

Inclusive Market-Oriented Development

Annual Report 2010



Vision

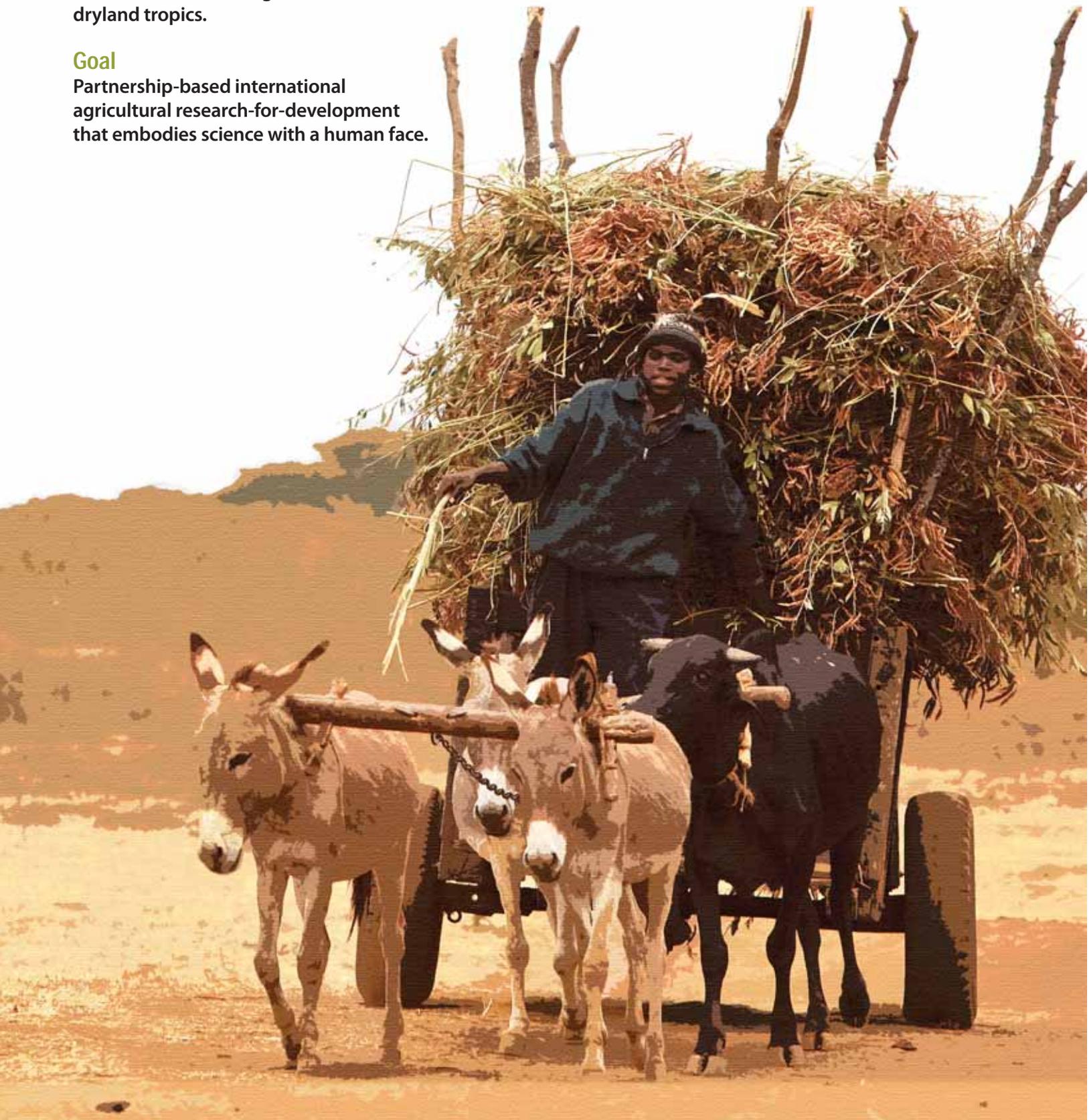
A prosperous, food-secure and resilient dryland tropics.

Mission

To reduce poverty, hunger, malnutrition and environmental degradation in the dryland tropics.

Goal

Partnership-based international agricultural research-for-development that embodies science with a human face.





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Message from the Director General

Adam Smith, a social philosopher and a pioneer of political economy (1723-1790) once said, “No society can surely be flourishing and happy, of which the far greater part of the members are poor and miserable.”

The World Bank has warned that rising food prices, driven partly by rising fuel costs, have pushed 44 million more people into poverty since June 2010, estimating that about 1.2 billion people worldwide currently live in extreme poverty.

In the dryland tropics alone, poverty and hunger are widespread. Three hundred million people there live on less than one dollar a day, and seven hundred million live on less than two dollars a day. This level of absolute poverty in the tropical drylands, along with a high rate of child malnutrition of nearly 42 percent in dryland Asia and nearly 27 percent in dryland Africa, is a staggering and unacceptable tragedy

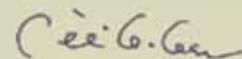
These are disturbing facts, but reminders nevertheless about improvements needed in our world. For us at ICRISAT, they are reminders about our vision and mission in the dryland tropics, as well as our commitment to face the challenge of creating conditions that will allow those who are poor today to escape poverty.

This past year has been one of introspection as we sought insights into the ways of combating poverty. The result is our new *Strategic Plan to 2020*. Our new mission statement is anchored on the conceptual framework that we call, “Inclusive Market-Oriented Development, or IMOD,” which promotes progression from subsistence towards market-oriented agriculture, thus empowering smallholder farm families and building their resilience on the path to prosperity.

In our fight against poverty, we have identified four strategic thrusts – resilient dryland systems; markets, institutions and policies; grain legumes; and dryland cereals. We have also formulated a Business Plan that describes how we will fulfill our commitments to 2015.

In addition, ICRISAT has identified six development outcomes that we strive to achieve – 1) food sufficiency, 2) intensification, 3) diversification, 4) resilience, 5) health and nutrition, and 6) women empowerment. This Annual Report features outcomes in these areas achieved during the year 2010. These are actual stories from the field, revealing what we hope is a representation of larger impacts in the regions where we work.

As ever, we acknowledge the guidance of our Governing Board towards the realization of our vision and mission, as also the immense support of our scientists, staff members and stakeholders in our efforts to bring and share happiness and prosperity to millions of poor smallholder farmers in the dryland tropics.



William D Dar
Director General

Message from the Chairman

I am proud of ICRISAT, I am proud of the way ICRISAT is developing, but most of all I am proud of the way my colleagues are actually making a difference to the lives of the poor smallholder farmers in the dryland tropics.

While the development and funding of the new CGIAR consortium was still uncertain, ICRISAT, with its partners, wisely and boldly re-thought its approach and developed a new ambitious *Strategic Plan to 2020*, plus the Business Plan needed to implement this strategy. At the Governing Board meeting in Arusha, Tanzania, last September, the Board unanimously approved this new strategy. Our excitement was captured in the "Arusha Declaration".

The core of the Declaration states, "Anchored on the principle that people must determine their own destiny, the new strategy challenges the widespread pessimistic belief that the drylands of the developing countries will constantly depend on external aid for economic growth. We at ICRISAT will never accept this view".

ICRISAT's new strategic approach, called *Inclusive Market-Oriented Development*, is full of promise. ICRISAT scientists in Asia and sub-Saharan Africa working closely with partners already have a successful track record of helping smallholder farmers gain access to market opportunities. There are numerous examples, for instance, the export of peanuts from Malawi to the EU. The packets of peanuts in my local supermarket do not mention ICRISAT (our non-commercial status will not permit it), but these peanuts could only re-enter European markets because of ICRISAT's involvement through capacity building coupled with the aflatoxin testing techniques first developed at Patancheru that ensure export of disease-free peanuts. Another example of this synergy between our work in Asia and Africa are the high-yielding, medium-duration, wilt-resistant and large-seeded varieties of pigeonpea developed by ICRISAT and our partners, that are transforming the lives of many dryland farmers in Kenya, Malawi, Mozambique, Tanzania and Uganda, and the development of a thriving export market to India. Our new strategy will build on this solid foundation!

In conclusion, "*Dimidium facti qui coepit habet*" (once you have started you are half way there). On behalf of the Governing Board, I wish to congratulate ICRISAT and our partners for living up to our expectations and the excellent Strategic Plan they have developed. I thank the donors and stakeholders for the support they provide, and I wish ICRISAT every success in their work for the farmers of the semi-arid tropics.



Nigel Poole
Chair, ICRISAT Governing Board



ICRISAT's Development Outcomes

1. **Food sufficiency:** Smallholder farmers in the dryland tropics producing sufficient food from grain legume and dryland cereal systems to at least meet their food needs
2. **Intensification:** Smallholder farmers capturing additional market opportunities from sustainably intensified and value-added grain legume and dryland cereal systems
3. **Diversification:** Smallholder farmers diversifying their crops, systems and products achieving major value gains
4. **Resilience:** Smallholder farmers/households maintaining food, nutritional and economic security during periods of environmental and economic shocks
5. **Health and Nutrition:** Smallholder households consuming more nutritious and safe diets
6. **Women Empowerment:** Women in smallholder households engaging in and benefiting from the recently devised Inclusive Market-Oriented Development approach.



Inclusive Market-Oriented Development





The microdosed plot on the left gives much better yield than the one on the right.

Outcome: Food Sufficiency

Brain and Brawn Belie Bad Soil

Human beings inhabit a great range of environments; they are found in the coldest and hottest of climates, in lush green surroundings and in the driest tropics of the world – and still manage to survive!

Yet in the present day and age, mere survival is not enough. We need quality, variety and sustainability in life. Poor soil fertility and low rainfall have affected crop production for decades in the Sahel. Food crises and food insecurity are the main factors contributing to chronic malnutrition in these region. But, thanks to fertilizer microdosing, farmers can now give Mother Nature a hand and change this challenging situation for the better.

Average rates of fertilizer usage in sub-Saharan Africa (SSA) are a mere 8 kg/ha compared to the world average of 100 kg/ha. Farmers in SSA have long been encouraged to use higher rates of fertilizer, but could not afford to do so. Because of this low fertilizer usage, yields of most food crops are often less than 500 kg per hectare in the dry areas, keeping African farmers mired in poverty.

Microdosing is the strategic application of small doses of fertilizer in the hill of the plant at sowing or at the base of the plants

shortly after planting. This departs from the conventional method of spreading fertilizer across the field. This precision placement helps the roots grow more quickly, capture more native (non-added) nutrients and find water. Although microdosing entails a lot of manual labor, the combination of these effects significantly increases the agronomic as well as economic efficiency of nutrient and water use, and consequently, raises yields.

ICRISAT and its partners – NARS, universities, NGOs and farmer organizations – have worked for several years to develop this technology, tied with the warrantage credit system where farmers take a loan against their grain harvest in lean periods and sell the grain when prices are high to repay the loan. ICRISAT is currently working with partners in the Alliance for a Green Revolution in Africa (AGRA) to increase the production of millet, sorghum, cowpea and maize by 50%, targeting an increase in farm income of 30% for at least 360,000 farm households in Burkina Faso, Niger and Mali. This project is well on the way to achieving its goals.

Take the story of Mamadou Batougounè Sylla of Baraouili, Mali, who has become a champion in his village. When the AGRA-

Mamadou Sylla explaining his achievements to visitors in his farm, in Baraouili, Ségou, Mali.



ICRISAT project started, he was among the first farmers to join. Ten years ago, Mamadou was like any other farmer in Baraouili. He had sufficient farmland, but the soil was too poor to produce enough food to feed his family. He then joined the microdosing project and worked with extension agents and Sasakawa 2000, an NGO supervising farmers. "Ten years ago, I could barely feed my family, and I had to crop 20 ha of land and hire labor with little return on my investment," he says.

He planted millet, sorghum, maize, groundnut and sesame, and yet harvested too little to make a living. With the project, he learned about microdosing and became a lead farmer. He was selected to set up demonstration plots and farmer field schools on his farm and teach other farmers of his village. His motto: *Do not take everything from the soil; feed the soil so that it can feed you.*

Mamadou's millet and sorghum yields increased from 300-500 kg/ha to 1800-2000 kg/ha. Cropping only 10 ha (half his land holding) was enough to feed his family of 30. He now owns 3 bulls, 2 donkeys, 10 cows and 10 goats. He invested in more efficient equipment – 2 plows, 1 multi-cultivator,

1 planter and 2 carts. His engagement in promoting new technologies was officially rewarded with a medal of agricultural merit by the government of Mali. His goal is to bring women and children into the picture. When he talks about his newly gained knowledge to visitors, he always asks young farmers to come and listen. He donated a portion of his land to a group of women to produce and sell groundnut seed (an income-generating activity for women in the region). His message to his friends in the village is to test and select new technologies to fit their needs.

In addition to higher crop yields, two more crucial advantages of fertilizer microdosing are its adoptability and profitability. The cost of fertilizer at the village level is often more than three times as much as in the developed world, due to high transport and transaction costs. By using much lower rates of fertilizer in more efficient ways, and with input stores nearby, farmers are much more inclined to adopt the practice.

Indeed, if all African farmers are like Mamadou, a Green Revolution and food sufficiency in sub-Saharan Africa is certainly within reach in the near future.



Duttala Narayana Reddy in his flourishing chickpea field.

Outcome: Intensification

A “C-Change” in Southern India

Duttala Narayana Reddy, a chickpea farmer and head of a household of 10, is a contented man. Along with his neighbors in Kurnool district, Andhra Pradesh, southern India, he is reaping the vast benefits of the chickpea revolution that triggered significant improvements in the living standards of farmers in nearly 100 villages of the district.

To appreciate the chickpea revolution in southern India, we need to go back a few decades. Northern India, with its long winters, has the most suitable conditions for chickpea cultivation. However, expansion of irrigation and high-input agriculture led to large replacement of chickpea by wheat and other cash crops. During 1964-65, the chickpea area in northern India (Punjab, Haryana, Uttar Pradesh and Bihar states) was 5.14 million hectares; it has now shrunk to only 0.73 million hectares.

Chickpea (garbanzo or bengal gram), is the most produced and consumed pulse crop of India, contributing 40% of the country's pulse production. India is the largest chickpea producing country with 67% share of total global production. Despite this, chickpea production in India is not adequate to meet domestic demand, making it the largest importer of chickpea for many years.

ICRISAT, in partnership with the Indian Council of Agricultural Research (ICAR) and State Agricultural

Universities (SAUs), developed short-duration chickpea varieties with high yield potential and resistance to fusarium wilt, which were well adapted to short season environments of central and southern India. Thirty-five varieties have been released through this partnership mainly in central and southern India where the cropping season is shorter and warmer than in the North. The chickpea area in central (Madhya Pradesh, Maharashtra) and southern states (Andhra Pradesh, Karnataka) increased from 2.05 m ha in 1964-65 to 5.56 million ha in 2008-09. This increase helped India to meet import demands.

The chickpea revolution in southern India is particularly apparent in the state of Andhra Pradesh. Short-duration chickpea varieties such as JG 11, KAK 2, JAKI 9218 and Vihar, developed through partnership with SAUs in India, have been rapidly adopted and now cover over 90% of the chickpea area. Acharya NG Ranga Agricultural University, the public seed sector and progressive farmers played important roles in the spread of improved varieties.

The chickpea area in Andhra Pradesh was 163,000 ha during 1999-2000 and 90% of this area was under the four-decade old chickpea variety Annigeri. During the last 10 years, from 1999 to 2009, chickpea area has increased from 163,000 to 628,000 hectares and production has increased from 95,000 to 884,000 tons/year.



Bumper harvest of chickpea being taken to market for sale.

The increase in productivity levels from 583 kg/ha to 1400 kg/ha during this period is most remarkable. Andhra Pradesh, once considered an unfavorable state for chickpea cultivation, has today the highest yields for chickpea in India, with an average yield of 872 kg/ha.

Australia, Mexico, Myanmar and Canada are the major chickpea exporting countries. The total chickpea production of Andhra Pradesh is now close to the total chickpea production of these countries. The phenomenal increase in Andhra Pradesh has helped India to better meet its domestic demand. For the first time in three decades, India was the net exporter of chickpea in 2007, as its exports (162,000 tons) exceeded the imports (145,000 tons).

Earlier, Duttala Narayana Reddy and his friends cultivated sorghum. Their incomes were just enough to meet basic necessities and food requirements. After switching to chickpea cultivation they found that during the drought years, as well as during years of heavy rain, varieties such as JG11 and Vihar do well with minimum crop loss compared to the old varieties. Incomes have increased from \$75/ha to \$500/ha.

The chickpea area in Andhra Pradesh expanded as farmers replaced crops such as sorghum, cotton, chilies and tobacco with chickpea, which is less labor intensive and more profitable. The chickpea variety JG11, developed through partnership with Jawaharlal Nehru Krishi Vishwa Vidyalaya agricultural

university, Jabalpur, is currently the most popular variety in Andhra Pradesh covering about 80% of the chickpea area.

This variety spread very rapidly during the recent years and there was a huge demand for seed. Public seed corporations produced over 46,000 tons certified seed of JG11 in a period of 3 years (2008–2010), which is a record for any chickpea variety in India.

Farmers benefitting the most are in Kurnool district. Since chickpeas are grown only during the postrainy season (November to May), and also due to mechanization, farmers with extra time on their hands are taking up dairy farming in addition to chickpea cultivation. They now earn additional incomes of \$2,250 to \$3,250 per year. These farmers have acquired television sets, motor bikes, tractors and threshers. They now live in brick houses as opposed to the earlier huts and mud dwellings. Narayana Reddy is educating his grandchildren in a residential school, a practice not common among the farming community, and some farmers are actually saving about \$4,500 a year in their bank accounts.

There has been a transformation from subsistence to market-oriented cultivation for chickpea in Andhra Pradesh, which provides an excellent example of IMOD. The success story of chickpea in Andhra Pradesh is proof positive that adoption of technologies with adequate support systems can enhance production of chickpea in other regions of South Asia and sub-Saharan Africa, where yield levels continue to remain low.



AVRDC and ICRISAT help farmers to produce superior tomatoes.

Outcome: Diversification

Not by Bread Alone

The road from Niamey, Niger to the ICRISAT Sahelian Center in Sadoré is 45 km long. On the left, parallel to the road, is the mighty Niger river. On the right, are the typical degraded lands of the Sahel, dotted with rocks and shrubs, and offering an unbroken vista of Niger's dry dusty reddish-brown soil.

In recent years the monotony of this landscape has been broken by vegetable stalls, standing out like jewels in the desert, displaying heads of brilliant green lettuce, plump purple eggplants, bright red tomatoes, and succulent okra. We also see patches of vegetable and fruit gardens that supply the produce to these stalls, and Moringa and Pomme du Sahel trees.

The lives of people in these rural districts have improved radically due to the ICRISAT-developed African Market Garden (AMG). ICRISAT's Crop and Systems Diversification program in West Africa began supporting farmers in 2008, providing training, technical support and, along with our partner the World Vegetable Center (AVRDC), superior vegetable seeds. The year round availability of healthy vegetables has benefitted many families in the entire district.

Hadiza Sidibé from the women farmers' group of Yobbi in Birni'n Gaouré, Niger, is happy with the 0.5 ha AMG system. Hadiza has five children

and used to be a teacher, but turned to vegetable farming when she acquired a drip irrigation system with artesian energy. Today, instead of buying expensive vegetables for her family, she sells vegetables, earns 50% more than before, and has considerably improved her family's living conditions.

Twenty-five year old Fati Amadou is married with four children. She is part of the Doga Womens Group who benefitted from a vegetable garden with a drip irrigated African Market Garden and a rainfed section. The garden is off the road, half way between Niamey and Sadoré. Before the project, Fati would make a little money selling deep fried dough pastries on the street and braiding women's hair. "Now, I can eat lettuce and tomatoes that I grow myself. I thank ICRISAT, because in the past there were days when there was nothing to eat." says Fati Amadou, adding, "I wish that our garden could be bigger so that our husbands can also be enticed to work here."

The secretary of the Doga women's group who benefitted from a vegetable garden is 45-year old Adiza Soumana, a mother of four. Before the project, Adiza sold cloth, Moringa leaves and potatoes in the local market. She thanks God for her garden because she can now eat better. "With the lettuce and tomato, we add some oil



Eggplant, okra and other vegetables provide for a well-balanced diet.



and cassava powder and it's a real delight!" she says. "Times are often difficult before the rainy season, so any crop we can grow during the dry season helps us tremendously," she adds. She urges all women to go out and work in gardens instead of "creating problems" with their husbands regarding food for the family.

Foureyra Hamidou is another member of the Doga group who received training in vegetable production from ICRISAT. Foureyra works on an irrigated and rainfed garden on the Niamey-Sadoré road. Forty-seven years old and with six children, she explains the hardships of her life, which include the grinding of millet and corn to make porridge for her family, and her husband's poor health. "I thank ICRISAT for thinking of us in this way. With the project, thanks to God, we have our share, we eat well and we are happy to have had a good harvest," she adds gratefully. She realizes that without this garden, it would be difficult to get lettuce. She recommends that women join the group and work to "guarantee their life". She continues, "Without the union we are nothing!"

The African Market Garden refers to a holistic vegetable production system enhanced with drip irrigation, utilizing improved variety seeds, adequate fertilizer (natural and chemical), effective pest management practices, appropriate

production/harvest techniques and ideal year-round crop production planning. Different versions of AMG have been developed to take advantage of the women's social structure (communal system) and the men's individualism (individual system). In addition, rather than petrol or electricity, artesian and solar energy are used to pump water needed for the drip irrigation.

The African Market Garden success is not restricted to Niger. ICRISAT has helped to install AMGs in a total of eleven Sahelian countries, chiefly Benin, Burkina Faso, Ghana, Mali and Senegal, with similar benefits.

Over a period of nine years, ICRISAT, later joined by AVRDC, has been selecting, purifying and breeding new vegetable varieties for the Sahel to replace/stop import of seeds from Europe. In 2010, the women of these districts produced 12 times more vegetables than before. They sell more than 80% of their produce and consume the rest.

Diets based solely on millet are things of the past. These farmers are making money and are feeding their families with more nourishing food, making it possible to reach the daily allowance of vegetable consumption recommended by the US Department of Agriculture.



Farmers queue up to receive relief maize seed in Zimbabwe.

Outcome: Resilience

From Relief to Resilience

These days, life is a little bit easier for Emilia Marufu, a 41-year old widow living in Macharaga Village in Masvingo, Zimbabwe. In 2009/10 Marufu grew enough maize to feed herself and her two children. She also didn't need to work in her neighbor's fields to earn cash that would enable her to supplement what she grew with store-bought maize meal. In fact, Marufu used the extra time to work on her vegetable garden, which has now become her most important source of cash. "I've bought two goats with the money from my fields," she says.

Improved hybrid maize seed and better crop management practices have made the difference in Marufu's life. Marufu received the hybrid maize seed through the Zimbabwe Emergency Agricultural Input Program (ZEAIP), funded by the World Bank and managed by GRM International. The program was implemented in the 2009/10 cropping season by NGOs, either through direct distribution of maize seed in 40 districts of Zimbabwe or through vouchers that could be redeemed for maize seed at local retail shops in 5 districts. A total of 3045 tons of improved maize seed was made available to more than 300,000 households in the country.

Relief programs have become a part of Zimbabwe's agricultural landscape, stemming

from the country's propensity for drought and a decade of economic uncertainty. However, while providing important inputs to farmers, implementing relief programs in the long term comes with its own consequences. It can create a culture of dependence and can suppress local market development. For example, seed companies in Zimbabwe stopped supplying rural outlets since they believed that farmers would receive free seed from NGOs.

In order to better understand the efficacy of relief programs and determine ways to ensure the development of local industries and business, GRM International invited ICRISAT to conduct an impact assessment of ZEAIP for the 2009/10 cropping season. "Impact assessments can generate important knowledge on what works and why," says Kizito Mazvimavi, Economist at ICRISAT-Bulawayo. "Based on the results, we can tailor how relief is provided to various communities in the future in order to ensure a more successful transition from relief to self-sufficiency."

Mazvimavi and his team conducted two surveys in 2009/10 during post-planting (12 districts) and postharvest seasons (6 districts) in Zimbabwe. They interviewed a total of 1079 households and revisited 364 households towards the end



Agro-dealer in Chivi district hands over groundnut seed to farmers in exchange for vouchers.

of the season. The post-planting survey results showed that ZEAIP was very successful in targeting farmers. More than 70 percent of the beneficiaries did not have access to draft power. Farmers without draft power are often among the poorest and have to wait for their neighbors with draft animals to help them with their fields. This delay in planting often results in reduced yields. The results also showed that more than 90% of the seed that was distributed was actually sown; in other words, ZEAIP seed was planted on 134,000 hectares, contributing to a 14% increase in the total area planted to maize during the 2009/10 cropping season as compared to the 2008/09 season.

The postharvest results were also positive. Harvest data showed that on average farmers who planted ZEIP hybrid seed had more than doubled their yields (1411 kg/ha) compared to those who used recycled seed (620 kg/ha). Marufu, for example, got a yield of 333 kg/ha in the 2008/09 season when she used recycled maize seed. In 2009/10 she had a yield of 1167 kg/ha using hybrid maize seed as well as the conservation agriculture package, which meant she planted her seed on time with the first effective rains of the season. The rainfall pattern for the two seasons were similar, with mid-season droughts affecting yields.

The survey also captured the opinions of some of the 46 agro-dealers who were engaged in the program and helped implement the voucher-based distribution. Most of the agro-dealers interviewed were paid on time and felt that the voucher-based program allowed them to create business links and networks with Seed Co, one of the main seed companies in Zimbabwe. They also felt they had improved their knowledge on aspects such as seed storage and had even increased sales of their other products.

“We have to move from direct distribution of seed to market-based options so that commercial market channels can be revived in Zimbabwe. But in some areas direct distribution may be the only option as there are still villages in the country with very little market infrastructure,” Mazvimavi says. Assessments of the situation have helped to determine which mode of delivering relief inputs can work best for each area for the greatest success. “Given the political instability and natural disasters that continue to affect many countries in eastern and southern Africa, these assessments are helping us generate a lot of interesting information on designing relief programs that can be used elsewhere. It also expands our understanding of how to rebuild agricultural systems after periods of shock,” Mazvimavi says.



Mrs Khumbizeni of Jasiteni village responds to questions from an appraiser.

Outcome: Health and Nutrition

Now Healthy, Wealthy and Wise

Contrary to its exotic, holiday resort-sounding name, the Lakeshore District of Salima in Malawi has been home to poverty stricken farmers for decades. The district gets a paltry 300 mm average rainfall a year, people here are constantly faced with food insecurity, and malnourished children under the age of five are a common sight. The plights of the surrounding districts, Balaka, Chikwawa and Mangochi, are much the same.

Maize and cotton are the main cultivated crops in these districts. In 2004, ICRISAT, funded by the Development Fund of Norway, implemented a project on *Enhancing groundnut (peanut) production in the non-traditional and dryland areas of Malawi for improved nutrition and poverty alleviation*. Through the project, ICRISAT promoted early duration groundnut and pigeonpea varieties in these districts to test for adaptation, and more importantly, for human health and nutrition. As one of the goals clearly states, the project was specifically aimed at “enhancing consumption of groundnuts and pigeonpeas through use of different recipes to reduce malnutrition.”

A recent appraisal of the project indicated an increase in adoption area and yields of short duration groundnut varieties introduced in these districts (JL 24 and ICGV 12991). The study also discovered that pigeonpeas were gaining

ground in terms of adoption, as about 45% of the interviewed households indicated that they had either a pure stand or intercropped pigeonpea with maize.

All the interviewed households were unanimous in stating that the two crops were a good source of food (proteins and oil) and income. The households indicated that they normally consumed groundnuts as crushed nuts (the children love this powder with their porridge), roasted nuts, cooked as relish, eaten as fresh, raw or boiled nuts. They ate groundnuts on a daily basis. Referring to the fact that groundnuts were easier to chew and tastier than maize, Mrs Bamusi and Mr Elliot Africa informed the interviewer that children had stopped roasting maize for snacks – they roast groundnuts instead.

On the contribution of the crop to improved nutrition, the Headman of Jasiteni village concurred with other respondents on the reduced cases of malnutrition in the communities as evidenced by the much fewer cases of children who are taken to the Nutrition Rehabilitation Units of the Ministry of Health for treatment.

In another instance, 53-year old Aida Manani of Mtembeta Village, Chikwawa district had been suffering from low blood pressure since 2003, and several treatments to normalize this at the district hospital were to no avail. Aida claims that



Farmers of Thukwi village dry groundnuts on the roof to prevent the growth of aflatoxin-causing fungi.

when she started growing and eating the Kakoma groundnut variety in 2006, which she got from ICRISAT, she never dreamed that the seed could miraculously cure her long-standing ailment. She says that she has been regularly eating this groundnut in the form of *nsinjiro* (dry roasted nuts pounded into flour), fried and sometimes raw, and has not experienced the low blood pressure since 2008. Although an investigation to determine the correlation between consumption of Kakoma variety and normalizing of blood pressure will need to be done before it is medically accepted, Aida strongly believes that the Kakoma groundnut has stamped out her health problem.

In general, the people of these districts agree that the Kakoma variety is good for health and nutrition. Nursing mothers were especially appreciative as they feel they have been blessed with more milk since they began eating this variety of groundnut.

All the respondents mentioned that the benefits accrued from groundnut adoption allowed them to buy goats, chickens and pigeons. They also indicated that they were able to buy more food (maize and relish) with proceeds from groundnut sales.

Coming to quality, one of the important aspects in groundnut consumption and marketing,

aflatoxin contamination of groundnut is a key challenge to health and nutrition. Farmers indicated that they could control this after they were trained on proper drying of groundnuts to right moisture content, and also after ensuring that they harvested groundnut at the right maturity. Farmers reported that once the groundnuts are properly dried they are put in bags on a raised platform in the house. This is done to prevent the bags from absorbing moisture and promoting the growth of fungal pathogens, which are the source of aflatoxin.

Groundnuts from farmer's households registered the highest level (3871 ppb) of aflatoxin contamination (maximum permitted by EU is 4 ppb). The dangerously high levels are indicative of the fact that farmers sell the best nuts and leave the inferior nuts for their home consumption. Groundnut remains the cheapest most easily available source of protein among most Malawians. More studies are needed to ascertain the source of dietary contamination and to establish whether the state of human nutrition is at risk in Malawi as a result of aflatoxin contamination.

In the meantime, the farmers in the Lakeshore districts of Malawi seem to be coping by minimizing the risks, are definitely leading healthier lives from the improved and nourishing diets, and are becoming prosperous with their improved incomes.



Women SHGs of Kothapally village, prepare a vermicompost unit.

Outcome: Women Empowerment

Watersheds: Wishing-wells for Women

Women in poor farm households of the semi-arid tropics most often live lives of second-class citizens. Uneducated and without property, they are subservient to their men folk. In the drought-prone areas of these tropics, watersheds are recognized as entry points to reduce poverty, increase food security, protect the environment, and most importantly enhance the benefits of women.

Kothapally village, in Andhra Pradesh, India, home of the Adarsha watershed promoted by ICRISAT and partners, has become a beacon for science-led rural development. Due to additional groundwater recharge, farmers here were able to expand the area of cultivation, doubling their incomes in three years. As part of the watershed program, the ICRISAT consortium partners introduced a number of microenterprises, such as vermicomposting, biopesticide production, livestock rearing, nursery raising and waste land development (using *Jatropha* trees for biofuel), for women Self-Help Groups (SHG).

Lakshmi, a poor resident of Kothapally, eked out a living as a farm laborer till she was introduced to vermicomposting. This occupation, which converts degradable garbage, weeds and crop residues into valuable organic manure using earthworms, helps Lakshmi earn an additional US\$36 per month in her spare time. Delighted with her success, she encouraged and trained

300 peers in 50 other villages, and has been awarded Fellow of the Jamshedji Tata National Virtual Academy for Rural Prosperity for her inspiring achievements.

The Powerguda watershed in Adilabad district of Andhra Pradesh was implemented by a women's SHG. Agricultural productivity increased up to 350%. Led by a woman named Subhadrahbi, the women learned new farming techniques including cultivation of vegetables. They also gainfully employ a machine (donated by the Integrated Tribal Development Agency) to extract oil from seeds of *Pongamia* (for biofuel) and neem (as a biopesticide) that is sold in the market. The women also planted over 18,000 *Pongamia* trees at the turn of the century to ensure future supply of oilseeds, an activity that led to the sale of 147 carbon units to the World Bank. From this additional income they invested \$670 in tree nurseries. Average family incomes increased by 77%, seasonal migration from the village has virtually ended, and the strong leadership by women in the village has given them a high social standing since 1999. More, the transformation of Powerguda, has attracted government investment in watershed development.

The Janampeth watershed village in Mahboobnagar, a drought prone district of Andhra Pradesh, is a step ahead of the



Women of Powerguda village prepare polythene bags for tree nurseries.

Powerguda and Adarsha watersheds. With supporting policies from the government, the women SHGs not only implemented the watershed programs for the Andhra Pradesh Rural Livelihoods program but were federated at the village and mandal (municipality) levels. In Addakal mandal, a group of 500 women from 17 villages federated to form the *Mahila Samaikhya*. To date, they operate a cooperative bank, a resource center for a training and knowledge hub, a highway restaurant, a cooperative store, and food drying enterprises using sun driers. They are connected worldwide through information technology and have facilitated empowerment of other women. By standing as guarantors, the federations can help the SHGs to borrow money at lower interest rates.

In the northern Indian state of Jharkhand, the women SHG from a tribal village, Teleya, in Gumla district, established a village seed bank. They took a loan of \$333 as a revolving fund, leased village land to grow chickpea, and fenced their field to protect their crop from stray cattle. In 2008–09, these women harvested and sold 600 kg of chickpea seed to farmers from 11 surrounding villages, and have themselves saved \$890 from this effort. In addition, they were able to buy 300 kg of improved groundnut seed to expand their cultivation.

The women SHGs in the Bundi watershed of Rajasthan have embarked on an innovative goat rearing microenterprise by procuring a Sirohi buck that they rent for stud fees. Since 2003 the

village has produced 938 crossbred goat kids worth almost \$30,000. The original revolving fund of \$6000 has transformed the lives of these women – they now proudly earn just as much as their male partners who cultivate land.

There are similar success stories from watershed programs in China, Thailand and Vietnam.

In the Wang Chai watershed, Thailand, Mrs Supatra led a women SHG in making soap, shampoo, fish sauce and fish feed. What started as an enterprise to save money by making the fish sauce at home, has now grown into a commercial enterprise bringing in additional income.

In Xiao Xing Cun, Yunan province of China, women are in the forefront of all watershed meetings. They undertake kitchen gardening and run biogas plants. Family incomes have doubled. Prior to the biogas plants, the villagers cooked with fire wood and electricity. Since 2005, they save on tree cutting and electricity, and also gain the 2 hours a day they used to spend collecting firewood. Referring to the biogas success, Mrs Wang Xianhui, group leader of the Lucheba province SHG, says, “Ten years ago I wanted to go to the city to earn more, but now, right here in my village, I have a better income and cleaner environment.”

These cases demonstrate how women can be empowered with a little encouragement, and we also see how the watershed projects provided a platform for inclusive market-oriented development without jeopardizing social norms.

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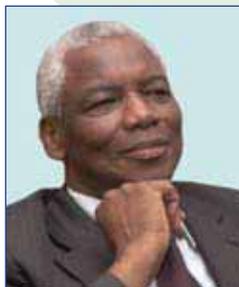
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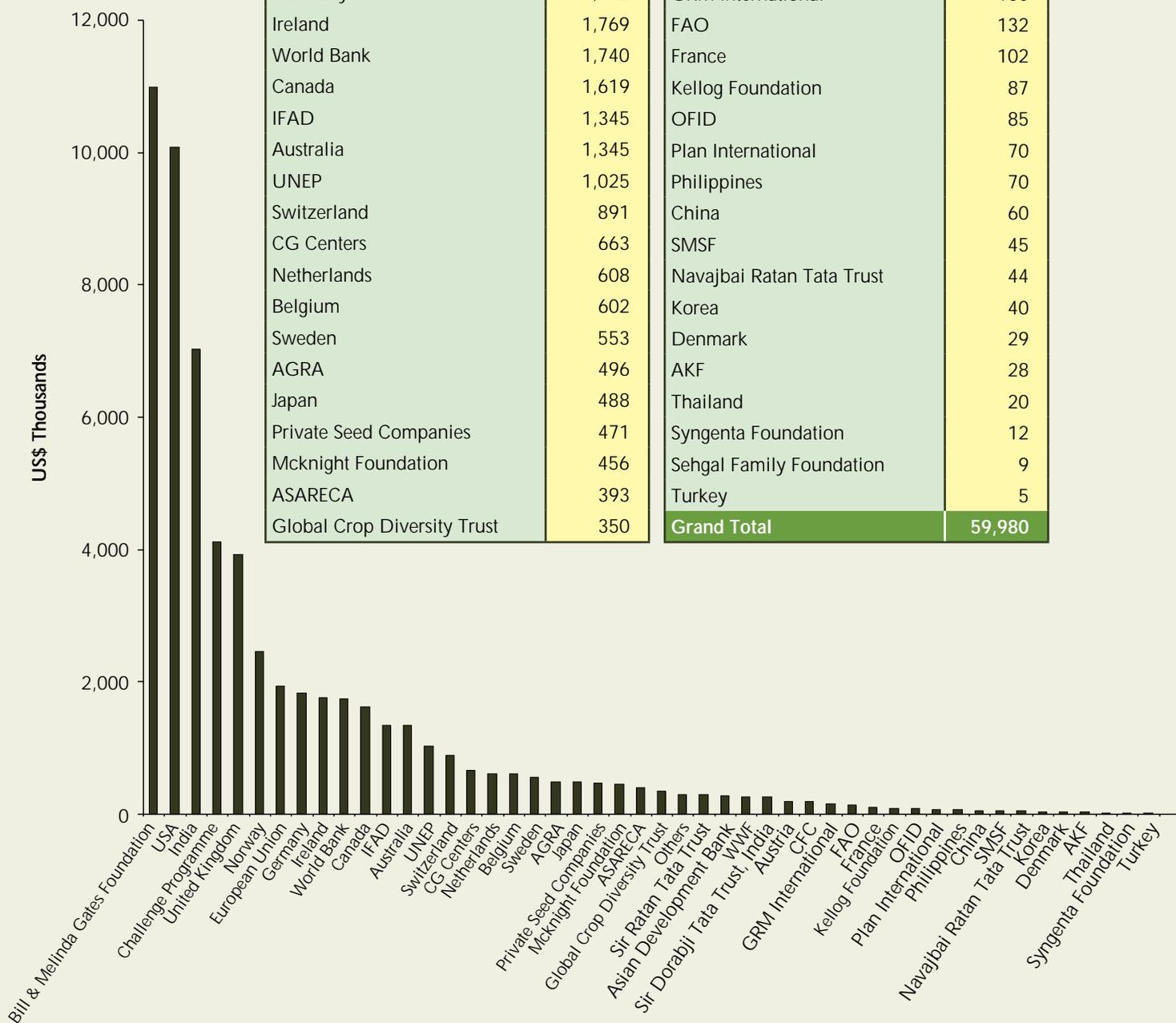
Financial Summary

Balance Sheet		
	US\$ thousands	
	2010	2009
Assets		
Cash and Cash equivalents	5,490	5,738
Investments	47,828	48,349
Accounts receivable	18,533	11,819
Inventories	949	852
Prepaid Expenses	379	312
Property and Equipment - net	5,971	6,169
Other assets	1,076	2,303
Total Assets	80,226	75,542
Liabilities		
Accounts payable	17,689	12,990
Accruals and provisions	2,514	1,527
Payments in advance from donors	19,023	23,375
Long-term liabilities	12,148	12,194
Total Liabilities	51,374	50,086
Net Assets		
Unrestricted		
Unappropriated	18,647	15,120
Appropriated	8,113	8,294
Permanently Restricted	2,092	2,042
Total Net Assets	28,852	25,456
Total Liabilities & Net Assets	80,226	75,542

Operating results and movements in Net Assets		
	US\$ thousands	
	2010	2009
Operating results		
Revenue	64,734	52,019
Expenditure	61,207	49,892
Change in net assets, operational	3,527	2,127
Net Assets - Unrestricted		
Unappropriated		
Balance, beginning of the year	15,120	12,993
Operating (deficit)/surplus for the year	3,527	2,127
Changes in accounting policies	-	-
Balance, end of the year	18,647	15,120
Appropriated		
Balance, beginning of the year	8,294	8,294
Changes in accounting policies		
Acquisition of physical facilities	(181)	-
Total Net Assets - Unrestricted	8,113	8,294
Net Assets - Permanently restricted	2,092	2,042
Total Net Assets	28,852	25,456

Grant income from donors for 2010

Donor	US\$ ' 000	Donor	US\$ ' 000
Bill & Melinda Gates Foundation	10,996	Others	301
USA	10,082	Sir Ratan Tata Trust	294
India	7,037	Asian Development Bank	274
Challenge Programme	4,124	WWF	265
United Kingdom	3,920	Sir Dorabji Tata Trust, India	262
Norway	2,459	Austria	190
European Union	1,942	CFC	190
Germany	1,832	GRM International	160
Ireland	1,769	FAO	132
World Bank	1,740	France	102
Canada	1,619	Kellog Foundation	87
IFAD	1,345	OFID	85
Australia	1,345	Plan International	70
UNEP	1,025	Philippines	70
Switzerland	891	China	60
CG Centers	663	SMSF	45
Netherlands	608	Navajbai Ratan Tata Trust	44
Belgium	602	Korea	40
Sweden	553	Denmark	29
AGRA	496	AKF	28
Japan	488	Thailand	20
Private Seed Companies	471	Syngenta Foundation	12
Mcknight Foundation	456	Sehgal Family Foundation	9
ASARECA	393	Turkey	5
Global Crop Diversity Trust	350	Grand Total	59,980



List of restricted projects that commenced in 2010

Donor Country	Donor Agency / Organization	Project Title	Partners	Project Scientist
AGRA	Selian Agricultural Research Institute (SARI), Tanzania/AGRA	Improving soil fertility, productivity and livelihoods of smallholder farmers in Tanzania through intensification and diversification of pigeonpea cropping systems	Nil	SN Silim
Australia	University of Western Australia/COGGO	Accelerated genetic improvement of desi chickpea (Phase II)	Punjab Agricultural University (PAU), India	PM Gaur
Belgium	SAI Platform	Water management best practice roll out in North-West India	Nil	SP Wani
CGIAR	Bioversity/BMGF	Measuring and assessing the impacts of the diffusion of improved crop varieties in Africa	Nil	J Ndjeunga
CGIAR	CCAFS/IWMI	Scoping study for CCAFS on agricultural information support services in the Indo-Gangetic Plains (IGP)	Nil	P Craufurd
CGIAR	CCAFS/ University of Copenhagen	Hosting West Africa Regional Facilitator of the Challenge Program on Climate Change, Agriculture and Food Security (CCAFS)	ILRI, Kenya; Ecoagriculture Partners, USA; CORAF/WECARD, Senegal; Winrock International, USA; Africa Rice Center, Benin; African Centre of Meteorological Applications for Development (ACMAD), Niger; AGRHYMET Regional Center, Niger; Applied Geosolutions, USA; INSAH, Mali; the Council for Scientific and Industrial Research (CSIR), Ghana	F Waliyar
CGIAR	CIMMYT/ACIAR	Sustainable Intensification of Maize-Legume Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA)	Nil	SN Silim
CGIAR	CPWF	Integrated management of rainwater to improve smallholder productivity and livelihoods and reduce risk	Limpopo Department of Agriculture, Zimbabwe; Progress Milling, Zimbabwe; World Vision International, Zimbabwe; Zimbabwe Fertiliser Company, Zimbabwe; AGRITEX, Zimbabwe; Gwanda South Rural District Council, Zimbabwe; Agricultural Research Council, Institute for Soil Climate and Water, South Africa	J Dimes
CGIAR	GCP/CI/ CIMMYT	Chickpea – Accelerating development of genomic resources and strengthening NARS partner capacities for enhancing adoption of molecular breeding for drought tolerance in chickpea	Egerton University, Kenya; Ethiopian Institute of Agricultural Research (EIAR), Ethiopia	R Varshney
CGIAR	GCP/CI/ CIMMYT	Enhancing sorghum grain yield and quality for the Sudano-Sahelian zone of West Africa using the backcross nested association mapping (BCNAM) approach	Institut d'Economie Rurale (IER), Mali;	E Weltzien-Rattunde
CGIAR	GCP/CIMMYT	Support for Product Delivery Coordinator (PDC) for the challenge initiative "Improving drought tolerance in chickpea for Africa and Asia".	Nil	PM Gaur
CGIAR	GCP/CIMMYT	Establishing a molecular breeding program based on the aluminum tolerance genes, AltsB, and the P efficiency QTL, Pup-1, for increasing sorghum production in sub-Saharan Africa	Moi University, Kenya; EMBRAPA, Brazil; Cornell University (Institute for Genomic Diversity), USA; USDA-ARS Robert Holley Center for Agriculture and Health, USA; Institut National de Recherche Agronomique du Niger (INRAN), Niger.	E Weltzien-Rattunde/ BIG Haussmann

Donor Country	Donor Agency / Organization	Project Title	Partners	Project Scientist
CGIAR	GCP/CIMMYT	Improving phosphorus efficiency in sorghum by the identification and validation of sorghum homologs for Pup-1, a major QTL underlying phosphorus uptake in rice	EMBRAPA, Brazil	E Weltzien-Rattunde
CGIAR	GCP/CIMMYT	Development of integrated SNP mining and utilization (ISMU) pipeline based on next generation sequencing (NGS) and high-throughput (HTP) genotyping technologies for facilitating molecular breeding	Scottish Crop Research Institute (SCRI), UK; University of Queensland, Australia; National Center for Genome Resources (NCGR), USA	R Varshney
CGIAR	GCP/CIMMYT/ BMGF	Improving tropical legume productivity for marginal environments in sub-Saharan Africa: Phase II	Department of Agricultural Research Services, Chitedze Agricultural Research Station, Ministry of Agriculture and Food Security, Lilongwe, Malawi; Indian Institute of Pulses Research, India; University of California-Davis, USA; ISRA (CNRA), Senegal; Ethiopian Agricultural Research Institute, Ethiopia; Diversity Arrays Technology Pty Ltd., Australia; Egerton University, Kenya; Naliendele Agricultural Research Institute, Tanzania; CIRAD-DAP, France; North Carolina State University, USA.	V Vadez / R Varshney
CGIAR	HarvestPlus	Identification of micronutrients and vitamin A precursor (β -carotene) dense-sorghum for better health in Western and Central Africa (WCA) and Central India	National Institute of Nutrition (NIN), India	A Ashok Kumar
CGIAR	HarvestPlus	Genetically enhanced pearl millet with high grain iron density for improved human nutrition in India	ILRI-India; State Agricultural Universities (SAUs) and private seed companies (members of ICRISAT-Private Sector Pearl Millet Hybrid Parents Research Consortium).	KN Rai
CGIAR	HarvestPlus	Genetically enhanced micronutrient-dense pearl millet grains for improved human nutrition in the Western Africa Region and India	CCS Haryana Agricultural University, India; Junagadh Agricultural University, India; Marathwada Agricultural University, India; MPKV College of Agriculture, India; Swami Keshwanand Rajasthan Agricultural University, India; Bioseed Research India Pvt Ltd, India; Devgen Seeds and Crop Technology Pvt Ltd, India; Ganga Kaveri Seeds Pvt Ltd, India; JK Agri Genetics Ltd, India; Kaveri Seeds Company Ltd., India; Nuziveedu Seeds Ltd., India; Spriha biosciences Pvt Ltd, India; Vibha Agritech Ltd., India; Metahelix Lifesciences Pvt Ltd., India	KN Rai
CGIAR	HarvestPlus	Coordination between HarvestPlus and Indian Biofortification Program	Nil	KK Sharma
CGIAR	IFPRI	Global futures	Nil	MCS Bantilan
CGIAR	IFPRI/BMGF	Global futures	Nil	MCS Bantilan
CGIAR	IRRI/BMGF	Tracking varietal change for future assessment of the impact of crop genetic improvement research in South Asia	Nil	MCS Bantilan
CGIAR	SLP/ILRI	Optimizing livelihood and environmental benefits from crop residues in smallholder crop-livestock system in sub-Saharan Africa and South Asia-regional case study	ILRI, Mozambiquean Agricultural Research Institute (IAM), Mozambique; Namibian National Farmers Union (NNFU), Namibia; Matopos Research Institute, Zimbabwe, Bunda College of Agriculture, Malawi;	S Homann

Donor Country	Donor Agency / Organization	Project Title	Partners	Project Scientist
FAO	FAO	Assessing the promotion of conservation farming adoption among smallholder farmers in Zimbabwe	Nil	I Minde
FAO	FAO	Production of foundation seed of pearl millet, groundnut and cowpea in Zimbabwe	Nil	I Minde
France	University of Paris-Sud	Quantification of genetic differentiation between early and late millet varieties in Niger – Contribution to multilocational trials under the prime project "PLANTADIV – Evolution of the Diversity of Domesticated Genetic Resources in the Lake Chad Basin"	Nil	BG Haussmann
Germany	BMZ/GTZ	Tackling abiotic production constraints in pearl millet and sorghum-based agricultural systems of the West African Sahel	Institut d'Economie Rurale (IER), Mali Institut National de l'Environnement et Recherche Agricole (INERA), Burkina Faso; Institut National de Recherches Agronomiques du Niger (INRAN), Niger; Institut Sénégalais de Recherche Agricole (ISRA), Sénégal; University of Kassel-Witzenhausen (UKW), Germany; University of Hohenheim (UH), Stuttgart, Germany	BG Haussmann
Germany	GTZ-New Delhi	Operationalize state level consortia of capacity development service providers, and mechanisms for community-based service delivery in districts.	Nil	SP Wani
Germany	University of Hohenheim (GTZ)	Understanding the present distribution of parasitic weeds of the genus Striga and predicting its potential future geographic distribution in the light of climate and land use change	Nil	T van Mourik
IFAD	EC/IFAD	Food facility programme	CORAF, Senegal; IER, Mali; ISRA, Senegal; INERA, Burkina Faso; INRAN, Niger; SARI, Ghana; INRAB, Benin; the University of Abomey-Calavi (UAC-Benin)	E Weltzien-Rattunde
IFAD	EC/IFAD	Increasing food security and household income through small stock market development in Zimbabwe	Rural District Councils (RDCs), Farmer Field Schools (FFS) Zimbabwe	A van Rooyen
IFAD	EC/IFAD	Improving farmer livelihoods and food security through enhanced legume productivity in India and Myanmar	Tamil Nadu Agricultural University (TNAU), Tamil Nadu Cooperative Oilseeds Growers Federation Ltd (TANCOF), Orissa University of Agriculture and Technology (OUAT), Orissa Tribal Empowerment and Livelihoods Programme (OTELP), Birsa Agricultural University (BAU), Ranchi; Rural Development Trust (RDT), Acharya NG Ranga Agricultural University, Hyderabad (ANGRAU), University of Agricultural Sciences (UAS)-Dharwad and Raichur, Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV), India; Jharkhand Tribal Development Society (JTDS), Ranchi; RVSKVV- Gwalior; Department of Agricultural Research (DAR), Myanmar Agricultural Service (MAS), Myanmar	GV Ranga Rao
India	DBT, GOI	Harnessing RNA interference (RNAi) technology for resistance to peanut bud necrosis virus (PBNV) in groundnut	Nil	P Bhatnagar-Mathur

Donor Country	Donor Agency / Organization	Project Title	Partners	Project Scientist
India	DBT, GOI	Second workshop under accelerated crop improvement program	Nil	R Varshney
India	DBT, GOI	Generation of mapping populations and identification of QTL(s) for downy mildew resistance in pearl millet	Indian Agricultural Research Institute (IARI), India	RP Thakur
India	DBT, GOI	Crop biofortification of groundnut and pigeonpea for alleviating vitamin A deficiencies in India	Nil	KK Sharma / P Bhatnagar-Mathur
India	DBT, GOI	Mapping of avirulence genes and mating type loci in <i>Sclerospora graminicola</i> , the pearl millet downy mildew pathogen	Nil	R Sharma
India	DBT/GOI	Molecular diagnosis and genetic variability in <i>Fusarium oxysporum</i> f.s.p ciceris causing Fusarium wilt of chickpea	Nil	M Sharma
India	Dept of Science & Technology (DST), GOI	Enhancing the income of resource poor farmers through introduction and expansion of improved chickpea production technologies (ICPT) in rainfed rice fallow (RRFL) lands in Jharkhand	Birsa Agricultural University, India	S Pande
India	Federation of Indian Chambers of Commerce and Industry (FICCI)	CV Raman International Fellowship for African researchers - Hame Abdou Kadi Kadi	Nil	HC Sharma
India	Hand in Hand, Tamil Nadu	Impact assessment study for the Capacity Development Program (CDP) funded by FMO and implemented in 4 districts of Tamil Nadu	Nil	AR Ilyas
India	Ministry of New and Renewable Energy (MNRE), GOI	Developing an atlas of high biomass sorghum amenable for ligno-cellulosic ethanol production in India	Praj Industries, India	P Srinivasa Rao
India	Sir Ratan Tata Trust	National symposium on use of high science tools in integrated watershed management	Department of Land Resources, Ministry of Rural Development, GOI; National Bank for Agriculture Reconstruction and Development (NABARD), India	SP Wani
Ireland	Irish Aid	Malawi seed industry development project	Nil	M Siambi
Kenya	African Seed Trade Association (AFSTA)	Baseline studies on key issues in four countries of Southern Africa	Nil	I Minde
Malawi	AGRA thru National Smallholder Farmers Association of Malawi (NASFAM)	Increasing benefits to smallholder farmers from improved soil fertility through integration of pigeonpeas, groundnuts and conservation agriculture in maize production systems of Malawi	Nil	M Siambi
Netherlands	Wageningen University, Department Plant Sciences	N2Africa: Putting nitrogen fixation to work for smallholder farmers in Africa	Nil	T Abate
Philippines	PCARRD/DA	Peanut seed security support program	Nil	R Mula
Philippines	The Bureau of Agricultural Research (BAR), Dept of Agriculture (DA), Philippines	Field testing of ICRISAT legume varieties and technologies in selected regions of the Philippines	Department of Agriculture, Bureau of Agricultural Research (DA-BAR), Philippines	CLL Gowda

Donor Country	Donor Agency / Organization	Project Title	Partners	Project Scientist
Sweden	Stockholm Environment Institute	Water for bioenergy production: opportunities and challenges	Nil	SP Wani
UNEP	UNEP-World Conservation Monitoring Centre (WCMC)	Enabling paradigm shift on monitoring and assessment within the UNCCD - Performance Review and Assessment of Implementation System (PRAIS)	Nil	P Craufurd
USA	Centennial Group	The prospects for Indian agriculture and rural poverty reduction	Nil	MCS Bantilan
USA	Cornell University (NSF)	BREAD: Platform, pipeline and analytical tools for next generation genotyping to serve breeding efforts in Africa	Nil	CT Hash
USA	International Foundation	Intensification of Gum Arabic production in the Sahel	Nil	D Pasternak
USA	Iowa State University/ BMGF	Seed policy enhancement in African regions (SPEAR)	Nil	I Minde
USA	McKnight Foundation	Hosting of position for the McKnight Foundation's Collaborative Crop Research Program	Nil	RB Jones (left)
USA	McKnight Foundation	Phosphorus efficient sorghum component of the McKnight Foundation dynamic genepool project [Extended support]	Institut d'Economie Rurale (IER), Mali; Institut National d'Etudes et de Recherches Agronomiques (INERA), Burkina Faso; Institut National de Recherches Agronomiques du Niger (INRAN), Niger; University of Hohenheim, Germany; Farmer organizations in Burkina Faso and Mali	F Rattunde
USA	McKnight Foundation	Assessing and refining the concept of dynamic genepool management and simultaneous farmer-participatory population improvement in pearl millet and sorghum	Institut d'Economie Rurale (IER), Mali; Institut National d'Etudes et de Recherches Agronomiques (INERA), Burkina Faso; Fuma Gaskiya & Union Harey-Bane de Tera, Niger; Union Made-Bane de Falwel, Niger; AMSP & UGCPA, Burkina Faso; AOPP, ULPCD & ASEDES, Mali.	BG Haussmann
USA	McKnight Foundation	Sustaining farmer-managed seed initiatives for sorghum and pearl millet in Mali, Niger and Burkina Faso	Institut d'Economie Rural, Mali; Institut National de l'Environnement et des Recherches Agricoles (INERA), Burkina Faso; Institut National de Recherche Agricole au Niger (INRAN), Niger; Union de Groupement pour la commercialisation des Produits Agricole, Boucle du Mouhoun UGCPA/BM, Burkina Faso; Association Minim Song Panga, Burkina Faso; Union Locale des Producteurs des Céréales de Dioila, Mali; Association des Organisations Paysannes Professionnelles, Niger; Union Harey-Bane de Tera, Niger; Union Made-Bane de Falwel, Niger; Fuma Gaskiya	E Weltzien-Rattunde
USA	McKnight Foundation	Groundnut variety improvement for yield and adaptation, human health and nutrition	National Smallholder Farmers' Association of Malawi (NASFAM), Malawi; Kamuzu Central Hospital, Malawi; Department of Research and Development (DRD) of the Ministry of Agriculture and Food Security, Tanzania; Sokoine University of Agriculture, Tanzania	ES Monyo
USA	McKnight Foundation	Sustaining farmer-managed seed initiatives for sorghum and pearl millet in Mali, Niger and Burkina Faso	Nil	E Weltzien-Rattunde
USA	McKnight Foundation	Enhancing bioavailability of iron and zinc in varieties of sorghum and pearl millet consumed in Mali	Helen Keller International, Mali; IER, Mali.	F Rattunde

Donor Country	Donor Agency / Organization	Project Title	Partners	Project Scientist
USA	McKnight Foundation	Innovative communication media and methods for more effective aflatoxin mitigation, variety uptake and use in groundnut in Malawi and Tanzania	Sokoine University of Agriculture; Naliendele Research Station, Tanzania	M Siambi
USA	NCBA-CLUSA	The "ARZIKI" Niger food security program	Nil	D Pasternak
USA	SELF	Benin micro-irrigation project	Nil	D Pasternak
USA	University of California-Davis (NSF)	BREAD: Overcoming the domestication bottleneck for symbiotic nitrogen fixation in legumes	Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya (RVSKVV), India; Punjab Agricultural University (PAU), India	R Varshney
USA	University of Georgia	Peanut collaborative support research program (Peanut CRSP)	Virginia Polytechnic Institute and State University (Virginia Tech), USA; Makerere University, Kenya	RB Jones (left)
USA	University of Georgia, Peanut CRSP	Evaluation of Valencia core collection	New Mexico State University, USA	HD Upadhyaya
USA	University of Georgia/GCP	Discovery and development of alleles contributing to sorghum drought tolerance	Nil	CT Hash
USA	University of Wisconsin-Madison	Provide services and materials to support field assistants and soil analysis lab work	Nil	F Waliyar
USA	USAID	Platform Mozambique -- Increasing the profitability of legume production in Mozambique through technology discovery, development and delivery linked to markets	Nil	M Siambi
USA	USAID	Platform Mozambique - Implementation of the Consortium Facilitation Unit (CFU) to support agricultural research in Mozambique	Nil	C Dominguez
USA	USAID	Platform Mozambique (IFDC) – Agricultural inputs market strengthening	Nil	M Siambi
USA	USAID	Vegetables for Indonesia - AVRDC	Nil	
World Bank	World Bank	ARD Learning exchange on rural and agricultural livelihoods in Andhra Pradesh and Tamil Nadu, India	Nil	P Ninnes
Zimbabwe	Action Contra la Feim (ACF)	Supplementary activities under the Protract Relief Program project "Strengthening capacity to promote sustained agricultural production improvements by smallholder farmers in semi-arid regions of Zimbabwe."	Nil	K Mazvimavi
Zimbabwe	GRM International	Impact assessment of Zimbabwe Emergency Agricultural Input Project (ZEAIP)	Nil	K Mazvimavi
Zimbabwe	GRM International	Protracted Relief Programme Phase II (PRP II) – Strengthening capacity to promote sustained agricultural production improvements by smallholder farmers in semi-arid regions of Zimbabwe	Nil	K Mazvimavi
Zimbabwe	World Vision	Supplementary activities under the Protract Relief Program project "Strengthening capacity to promote sustained agricultural production improvements by smallholder farmers in semi-arid regions of Zimbabwe."	Nil	K Mazvimavi

Workshops, Conferences, and Meetings in 2010

Event/Topic/Dates Workshops/Meetings	Location	Participants	Participating countries/ Institutes	Resources and collaborative support
Strategic Planning , 11–13 & 26–28 Jan, 23–25 Feb	Patancheru & Sadore	136	India, ICRISAT-WCA, NARS, Private Sector & GB member	ICRISAT
National symposium on Integrated Watershed Management, and Project Review & Planning meeting, 1–2 Feb; 4–6 May	Delhi & Udaipur	138	India	ICRISAT, Govt of India, Sir Dorabji Tata Trust, Sir Ratan Tata Trust and NABARD
ESA in-house strategic planning retreat, 1–3 Feb	Nairobi, Kenya	37	ICRISAT-ESA	ICRISAT
Groundnut and Chickpea Field Day for GCVDR Members, 8 Feb	ICRISAT-Patancheru	15	Private Sector Seed Companies from Maharashtra	ICRISAT-GCVDR Consortium
Workshop on sweet potato crop & sweet sorghum syrup – 10 & 19 Feb	ICRISAT-Patancheru	44	ASP Partners, Officials from Govt of AP, NIN and NGOs	ICRISAT, CIP, RRIAS
Launching of Molecular Breeding Platform (MBP), 17 Feb	Hyderabad	80	Key staff of CGIAR Centers and their partners	Generation Challenge Program (GCP) and BMGF.
Workshop launched on The Bill & Melinda Gates Foundation (BMGF)-funded Village Dynamics Studies in South Asia (VDSA) Project's East India/Humid Tropics Component, 20 Feb	NCAP, New Delhi	42	ICRISAT, IRRI, ICAR and NARS partners	BMGF and VDSA
CFC-FAO-ICRISAT sweet sorghum project planning meeting, 3–4 Mar	ICRISAT-Patancheru	30	Thailand, China and India and other partners	ICRISAT, CFC, FAO
The 2nd annual review meeting of the sweet sorghum ethanol value chain development project, 26–27 Mar	ICRISAT-Patancheru	28	ICAR Institutes, private sector and ABI at ICRISAT	ICRISAT and NAIP
HOPE Project Meetings & Workshops, 29–30 Mar, 12–13 Apr, 11–12 May, 17–19 May, 21–22 Jun, 14 Oct & 20 Dec	Tanzania, Kenya, Mali, ICRISAT-Patancheru	178	Govt of Tanzania (DRD, TOSCI TPRI TBL), Indian NARS Partners, Private Sector, Singida, Rombo, Iramba, Sumbawanga, Kishapu and Kondoa	Hope Project, ICRISAT





Event/Topic/Dates Workshops/Meetings	Location	Participants	Participating countries/ Institutes	Resources and collaborative support
Tropical Legumes II (TL-II) Meeting, 7 Apr & 17-19 May	ICRISAT-Patancheru & Nairobi	66	India, IITA and the Bill & Melinda Gates Foundation	ICRISAT and BMGF
Second Annual Review Meeting on Linking the poor to global markets: Pro-poor development of biofuel supply chains, 27-28 Apr	ICRISAT-Patancheru	28	ICRISAT, ICAR and Private Sector participants	ICRISAT and IFAD
Pre-launch meeting of the Hybrid Maize Research Consortium (HMRC) was organized by the International Maize and Wheat Improvement Centre (CIMMYT), 28 May	ICRISAT-Patancheru	40	Participants from 27 national, regional and multinational seed companies	CIMMYT
Training workshop on multi-environment trial (MET) data analysis, 31 May-4 Jun	Egerton University, Kenya	25	Breeders from Kenya, Malawi and Zimbabwe	ICRISAT-Nairobi
A planning workshop for the new food security project, 7-9 Jun	Niamey	19	CLUSA, ICRISAT and Nigerien partners	CLUSA, ICRISAT
Workshop on improving the fertility of sandy soils in the Sahel region, 23-24 Jun	ICRISAT-Niamey, Niger	24	Collaborating institutes of Niger and Japan	JIRCAS and ICRISAT
Workshop for the forth UNCCD National Reporting Cycle Reporting of the Performance Indicators, 28 Jun-2 Jul	ICRISAT-Patancheru	14	Seven Asian countries	UNCCD-PRAIS, ICRISAT
Principal Partners Workshop of CGIAR's MP 3: Grain Legumes & State Holders Meeting for MP3, 24-25 Jun & 6-7 Aug	ICRISAT-Patancheru & Nairobi, Kenya	42	CIAT, ICARDA, ICRISAT, GCP and IITA, AVRDC, NARS Partners, Development Investors, Private Sector and Farmers' Organizations	ICRISAT-Nairobi and ICRISAT-Patancheru
The first annual review of the project Sesame improves livelihoods of farmers in Northern Uganda, 28 Jun-1 Jul	Soroti, Uganda	18	ICRISAT-Nairobi 2 institutes and private and public sector and Govt of Uganda	ICRISAT-Nairobi, AIT, and the Ugandan NARS
Regional Consultation meeting (CRP5), 2 Aug	New Delhi	25	ICRISAT, Bangladesh, Nepal, Sri Lanka and India	IWMI
International Conference on Plant Nutrition, 11-13 Aug	ICRISAT-Patancheru	250	More than 12 countries	Nutriplus, Nagarjuna Fertilizers and ICRISAT

Event/Topic/Dates Workshops/Meetings	Location	Participants	Participating countries/ Institutes	Resources and collaborative support
Agribusiness meeting, 26–28 Oct & 2 Nov	Hyderabad & Coimbatore	140	16 countries across the world	ABI-ICRISAT
Training workshop on variety testing selection and technology delivery, 30 Sep–2 Oct	Torit, Eastern Equatoria	26	Central and Eastern Equatoria	Govt of Sudan in collaboration with ICRISAT- ESA
International Symposium on Sustainable Agricultural Development and Use of Agro biodiversity in the Asia-Pacific Region, 13–15 Oct	Suwon, Republic of Korea	100	APAARI member institutes	APAARI
A Workshop of Virtual Crop Models, Crop Model training using High Performance Computers (HPC) and Global Futures Technical working group meetings, 22–26 Oct	ICRISAT-Patancheru	46	Philippines, Kenya, Colombia, Peru, ICAR and ICRISAT	IFPRI
Farmers Day-2010 at Neelarkatti, Dharwad district, State Karnataka, 26 Oct	Neelarkatti, Karnataka	1000	Farmers and Govt. officials from Karnataka	Govt. of Karnataka funds
Hyderabad Pulses Conclave – 2010, 4–5 Sep	ICRISAT-Patancheru	200	Delegates from Govt, non-govt, private sector and 100 farmers from Karnataka	ICRISAT and Agriwatch
Second International Workshop on NGS Data Analysis, 1–3 Nov	ICRISAT-Patancheru	20	Seven countries	ICRISAT, CGIAR GCP
Regional conference on Enhancing Sorghum Productivity in ECA Integration of Available Scientific Tools and Deployment of Existing Technologies, 26–28 Oct	Khartoum, Sudan	48	Ethiopia, Eritrea, Kenya, Rwanda, Sudan, Tanzania and Uganda. ICRISAT	ARC, ASARECA, ICRISAT and the University of Nairobi, Kenya.
A dialogue on climate change, agriculture and food security, 4–5 Nov	ISC Niamey	40	Belgium, Burkina Faso, Ghana, Holland, Mali, Niger, Senegal and USA	START, FARA and CCAFS
Bhoochetana review and planning meeting, 27–29 Nov	ICRISAT-Patancheru	63	Government of Karnataka	ICRISAT-Patancheru
A training workshop on use of markers and genomics in crop improvement, 29 Nov–3 Dec	ICRISAT-Nairobi, Kenya	22	Kenya, Ethiopia, Tanzania, Uganda and southern Sudan	ICRISAT-Nairobi, Kenya
Workshop on Participatory Sorghum and Millet Improvement: Options for Increasing Impact from Varietal Selection, 6–10 Dec	ICRISAT-Bamako	23	Participants from Ghana, India, Nigeria and Mali	ICRISAT-Bamako
First Progress meeting of BNI project, 1 Dec	ICRISAT-Patancheru	11	JIRCAS and ICRISAT	Japan Project funding
Symposium on “Partnerships with a Purpose”, 6 Dec	ICRISAT-Patancheru	90	Partners from the private and public sector and other delegates	ICRISAT
PROMISO 2 (EU-IFAD Food Facility for WCA) planning meeting, 14–16 Dec	ICRISAT-Bamako	27	Niger, Mali, Burkina Faso, Senegal, Benin, and Ghana	ICRISAT-Bamako
Open Space Discussion on “Cultural Change at ICRISAT”, 17 Dec	ICRISAT-Patancheru	35	IRS and SMG members of ICRISAT	ICRISAT

Training Courses during 2010

Training Courses Event/Topic/Date	Location	Participants	Participating countries/Institutes	Resources and collaborative support
Training Program for farmers from Madhya Pradesh and Chattisgarh, 7–8 Jan	ICRISAT - Patancheru	55	Farmers from MP, India	National
Training on GxE data analysis, 02–05 Feb	ICRISAT-WCA, Mali	20	Mali	ICRISAT
Training course in G×E analysis, 8–11 Feb		20	Lake Chad Research Institute Nigeria, Institut National de Recherché Agronomique du Niger-Niger, Institut de l'Environnement et de Recherches Agricoles-Burkina Faso and ICRISAT-Niger. and Institut d'Economie Rurale du Mali-Mali and ICRISAT-Mali	ICRISAT, Bill & Melinda Gates Foundation-HOPE, German Ministry for Economic Cooperation and Development (BMZ)-CODEWA special projects.
Training on GxE data analysis, 8–12 Feb	ICRISAT-WCA, Niger	20	Lake Chad Research Institute Nigeria, Institut National de Recherché Agronomique du Niger-Niger, Institut de l'Environnement et de Recherches Agricoles-Burkina Faso and ICRISAT-Niger. and Institut d'Economie Rurale du Mali-Mali and ICRISAT-Mali	ICRISAT, Bill & Melinda Gates Foundation-HOPE, German Ministry for Economic Cooperation and Development (BMZ)-CODEWA special projects.
Training on seed production, 15–19 Feb	Sadore, Niger	33	Burkina Faso, Mali and Niger	ICRISAT and AVRDC
Training of trainers for state level nodal agencies from various Indian states, 18–20 Feb	ICRISAT-Patancheru	20	ICAR	Dept. of Land Resources, Govt. of India
Training in green house screening techniques for pearl millet downy mildew, 22–26 Feb	ICRISAT-Patancheru	6	India, Niger and Mali	ICRISAT
Training program with Farm Facilitators, 25–27 Feb	ICRISAT-Patancheru	63	Farmers from Govt. of Karnataka	Govt. of Karnataka
Training program for entrepreneurs in Agri-Business, 10 Mar	ICRISAT-Patancheru	15	Different entrepreneurs	ABI





Training Courses Event/Topic/Date	Location	Participants	Participating countries/Institutes	Resources and collaborative support
Short course on Geostatistical Analysis of Environmental Data, 5–9 April	ICRISAT-Patancheru	21	ICAR and private sector in India and ICRISAT	ICRISAT and Univ of Florida
A training-cum-capacity building program ICAR-National Agricultural Innovation Project (NAIP) on Mentoring and Handholding of BPD Units of NARS, 13–15 May	ICRISAT-Patancheru	10	IARI, IVRI, CIFT, NIR on Jute and Allied Fiber Technology, CIRCT, TNAU, Birsa Agricultural University (Ranchi), CCS Haryana Agricultural University (Hisar), Anand Agricultural University (Anand) and Jawaharlal Nehru Krishi Vishwa Vidyalaya (Jabalpur).	NAIP
Training on the use of delta carbon, 25–29 May	Tsukuba, Hokkaido University,	10	NARS partners, University of Agricultural Sciences	JIRCAS
A training course on Econometric Methods and Applications using STATA (Data Analysis and Statistical Software), 25–31 May	ICRISAT-Patancheru	24	ICRISAT	ICRISAT – GT IMPI
Training on GxE data analysis 31 May–5 June	Nairobi, Kenya	23	Sudan, Kenya	HOPE
Capacity Building for Integrated Watershed Management for State Policymakers: Principles and Practices, 10-12 Jun	ICRISAT-Patancheru	25	Policy makers from different states of India	ICRISAT and DLRMRD
Training program for farmers, 17 Jun	University in Ranchi	52	Farmers, Krishi Vigyan Kendra and Zonal Research Station	BAU, ICRISAT
Learning Program on Application of molecular markers in vegetable and legume breeding, 26–31 Jul	ICRISAT-Patancheru	28	NARS partners, NGOs from South Asia, CLAN members from Bangladesh, Bhutan, India, Nepal and Sri Lanka	ICRISAT and AVRDC

Training Courses Event/Topic/Date	Location	Participants	Participating countries/Institutes	Resources and collaborative support
Short Course on Modern Analytical Methods in Finance for use in Agribusiness, 5–9 April	ICRISAT-Patancheru	11	India, Philippines	ICRISAT
Capacity Building for Participatory Monitoring, Evaluation and Impacts of Integrated Watershed Management Program, 16–20 Aug	ICRISAT-Patancheru	11	ICAR and private sector in India and ICRISAT	ICRISAT and Univ of Florida
Capacity Building on Farmer Participatory Research and Development Trials, 25–27 Aug	ICRISAT-Patancheru	5	India HOPE project, Pearl Millet partners from SAUs	HOPE Project ICRISAT
Training course on Research Station Management (RSM), 11-16 Oct	ICRISAT - Patancheru	28	ICAR institutes and some private seed companies	ICRISAT-FETS and ASK Group
Short course on Cropping System Models: Application in Land Resource Management, 18-22 Oct	ICRISAT - Patancheru	32	India, Philippines, Bangladesh, Thailand, Sri Lanka, China, Colombia, USA, Vietnam, Botswana and IFPRI	ICRISAT, Univ of Florida
Training Program on International Model for Policy Analysis of Commodity and Trade (IMPACT) model, 27 Oct to 2 Nov	ICRISAT - Patancheru	17	Philippines, USA, Kenya, Colombia, Peru and ICRISAT	ICRISAT GT IMPI and IFPRI
Open Field day, 28 Oct	Samanko Research Station in Mali	193 persons (60 women and 133 men)	IER, The World Agroforestry Center, The World Vegetable Center, NGOs, and farmers' organizations.	ICRISAT-Bamako
Training workshop on value chain analysis, 7–10 Nov	Melkassa Agricultural Research Center in Adama, Ethiopia	11	Adet, Sirinka, Bako and Melkassa	ICRISAT-Nairobi
8th CEG course on Application of Molecular Markers for Crop Improvement, 8 Nov	ICRISAT-Patancheru	40	India and Asian/ African countries	ICRISAT-Patancheru



Publications

List available at <http://www.icrisat.org/icrisat-staff-publications-2010.htm>



Awards 2010



ICRISAT and AVRDC win CGIAR's Science Award for Outstanding Partnership.



Rajeev Varshney receiving the Indian National Academy of Agricultural Sciences fellowship.



Peter Ninnes honored by Crawford Fund and CIMMYT.



Director General Dar receives India's Agriculture Today Research Leadership Award 2010.



PCAARD's Lifetime Achievement Award for Director General Dar (received by Mrs Dar).



Ashok Kumar with prize-winning poster.



Farid Waliyar recognized by Govt. of Mali.



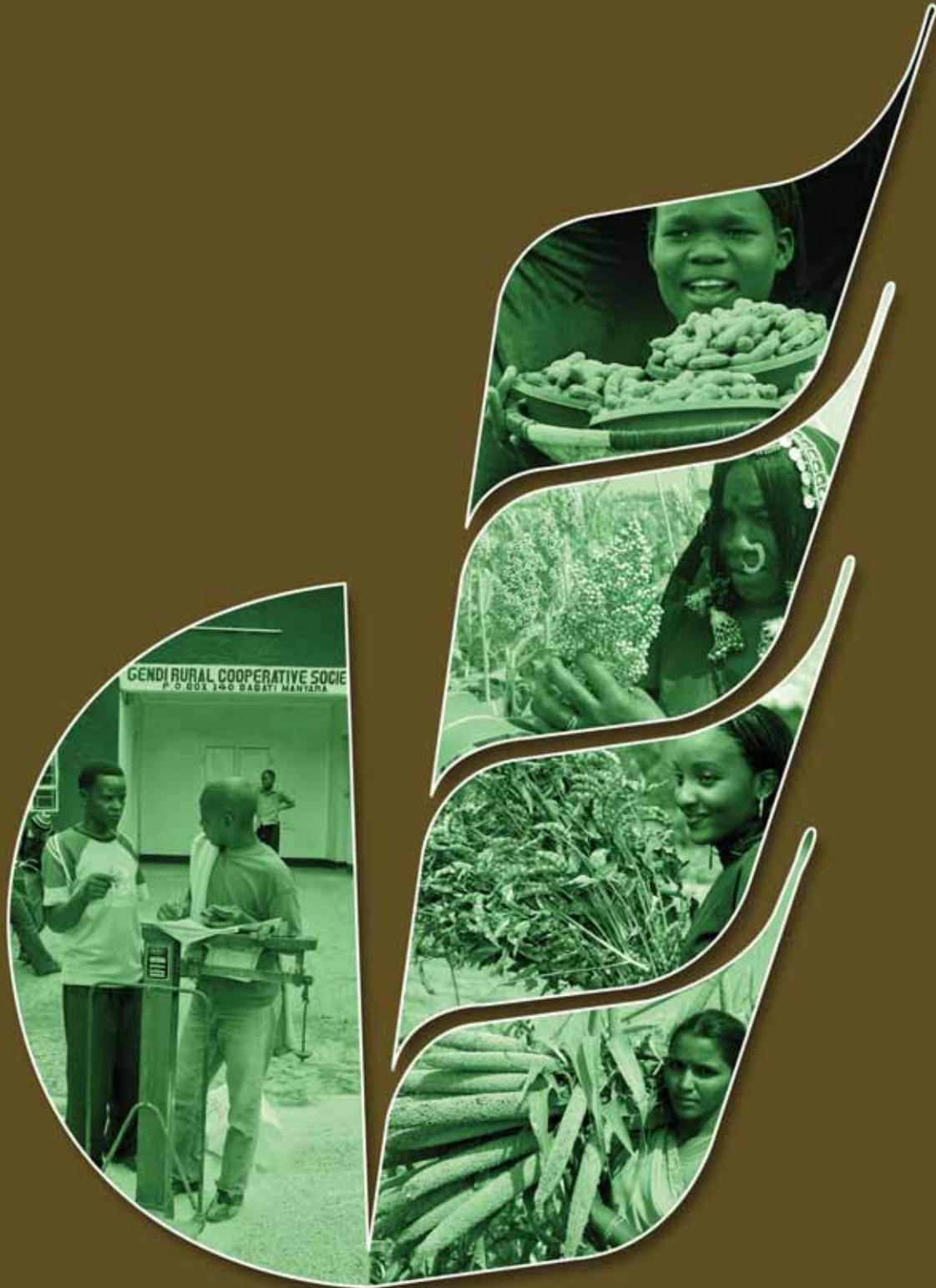
ABI-ICRISAT incubatee clinches Sankalp Award

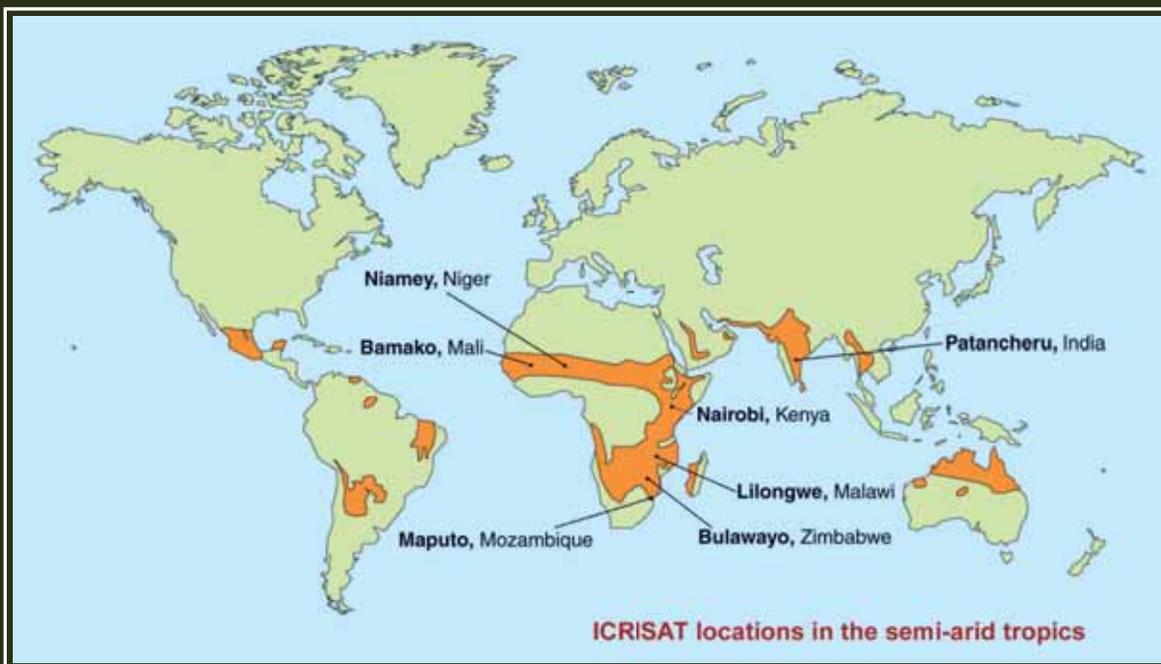


Ashok S Alur receiving Indian Independence Day Award.



Watershed Team decorated with Indian National Award for Groundwater Augmentation.





About ICRISAT



The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that conducts agricultural research for development in Asia and sub-Saharan Africa with a wide array of partners throughout the world. Covering 6.5 million square kilometers of land in 55 countries, the semi-arid tropics have over 2 billion people, and 644 million of these are the poorest of the poor. ICRISAT and its partners help empower these poor people to overcome poverty, hunger, malnutrition and a degraded environment through better and more resilient agriculture.

ICRISAT is headquartered in Hyderabad, Andhra Pradesh, India, with two regional hubs and four country offices in sub-Saharan Africa. It belongs to the Consortium of Centers supported by the Consultative Group on International Agricultural Research (CGIAR).

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