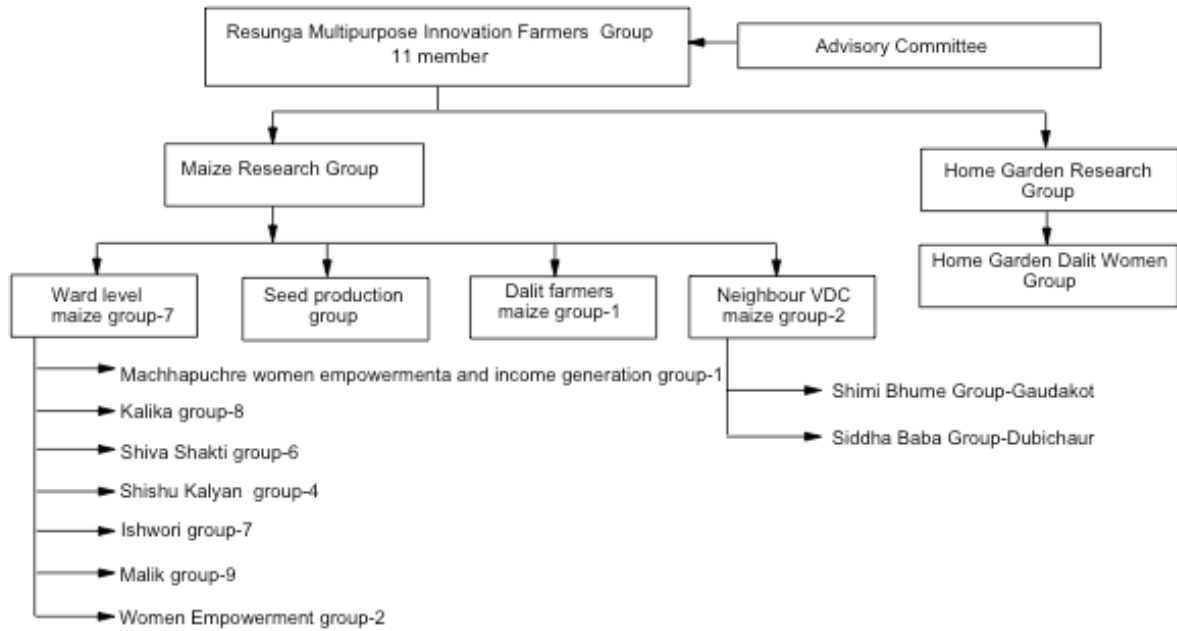
SN	Name of the participant	Address	Group	Sex
1	Mr. Chura Bahadur Basnet	Darbar-5	Resunga	Male
2	Mr. Bhojindra Bahadur Pandey	Simichaur -4	Malika	Male
3	Mr. Rajendra Pandey	Simichaur -4	Malika	Male
4	Mrs. Gita Aryal	Simichaur -5	Malika	Female
5	Mrs. Saraswoti Aryal	Simichaur -5	Malika	Female
6	Mrs. Saraswoti Aryal	Simichaur- 5	Malika	Female
7	Mrs. Lal Kumari Basnet	Simichaur-5	Malika	Female
8	Mrs. Maya Marasini	Simichaur -5	Malika	Female
9	Mrs. Radhika Panthi	Darbar -2	Resunga	Female
10	Mrs. Laxmi Aryal	Darbar -3	Resunga	Female
11	Mrs. Manju Khatri	Darbar -3	Resunga	Female
12	Mrs. Chunakala Sartung	Hardineta-8	Homegarden	Female
13	Mrs. Devi Pariyar	Hardineta-8	Homegarden	Female
14	Mr. Krishna Prasad Aryal	Simichaur-5	Malika	Male
15	Mr. Krishna Prasad Pandey	Simichaur-5	Malika	Male
16	Mr. Lila Mani Pandey	Simichaur-4	Malika	Male
17	Mrs. Uma Gharti	Sirsaini-2	Homegarden	Female

18	Mrs. Humkala Pariyar	Amarpur-1	Homegarden	Female
19	Mrs. Sita Ghimire	Sirsaini-2	Homegarden	Female
20	Mrs. Parbati Biswokarma	Darbar-6	Resunga	Female
21	Mrs. Bina Sunar	Darbar-5	Resunga	Female
22	Mrs. Phulmaya Rana Kumal	Turang-7	Homegarden	Female
23	Mrs. Mamata Rana Kumal	Balithum -5	Homegarden	Female
24	Mrs. Muna Majhi	Balithum -6	Homegarden	Female
25	Mr. Tek Bahadur Mukhiya	Amarpur-2	Homegarden	Male
26	Mrs. Shova Aryal	Darbar-5	Resunga	Female
27	Mrs. Suntali Khanal	Darbar-5	Resunga	Female
28	Mr. Kamal Prasad Aryal	Darbar-3	Resunga	Male
29	Mr. Ram Chandra Aryal	Darbar-3	Resunga	Male
30	Mr. Jit Bahadur Thapa	Darbar-3	Resunga	Male
31	Mr. Hum Lal Pandey	Tamghas-9	Agr and Livestock	Male
32	Mr. Pharsu Ram Neupane	Digam- 5	Farmer group	Male
33	Mrs. Mana Maya Gurung	Turang- CO	Homegarden	Female
34	Mr. Resham K. C.	Hardineta-CO	Homegarden	Male
35	Mr. Laxman Poudel	Chaurasi-CO	Homegarden	Male
36	Mr. Bal Bhadra Poudel	Darbar -CO	Maize PPB	Male

Annex 17. Organizational structure of FRCs in 2004

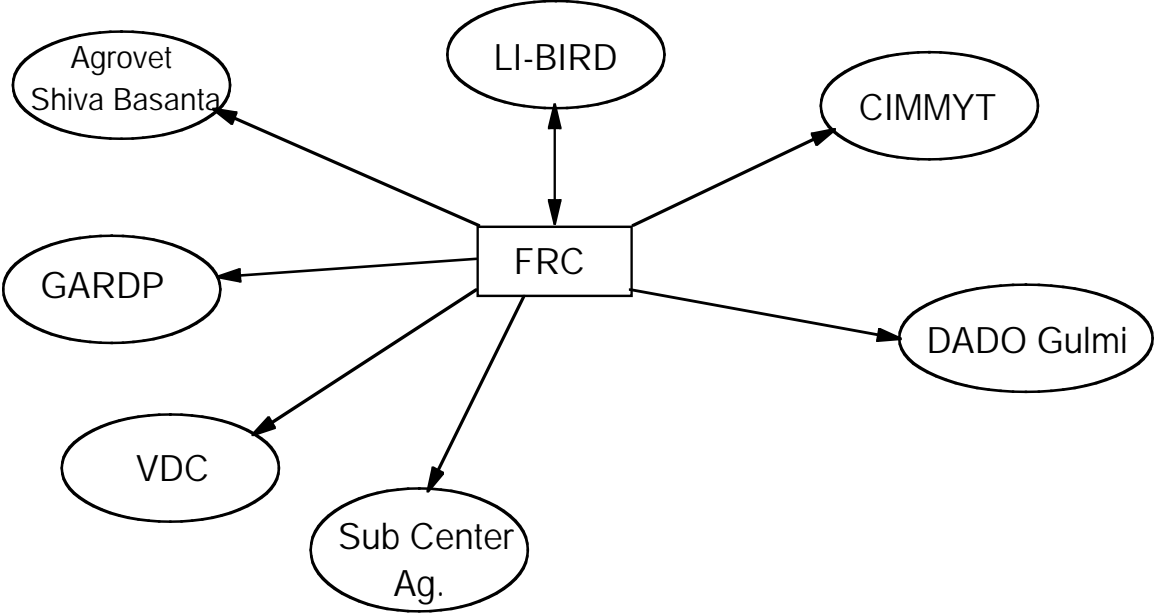


Annex 18. Organizational structures (two) of FRCs in 2006

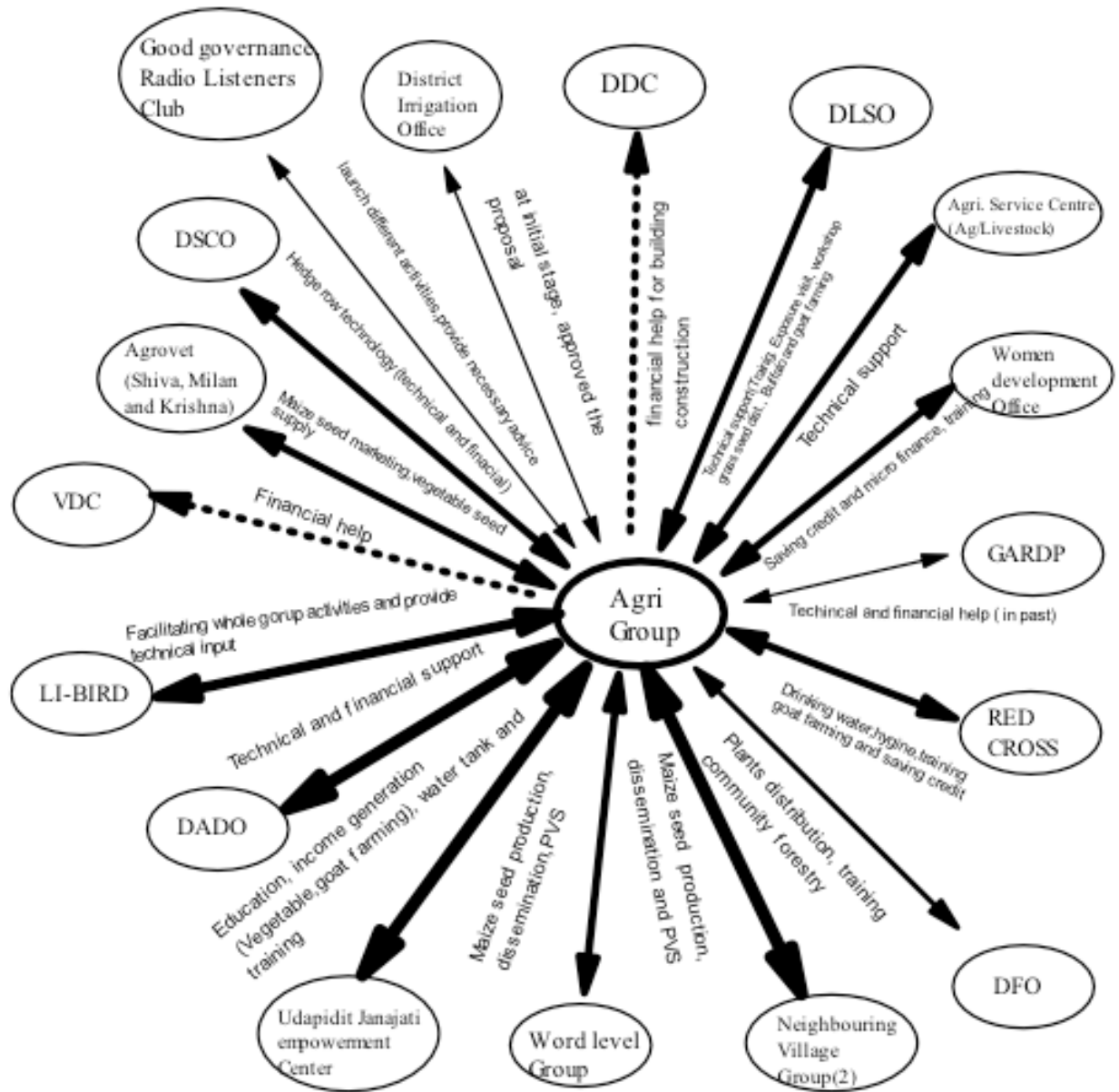


Note: Seed marketing and management group is joint group of two farmers group.

Annex 19. Sphere of collaboration of FRC in 2004



Annex 20. Sphere of collaboration of FRC in 2006



- Darbar
- 4- Shivasakti maize group (formed later)
 - 5- Women jagiti income generation group
 - 6- Jarte pokhara maize group (formed later)
 - 7- Iswari maize group (formed later)
 - 9-malka maize group (formed later)
 - 8- Kalka maize group (formed later)
- Sinichaur
- 1- farmer group
 - 9-kalka farmer group
 - 4- dalit group
 - 8,9- adhasi and janajati farmer group
 - 7- Manab group

- Darbar
- Gaudkot- Simebhume farmer group (formed later)
 - Dubichaur - urken farmer group