2012-2014

BENEFIT-SHARING FUND PROJECTS

Window 2: Immediate Action Projects (IAPs)
Bhutan

**Project title:** Participatory Conservation & Utilization of Rice Genetic Resources for Livelihood & Food Security in Bhutan

**Main activities:**

- Selection & breeding of locally adapted rice varieties
- Promotion of *in situ* & *ex situ* conservation
- Reduction of the impact of varying rainfall pattern & drought on crop production
- Farmers’ training

**Implementing institution:** National Biodiversity Centre, Ministry of Agriculture and Forests, Royal Government of Bhutan

**Related website:** [www.gnhc.gov.bt](http://www.gnhc.gov.bt)

**Factsheet:** [Bhutan](http://www.gnhc.gov.bt)

**THIS BSF PROJECT IS FOCUSED ON THE** poorest areas in Bhutan, where farmers are engaged in subsistence farming of lowland rain-fed and irrigated rice varieties: the provinces of Samtse, Samdrup Jongkhar and Monggar. This project aims at improving food
security for these communities by providing access to diverse varieties of rice made available from the National Gene Bank, as well as through the selection in the field of best performing varieties. In addition, income generation will also be enhanced through value addition and marketing of local/traditional rice.

Our partners in Bhutan are implementing participatory selection of high yielding and locally adapted rice varieties, promoting sustainable management and conservation, and strengthening water source irrigation facilities. A baseline survey has been carried out to identify farmer's needs with regard to PGRFA, identify trends in the farming systems, the constraints faced by farmers and shape the project activities from a bottom up perspective.

Farmers have already identified and selected a number of varieties of rice, maize, wheat and millet that demonstrate high yields and have the potential to improve their food security situation. In addition, our partners are sourcing and providing improved varieties for the Participatory Varietal Selection. This will, in the long run, broaden the rice genetic base and provide insurance against diseases and pests outbreaks.

A Biodiversity Fair has been organized to give farmers the opportunity to share, interact, exchange seeds and knowledge, and build on established good practices. More importantly, the fair provides the farmers an opportunity to showcase seed collections resulting from their selection and conservation practices.

A study visit to Community Seed Banks and on-farm conservation sites in Nepal has been organized by LI-BIRD, our executing partner for the BSF project in Nepal, to train and build capacity on Community Seed Bank management and further strengthen and up-scale Bhutanese Seed Banks.

*By the end of this project, food security of the target communities will be enhanced through access to high yielding rice varieties that have been tested and adapted to varying rainfall patterns and drought. Furthermore, it is envisaged that yields will be improved through proper seed selection, storage and rehabilitation, as well as the adoption of best cropping practices. In addition, a strong knowledge base will be created through capacity building, training and exchanging of experiences.*
Project title: Using local durum wheat & barley diversity to support the adaptation of small-scale farmer systems to the changing climate in Ethiopia

Main activities:

- Improvement of documentation systems for wheat & durum
- Identification & evaluation of promising local varieties of barley & durum wheat
- Establishment of seed distribution systems
- Capacity building of national scientists

Implementing institutions: Bioversity International & Institute for Bioversity Conservation


Factsheet: Ethiopia

ETHIOPIA HOUSES AFRICA’S LARGEST genebank, with a total holding of 60,000 accessions. This national genebank is maintained by the Ethiopian Institute of Biodiversity Conservation (IBC).

The country, which is rich in agricultural biodiversity and considered a major center of crop domestication in Africa, is characterized by a high percentage of rural poor, high
rates of subsistence agriculture and food insecurity, which affects more than 44% of the Ethiopian population.

Diversification of crop varieties is one of the main adaptation strategies available to Ethiopian farmers; however, the majority of them are unable to use different varieties, principally due to the lack of access to seeds and appropriate information.

This BSF project, a partnership between the Ethiopian Institute of Biodiversity Conservation (IBC) and Bioversity International, aims to develop a mechanism to allow Ethiopian farmers access to locally adapted varieties of durum wheat and barley in order to ensure food security, reduce the risk of crop failures, build resilience in the face of unpredictable climatic changes, strengthen national self-sustainability and improve the seed industry through the development of market-based seed distribution systems. This will be achieved by using innovative Geographic Information Systems (GIS) and participatory evaluation practices.

Our partners will make available and distribute seed material of locally adapted durum wheat and barley varieties to farmers in six regions through local seed distribution systems. As a result, Ethiopian farmers will have access to new, tested, locally adapted varieties to better cope with climate change and ensure sustained crop production.

Furthermore in developing a climate profile of the genebank materials from Ethiopian and other collections, the project will add value to the genebank collection and provide options for farmers cultivating within similar climatic conditions.

*This BSF project aims to benefit at least 1000 Ethiopian farmers by helping facilitate access to germplasm and information necessary for them to adapt to changing climatic conditions. In addition, the model developed by this project is expected to be replicated in other regions of the country and abroad.*
**Project title:** Establishment of a preliminary network of community seed banks in vulnerable regions of Guatemala to provide seed in the event of a natural disaster

**Main activities:**
- Documentation & conservation of genetic diversity of maize & beans
- Establishment of community seed banks
- Training & capacity building
- Elaboration of a manual on seed conservation & management in community seed banks

**Implementing institution:** Universidad del Valle de Guatemala

**Related website:** [www.uvg.edu.gt](http://www.uvg.edu.gt)

**Factsheet:** Guatemala

GUATEMALA IS AMONG THE WORLD’S TOP 10 countries in terms of vulnerability to natural disasters. Models predict that small-scale farmers, particularly those engaged in rain-fed agricultural practices, will be the most affected. Therefore, the adoption of adaptation and mitigation strategies is vital for guaranteeing the livelihoods of local communities.
Activities to safeguard genetic diversity in Guatemala and guarantee material for base broadening activities are being carried out by conserving local biodiversity in seed banks.

This BSF project will promote *in situ* and *ex situ* conservation of agricultural biodiversity and build synergies between Universities, the National Institute for Agricultural Research, NGOs, women’s associations, farmers groups and international organizations.

Household surveys have been undertaken to assess: farmers’ storage practices, levels of seeds availability and sowing practices, and to document their climate change perceptions and related coping strategies.

Genetic diversity in farmer’s fields has been documented, resulting in the collection, evaluation and characterization of samples of maize and beans. Our partners are documenting the existing genetic diversity of maize and beans in the project sites using the in situ conservation index (ICI) that has resulted in 44 samples of maize and beans analyzed against 10 qualitative and quantitative traits. Identified data on native genetic diversity has been entered in databases. The *Instituto de Ciencia y Tecnología Agrícolas* (ICTA) scientists are breeding seeds in order to preserve the genetic diversity present in farmers’ fields and to make available genetic material for community seed banks. In addition, a Seed Bank Committee has been established.

*Through this BSF project, 150 farmers and their families will benefit directly from capacity building activities and technology transfer for the management of maize and bean varieties in their fields. This will also help to further disseminate knowledge and good practices among their communities. Over 1,355 families representing 8 communities are estimated to benefit from the availability of seeds that are resistant to drought and present preferable gastronomic and economic traits.*
Project title: Using rice genetic diversity to support farmers’ adaptation to climate change for sustainable production & improved livelihoods in India

Main activities:
• Identification of rice diversity & elaboration of climate prediction models through the use of Geographic Information System (GIS) technologies
• Establishment of gene bank accession-levels & databases on varieties suitable to climate change
• Increase farmers’ access to rice genetic diversity & climate information
• Participatory plant variety selection
• Collection of local rice germplasm & establishment of community seed banks
• Development of local seed-distribution systems
• Training & capacity building in the use of tools for rapid screening of germplasm, GIS & climate-based models

Implementing institutions: Gene Campaign & Bioversity International


Factsheet: India
THE INDO-GANGETIC PLAINS OF INDIA are expected to be severely affected by drastic weather conditions, such as drought and heat as confirmed by the study that Gene Campaign has conducted in the frame of this project. In order to successfully meet food requirements in an era of climate change, conservation and sustainable utilization of genetic diversity of crop plants have become crucial. This BSF project focuses on addressing these needs within the Indo-Gangetic plains of India.

The objective is to ensure that rural communities are able to maintain and adapt traditional rice genetic diversity to climate change, and to combine this with the provision of desirable genes for plant breeding and the introduction of new varieties.

The project is updating the passport data of more than 2916 rice germplasm collections stored by Gene Campaign and the National Genebank of India, and is assigning geo-reference coordinates to their respective collecting sites, which are also being mapped for their climate suitability. The entire Indian rice collection is expected to be mapped and analyzed by the end of this BSF project.

Over 400 germplasm accessions from Gene Campaign’s community banks and the National Genebank of India have already been identified and their characterization and evaluation databases improved, based on their earlier performance for cultivation. These germplasm accessions have been planted by farmers for testing suitability to their respective climatic conditions. So far, five drought tolerant rice varieties have been identified and two new genes with resistance to Bacterial Leaf Blight have been found. In addition, accessions of finger millet germplasm collected from Uttarakhand are also being grown in farmers’ fields and are being evaluated for performance.

Participatory varietal trials have been carried out in villages in the Indo-Gangetic plains and a number of high yielding and traditional upland varieties of rice have been tested in farmers’ fields. Farmer Field Schools for Rice have been established and this exercise is expected to be transferred to other rice growing regions like Jharkhand and Orissa. Furthermore, Gene Campaign has developed a Zero Energy Genebank model for the conservation of genetic diversity at ambient temperatures, which is also a model expected to be transferred and shared across rural areas of the country.

This BSF project is expected to benefit 500 farmers in rural communities of India by increasing their access to rice genetic diversity, introducing new varieties, improving the local seed system network, and increasing the capacity of farm women and men to cope with climate change through training programs, which will also improve the technical skills of local community organizations and civil society groups.
Project title: Seeds for Life – Action with farmers in Uttar Pradesh to enhance Food Security in the context of Climate Change in India

Main activities:

- Establishment of 10 genebanks in farmers’ fields
- Training & capacity building for 900 members of Self-Help Groups & 300 farmers in seed selection & conservation
- Application of systems for rice intensification & improved cultivation methods
- Introduction & cultivation of new crops & more varieties of rice & wheat

Implementing institution: Humana People to People India & Bioversity International


Factsheet: India

SUSTAINABLE FOOD SECURITY FOR 50 villages, covering more than 650 families (about 4000 people) in Uttar Pradesh, is the focus of this BSF project. The region is the major rice and wheat producing area of Northern India, with 70% of its 200 million population dependent on agriculture for their livelihoods. This includes female farmers organized into self-help groups, as well as other farmers’ clubs for the establishment of System of Rice Intensification techniques, in-situ seed conservation practices and the diversification of farming systems.
This project has helped establish direct interaction between farmers, field staff and scientists. The active participation of farmers’ clubs and women’s self-help groups has created a sense of ownership and involvement towards common objectives. These farmers have already been involved in establishing varietal trials, creating nurseries, transplanting and other best practices for sustainable rice intensification. Farmers’ fairs and exchange visits have been organized to encourage the exchange of knowledge and good practices.

Since farmers at the selected project sites are very dependent on a few high yielding commercial varieties of rice and the over-use of chemical fertilizers, several new varieties of rice and rice germplasm have been introduced and farmers are participating in varietal trials and in the selection of the well performing varieties for seed multiplication. Furthermore, women have been engaged in nutrition and cooking workshops aimed at including new biodiversity-friendly food products into their daily meal preparation.

In addition to the traditional crops, new crops and more varieties of rice and wheat are being introduced by farmers in the area as optional choices. This project aims to introduce three new crops in the area: Amaranth, Moringa and Quinoa, which may increase farmers’ production and income during fallow seasons.

Humana People to People India has succeeded in securing co-financing for sponsoring another project that presents synergies with the Seeds for Life initiative, namely, the project Strengthening Rural Economy and Empowering Women Farmers of Unnao District through Sustainable Livelihood Opportunities, which targets 10,000 poor women farmers in 200 villages of the Uttar Pradesh region. This initiative will provide ‘end-to-end’ solutions for women’s empowerment through the introduction of better farming methods, diversification of cropping systems, introduction of new crops and creation of links with financial institutions and government programs related to health and insurance. The activities of this co-funded project will contribute to building sustainability of results of the BSF project.

This BSF project is expected to benefit about 4000 people in some of the most vulnerable agricultural communities in India and to engage 450 women’s Self-Help Group and 200 farmers’ club members in rice intensification and improved cultivation methods.
Project title: Management, Development & Utilization of Various Crops Plants for Sustainable Food Availability

Main activities:

- Characterization & evaluation of target crops
- Conservation of crop genetic resources in farmer’s fields
- Diversification of agricultural products
- Training & capacity building in management, development & sustainable utilization of food crops
- Dissemination of information systems

Implementing institutions: Indonesian Center for Biotechnology & Genetic Resources Research & Development (ICABIOGRAD)

Related website: [www.biogen.litbang.deptan.go.id](http://www.biogen.litbang.deptan.go.id)

Factsheet: [Indonesia](http://indonesia)

THE NATIONAL RESEARCH INSTITUTE OF Indonesia, ICABIOGRAD, is working with farmers to implement sustainable ways for management, development and utilization of rice, maize, colocasia, sweet potato and cassava for ensuring sustainable food availability and improving income and nutrition.
One of the priorities of this BSF project is to counter the lack of seeds for farmers through the dissemination of locally adapted biotic- and abiotic-resistant targeted varieties.

The activities of the project have been developed based on the needs, challenges and preferences of the target population for the cultivation, conservation and utilization of the targeted crops, all of which were identified through a baseline survey conducted beforehand.

Subsequently, on-farm conservation activities have been conducted in East Nusa Tenggara for some of the local varieties of maize, rice and beans. Similarly, in North Sumatra, on-farm conservation has been done by including 11 accessions of cassava and 5 accessions of sweet potato in farmyard and by evaluating several rice varieties for tolerance to floods. In addition, characterization against drought, salinity and flood stresses are being performed and improved varieties shared and disseminated.

Two information systems – the National Information Sharing Mechanism (NISM) and the Agricultural Geographic Information System (AGIS) – have been introduced to 50 stakeholders to enable better management, sharing and dissemination of relevant information on PGRFA.

This project is expected to contribute to the development and improvement of farmers’ knowledge and skills in management and sustainable utilization of targeted crops, as well as in post-harvesting and processing practices.
Project title: Use of genetic resources to establish a multi-country program of evolutionary participatory plant breeding

Main activities:
- Establish & strengthen participatory & evolutionary breeding programs
- Expand landraces collections & document farmers’ knowledge
- Establish genebanks & distribute newly developed populations to farmers
- Training & capacity building of farmers in participatory plant breeding & rice crosses
- International Conference on breeding involving six countries from the Near East

Implementing Institutions: National Center for Agricultural Research and Extension (NCARE), Jordan; & Centre for Sustainable Development (CENESTA), Iran.


Factsheet: Jordan and Iran

FARMERS’ KNOWLEDGE IS BEING USED TO support and strengthen national participatory plant breeding programs (PPB) and to start new programs of evolutionary participatory plant breeding (EPPB) in Iran and Jordan by developing locally-adapted
varieties of wheat, barley, rice and maize while enhancing biodiversity within and among farmers. Particular attention is being paid during this BSF project to gender-differentiated knowledge of local landraces and cultivation practices. A strategy for facilitating women’s access to and control over seeds is also being tested and monitored.

By pro-actively involving women farmers, this project endeavors to empower those who are traditionally in-charge of agronomic practices and entitle them to access and manage relevant PGRFA on a more equitable basis. NCARE and CENESTA are working to adapt local crops to climate change and thus, to mitigate its impact on food security from a gender sensitive perspective.

This BSF project works with farmers to help them cope with climate change and the impact this has on their lives and their food security. It does this by strengthening their agricultural means with solutions such as PPB and EPPB and by using traditional varieties that were lost in previous decades. Activities include the choice of germplasm, participatory trials in 22 villages, evaluation and selection of varieties that are stable in relation to environmental changes and present preferable traits, multiplication and collection. Subsequent base broadening activities will allow farmers to produce specifically adapted improved varieties, thus contributing to increasing the sustainability of their agricultural systems.

The project is also contributing to building capacities and skills of national breeding institutes and NGO practitioners in participatory and gender sensitive breeding methodologies, and providing them with a pool of genetic material for further improvement. This will ensure that project outcomes will be sustained over time and have a multiplier effect in other regions of the two countries.

This project is expected to benefit women and men farmers by strengthening their ability to manage genetic diversity through participatory and evolutionary breeding programs and by expanding the existing collections of wheat, barley, rice and maize in Iran and Jordan. It is also helping build the skills and technical capacity of national breeding institutions, and providing plant genetic material for further improvement.
Project title: Building sustainable livelihoods through on-farm conservation

Main activities:

- Identification of drought-resistant crop varieties & their promotion at local level
- On-farm and ex-situ conservation of genetic diversity
- Increase farmers' productive capacity & strengthen local seed systems
- Training & awareness raising

Implementing institution: Malawi Plant Genetic Resources Centre, Chitedze Research Station

Related website: www.sdnp.org.mw/darts/research/chitedze/chite.htm

Factsheet: Malawi

THIS PROJECT AIMS TO REINTRODUCE strategic crops in semi-arid zones: yams, sorghum, finger millet and cowpeas. These crops have a high market and nutritional potential, but have been progressively lost and now germplasm is available primarily in genebanks. By reintroducing these crops in farmers' fields, the project aims to benefit poor, food insecure small-scale farmers.

Sensitization meetings have been organized in 14 project sites to achieve a common understanding and common goals among farmers, scientists, extension officers and governmental officials, one-third of whom are women. Farmers are experimenting with drought tolerant crops and varieties in order to cope with recurrent droughts and contribute to more efficient water management.
In collaboration with all the key stakeholders, production demonstrations have been mounted in all project sites covering 2 crops per site. The demonstrations are being managed by local communities under the close supervision of local agricultural officers, and are acting as learning sites for the production of crops that are not commonly grown in the areas. The major aim of the demonstrations is to impart and share knowledge on cultivation and production practices of the target crops (Farmer Field School Concept).

This project is working to ultimately improve the livelihoods of 2000 farming families through the identification, production and reintroduction of strategic crops and varieties into local farming systems. In addition to identification of germplasm, the project will accelerate seed production of the identified crops, strengthen local seed systems and traditional seed storage practices, train farmers in participatory variety selection and seed production, and raise awareness on the effects of climate change and how local crop species can contribute to climate change adaptation.
**Project title:** On-Farm Conservation & Mining of Local Faba bean Landraces for Biotic & Abiotic Stresses in Morocco

**Main activities:**
- Evaluation, selection & identification of useful sources of resistance of faba bean
- Hybridization and incorporation of stress resistance into farmers’ preferred faba bean landraces
- Information exchange, technology transfer & capacity building

**Implementing institutions:** International Center for Agricultural Research in the Dry Areas (ICARDA) & the Morocco National Genebank

**Related websites:** [www.icarda.org](http://www.icarda.org)

**Factsheet:** [Morocco](#)

**THE FABA BEAN IS AMONG THE MOST** ancient crops in Morocco and is highly embedded in the traditional crop systems. Furthermore, the Mediterranean Basin is the
most important center of diversity for faba bean; however, but nowadays, frequent droughts, pests and diseases have severely affected the productivity and availability of this crop. The need for ex-situ and on-farm conservation of faba bean is becoming ever more imperative to cope with food security and climate change, and the local landraces offer an important genepool for sources of adaptation and tolerance to many biotic and abiotic stresses.

The overall objective of this BSF project is to enhance on-farm conservation and use of faba bean landraces for food security through an integrated approach between on-farm, ex situ conservation and breeding activities for better management of genetic resources.

These activities are expected to concretely support the progressive development and implementation of adaptation measures for agricultural systems in Morocco and contribute towards establishing mechanisms to address the intertwined issues of food security and climate change challenges.

Lead farmers representing four major faba bean growing areas were selected in cooperation with the Centre des Travaux, which has been working with farmers in their respective regions for several years. The selection of these lead farmers was done to focus on the diversification needs and environmental conditions faced by the farmers in these areas. Under the close guidance of ICARDA, 359 landraces of faba bean conserved in the National Gene Bank of Morocco and 68 accessions collected during project activities have been planted at sites representing four agro ecological zones.

Male and female farmers and scientists are working together to evaluate varieties and productivity of faba beans resistant to drought and heat stresses. The systematic inclusion of farmers’ skills, knowledge and preferences is key element. The farmers involved in this project are lead farmers, who are expected to spread and share the knowledge and experience they gain, thus increasing the potential impact of the results of this project on the communities.

Women farmers’ associations and organizations are involved in conducting project activities and disseminating information. The project also includes Graduate/Masters’ students who are doing their research thesis within the project activities.

This faba bean project is linked with a similar BSF funded project in Tunisia on on-farm conservation of durum wheat and barley. Consequently, there is a regular exchange of information and experience between Treaty partners in Tunisia and Morocco. These meetings and exchange visits enhance collaborative efforts in the exchange of technology, promotion of intra- and inter-country linkages, research coordination and the dissemination of technology through multi-disciplinary teams consisting of national policymakers, scientists, extension workers and farmers, and thereby, enhancing long-term sustainability of the efforts initiated through this project.

This project is expected to enhance on-farm conservation and use of faba beans, and initiate targeted hybridization to incorporate stress resistance into the farmers’ preferred faba bean landraces in order to improve food security and reduce the vulnerability of local communities to abiotic and biotic stresses.
Peru

Project title: Conservation & sustainable use of potato germplasm in the rural communities of Andahuaylas

Main activities:

- Increase availability & access to seeds of native potatoes
- Promote in situ conservation & sustainable use of potato germplasm
- Implementation of ecological sound techniques for the conservation of soil & water sources
- Encourage & promote farmers associations & market linkages
- Training of Trainees

Implementing institution: SOLARIS Peru

Related website: www.solaris.org.pe

Factsheet: Peru

(Peruvian) Andean farmers are the custodians of more than 4,000 varieties of native potatoes grown mainly at high altitudes. These farmers have difficulties diversifying their production options, accessing local markets and commercializing their products. The conservation of potato genetic resources and an increase in their market value is, therefore, important to guarantee the livelihoods of the Andean farmers who have relied on this for over 8,000 years. It is woven into their belief system, festivals and
customs. The Andahuaylan area targeted by this project already suffers a high incidence of rural poverty, so it is critical to help alleviate this situation.

This project seeks to resolve the problem of low production, productivity and income of native potatoes in the province of Andahuaylas. The project will promote the cultivation of varieties of two strategically divided groups of potato – varieties with immediate commercial potential and varieties to be newly introduced to the market – and also contribute to their on-farm conservation, sustainable management and promotion. Fifteen Producers’ Organizations are involved in project activities that have already resulted in the establishment of 15 fields for conservation and evaluation of potato varieties against pests, diseases and adaptive capacity. Over 24 varieties have already been evaluated and more than 400 farmers have directly benefited from training and capacity building in the conservation and management of potato genetic diversity.

Partnerships and collaborations with Producers’ Associations, local authorities, the Instituto Nacional de Investigación Agraria (INIA) and relevant development institutions have been developed, and negotiations are underway for the establishment of a Colectivo interinstitucional de Promoción del Cultivo y Conservación del Germoplasma de Papa Nativa.

Agro-ecological techniques, environmentally-friendly inputs and a reduced use of agrochemicals have been used to ensure the long-term sustainability of project results. The project also promotes the training of local technicians (TAPs) who will ensure the continuity of technical assistance over time. The gradual incorporation of new native varieties into seed fields will ensure that farmers have multiple options to deal with new climatic scenarios and new pests, and will grant them considerable potential to adjust to changing consumption and market trends.

By the end of this project, more than 1200 Peruvian farmers will be able to cultivate over 200 new varieties of potatoes for subsistence and commercial purposes.
Tunisia

Project title: On-farm conservation & mining of local durum wheat & barley landraces of Tunisia for biotic & abiotic stresses, enhanced food security & adaptation to climate change

Main activities:
• On-farm & ex-situ conservation of local landraces of wheat & barley
• Identification of useful diversity & hybridization to incorporate stress resistance
• Information exchange, technology transfer & capacity building in collection, conservation & utilization of wheat & barley.

Implementing institutions: International Center for Agricultural Research in the Dry Areas (ICARDA) & the National Genebank of Tunisia

Related websites: www.icarda.org

Factsheet: Tunisia

DURUM WHEAT AND BARLEY ARE THE major staple food crops of Tunisia, occupying one-third of Tunisian cereals’ cultivated area. Therefore, there is a need to collect, conserve and sustainably use these precious resources, particularly in the face of recurrent droughts, pests and diseases affecting the country.
This BSF project aims to collect, conserve and mine wheat and barley landraces, as well as multiply the landraces with drought and disease resistance to positively impact income, food security and resilience of poor farming communities. All project activities revolve around the systematic inclusion and acknowledgement of the value of farmers’ knowledge, skills and preferences, as well as their active participation in all the phases of project implementation.

Currently, 483 accessions of barley and 7206 accessions of durum wheat landraces have already been planted for seed multiplication at experimental stations. These are being evaluated against disease reactions, pests and abiotic stresses, various phenotypic traits and molecular diversity by farmers and scientists.

These landraces are to be used for 'diversity fairs' and farmers' participatory selection and evaluation. Over 233 landraces of durum wheat and barley conserved ex-situ in other genebanks have been identified and repatriated for selection and evaluation.

Five demonstration plots have been installed, covering all target regions and are being used by farmers for participatory selection of the landraces and evaluation of biotic stress tolerance reactions in different cultivating conditions.

This project is expected to enhance on-farm conservation and use of durum wheat and barley, and to initiate targeted hybridization to incorporate stress resistance into the farmers' preferred local landraces to increase yields and build resilience in face of climatic shocks.
Project title: Strengthening Community-Based On-Farm Conservation & Sustainable Use of Crop Diversity in Semi-Arid Zambezi-Gwembe Valley of Zambia

Main activities:
- Development of new landrace-crop varieties
- Elaboration of crop lists & documentation of indigenous knowledge
- Development of new crop material & its integration in farming systems
- Training of Trainees & restoration of local seed systems

Implementing institution: Bioversity Community Network

Related website: www.zari.gov.zm

Factsheet: Zambia

IMPROVING FOOD SECURITY AND THE livelihoods of the Zambezi-Gwembe valley resource-poor farmers and farming communities is the objective of this BSF project. This ultimate objective is being accomplished through the sustainable management and conservation of sorghum, pearl millet, cowpea, beans, sweet potato and cassava, which are
crucial for the dietary needs and livelihoods of local communities and the development of new improved and locally adapted crop varieties.

A strategic program has been developed on priority landraces for on-farm Participatory Plant Breeding, based on farmers’ knowledge and needs vis-à-vis PGRFA. Farmers and breeders are evaluating genebank accessions and local varieties in on-farm plots, selecting the ones exhibiting preferable traits and developing new landraces of crop varieties.

A series of farmers’ field days, seed diversity fairs have been organized to facilitate the exchange of information, good practices and available seeds for sustainable agricultural practices. More than 1000 farmers and trainers have formed Farmers’ Clubs and Committees for conserving and using crop diversity, sharing and disseminating knowledge and participating in training and capacity building sessions.

Training of trainees on germplasm characterization tools for the target crops has been conducted with over 600 farmers, including hands-on practical training on recording phenotypic traits of sorghum, bean, cassava and sweet potato. These training of trainees will be replicated at other project sites to promote on-farm PGRFA conservation and sustainable use.

This project is expected to benefit farmers by strengthening crop production and food security, and build up skills for climate change adaptation and landrace restorations in their farming systems.