

(CIRDR). To date, benchmark sites – namely the Luchebe watershed in Guizhou province and the Xiaoxincun watershed in Yunnan province – have been established.

Through collective action villagers in both watersheds have constructed a community center as well as a number of check dams and gully control structures to harvest rainwater and minimize soil erosion for enhancing agricultural productivity and incomes. Livelihood options have increased through diversification of systems leading to increased incomes for families. With increased water availability, farmers have formed Vegetable Growers associations in Luchebe and linked farmers to markets.

### Sharing Knowledge

Since 1974, several scientists, in-service trainees, short-term trainees, research scholars, and research fellows from China have visited, or were trained at ICRISAT.

**Awards:** Dr CLL Gowda was honored in 2001, as 'International Advisor' by the Shandong Peanut Research Institute, Qingdao.

*Jin Xiu Qiu Jiang Award (1999):* Guangxi Provincial Government of China conferred a team award on Drs LJ Reddy and KB Saxena for their contributions to research and development of pigeonpea in the Guangxi province of South China.

*Friendship Award (2001):* This prestigious award was given to Dr KB Saxena for his contributions to training as well as to China's overall development.



KB Saxena (left) receiving the Friendship Award.

Dr SN Nigam was honored in 2001 with an 'International Advisor' award by the Shandong Peanut Research Institute, China.

**Publications:** Several key ICRISAT handbooks for plant disease and pest identification, abstracts of workshop proceedings, and ICRISAT public awareness documents have been translated into Chinese.

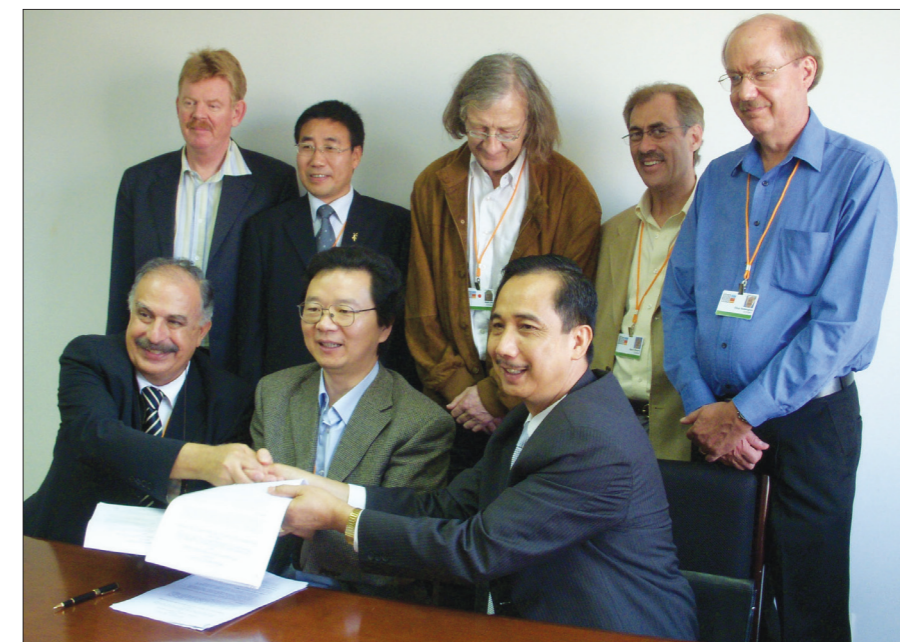
### Ongoing ties

With strong support from partners such as China, ICRISAT is confident that it will achieve its vision, which is the well-being of the poor in the semi-arid tropics of the world.



# China and ICRISAT

A brighter tomorrow for all



Dr Tang Huajun, Vice President of CAAS signs the MoU along with Dr William Dar (right), DG of ICRISAT and Dr Mahmoud Solh (left), DG of ICARDA.

### The Partnership

Ties between ICRISAT and China were established on 2 May 1988, when the Chinese Academy of Agricultural Sciences and ICRISAT signed a Memorandum of Understanding (MoU). China's joining the ICRISAT-coordinated Cereals and Legumes Asia Network (CLAN) in 1989 set the pace for a long-lasting partnership that has been built and nurtured over the last several years.

Seventy percent of China's population is rural, with agriculture playing an important role in the development of its economy. While the country leads the world in groundnut production, it is also among the world's largest producers of sorghum and millets. Pigeonpea has gained popularity in the hilly areas of the southern part of the country, and chickpea is grown in southwest China. In general, ICRISAT's technologies have played a major role in China's rainfed agriculture.

### Interactions with China

➤ The Chinese Academy of Agricultural Sciences (CAAS), the International Center for Agricultural Research in the Dryland Areas (ICARDA) and ICRISAT have signed an MoU to establish a Center of Excellence for Dryland Agriculture (CEDA) in Beijing,

China. CEDA will be a platform for dryland agricultural research and will focus on dryland ecosystem and biodiversity management; development of integrated technologies for food security, poverty reduction and environmental protection in the dryland areas.

- ICRISAT team members of the Common Fund for Commodities (CFC) – FAO – ICRISAT international project were honored with an "Honorary Credential" by the Liaoning Academy of Agricultural Sciences and Sorghum Research Institute, People's Republic of China, in October 2008.
- A delegation of five senior faculty members from the Jiangsu Academy of Agricultural Sciences (JAAS) visited ICRISAT-Patancheru on 7 and 8 January 2008. They were interested in furthering the collaborative research on pigeonpea cultivation, and also in biotechnology and natural resource management.
- After the successful introduction of ICRISAT-bred pigeonpea in southern China, Chinese scientists have made plans to also introduce hybrid pigeonpea in their country. To achieve this objective, the first ever hybrid pigeonpea training program was organized at Yuan Mou county on 25 November 2007, which was conducted by Dr KB Saxena of ICRISAT and Dr Li Zhenghong, leader of the pigeonpea program in Yunnan province.

**About ICRISAT**

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that does innovative agricultural research and capacity building for sustainable development with a wide array of partners across the globe. ICRISAT's mission is to help empower 600 million poor people to overcome hunger, poverty and a degraded environment in the dry tropics through better agriculture. ICRISAT is supported by the Consultative Group on International Agricultural Research (CGIAR).

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A Chinese farmer with his bounteous pigeonpea crop.



ICRISAT scientists in discussion with staff of the Sorghum Research Institute (SRI), Shenyang.



The JAAS delegation at ICRISAT, Patancheru.



Scientists discussing pigeonpea in China.

## Collaborative Research

### Pigeonpea

ICRISAT was instrumental in establishing pigeonpea in China. Pigeonpea had virtually no presence in China before 1998. Thanks to the ICRISAT-China collaboration, the present area under pigeonpea stands at over 100,000 hectares with Yunnan and Guangxi being the major producers. ICRISAT's medium-duration pigeonpea varieties have shown high adaptation in various agro-ecological zones of southern China. Its rapid canopy development under limited moisture conditions not only helps in the conservation of valuable topsoil but also rejuvenates infertile marginal lands. The first consignment of vegetable pigeonpea was exported from Yunnan province in 2006.

- In 2000, ICRISAT sent seed of ICPL 87119 to the Guangxi Academy of Agricultural Sciences for large-scale on-farm trials and seed multiplication.
- Newly developed hybrid pigeonpea technology has also been introduced to China with input from ICRISAT.



A Chinese farmer in his groundnut farm.

- To stabilize the production system, a number of cropping systems are being evaluated in different agro-ecological conditions.

### Sorghum

- Fourteen cultivars have been released in China since 1982, using sorghum germplasm supplied by ICRISAT.
- Several forage and grain sorghum male-sterile lines and restorers for hybrid production have been developed based on ICRISAT materials.
- A2 restorer genes from China are in use at ICRISAT for diversification of cytoplasmic male sterility (CMS).

### Groundnut

- Chinese researchers are active partners in Regional Working Groups on groundnut viruses, bacterial wilt, and aflatoxins.
- Groundnut improvement research in China has benefited a great deal from the disease-resistant germplasm and advanced breeding lines supplied by ICRISAT.
- Chinese scientists have contributed bacterial wilt resistant germplasm to ICRISAT for use in breeding programs for East and southeast Asia.

### CFC – FAO – ICRISAT projects with China

During the period 2005-2009, ICRISAT executed an international project, *Enhanced utilization of sorghum and pearl millet grain in poultry feed industry to improve the livelihoods of small-scale farmers in Asia* in collaboration with the Sorghum Research Institute of the Liaoning Academy of Agricultural Sciences (LAAS), and eight other partners from the public and private sectors. The project was funded by the Common Fund for Commodities (CFC) and technical

guidance came from FAO. The project, implemented in Liaoning province, was successful in enhancing productivity of sorghum (from 12.8 tons/ha to 20 tons/ha) over the project period through science-based technological interventions. It also facilitated linkages of farmers groups with various players in supply chains. In addition, a new CFC-FAO project, *Enhancing livelihood opportunities of smallholders in Asia: Linking smallholder sweet sorghum farmers to the bioethanol industry* is to be implemented starting from January 2010 in collaboration with the Sorghum Research Institute.

### China-IFAD-ICRISAT collaboration

In China, the International Fund for Agricultural Development (IFAD)-funded program on *Farmer participatory improvement of grain legumes in rainfed Asia* has focused on Yunnan and Guangxi provinces for pigeonpea, and on Hubei and Guangdong provinces for groundnut.

### Pigeonpea

Activities focused on the development of seed production systems, identification of seed production locations, establishment of integrated crop management technologies, new product development and training of farmers and extension workers. Apart from providing food, fodder, fuel and additional income to poor farmers, pigeonpea cultivation enhances nutritional security, arrests soil erosion and stimulates local food processing industries. Economic analysis showed an increase in family income of 5000 Yuan per year (about US\$ 730). Six new varieties were released during the project.

### Groundnut

Activities focused on identification of farmer-preferred improved varieties, introduction of groundnut cultivation with polythene mulch,

integrated crop management (including cropping system and planting density), and capacity building among farmers and extension officials in farmer-participatory research and extension.

Farmer-preferred improved varieties (Zhonghua 6, Yuanza 9102, Zhonghua 4, Yueyou 20, Yueyou 13, and Yueyou 7) increased productivity by 8-35% in marginal areas in Hubei and Guangzhou provinces. Groundnut cultivation in the uplands with polythene mulch increased groundnut yield by 40% in Hubei province and 45% in Guangzhou province. The participation of the Chinese scientists in the project led to further refinement of polythene mulch technology, which is now widely adopted in Vietnam as well.

### China-ADB-ICRISAT Watershed Project

The ADB-funded project on *Participatory watershed management for reducing poverty and land degradation in SAT Asia* is based in Yunnan and Guizao provinces of China. ICRISAT's partners in this venture are the Chinese Academy of Agricultural Sciences (CAAS), the Yunnan Academy of Agricultural Sciences and the Center for Integrated Rural Development Research



Vegetables grow well with good watershed management practices.