

# CGIAR NEWS

CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH ■ SEPTEMBER 1999

## LETTER FROM CHINA: “QP” MAIZE TRANSFORMS LIVES

from Timothy Reeves, CIMMYT Director General

Anyone who has doubts about the impact of agricultural research on food security, poverty alleviation, and natural resource protection should visit rural areas of Guizhou, the poorest province of China. I traveled there recently and witnessed the almost miraculous turnaround in the lives of poor people thanks to the introduction of quality protein maize (QPM).



CIMMYT Photo

In Maoli village, typical farms are around 0.7 ha and set in mountainous countryside where access is difficult. Until recently, annual incomes were below US\$ 50 per capita. Worse, for up to three months every year, families had virtually no food. Approximately 30 ethnic groups live in the region, and by any standards these people have been among the world's poorest people.

### The Technology

As part of a government hunger alleviation program, QPM hybrids were introduced into Guizhou beginning in 1994. QPM is higher in two essential amino acids, lysine and tryptophane, that are vital to the growth of children and non-ruminant livestock. For example, 175g of QPM meets the daily protein needs of a child – equivalent to 250g of normal maize.

The QPM varieties used in Guizhou were developed through a long-standing partnership between the Chinese Academy of Agricultural Sciences (CAAS) and CIMMYT. Li Jing Xiong was the pioneer in China, and Surinder Vasal and Evangelina Villegas were the pioneers in CIMMYT.

The original QPM varieties came to China in 1976 from CIMMYT, which began QPM research in the 1970s. Given the more temperate nature of

many of China's maize-growing provinces, advanced research had to be carried out by CAAS scientists to adapt the QPM materials to local conditions.

The products of this research – used in farmers' fields today – are hybrids that generally have one CIMMYT parent line and one Chinese parent line. All of the Chinese scientists involved in the research have visited CIMMYT and received

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## AFRICAN WOMEN ADOPT NEW PEAS TO FIGHT HUNGER

A women's organization in Kenya, known locally as the Ivuso ya Manyatta, has proven to be a very effective vehicle for introducing improved crop technologies into poor communities. Ivuso, a local word meaning “the spirit of cooperation”, has played a key role in raising public awareness in the drought-prone Makindu district, and has successfully promoted improved varieties of pigeonpea for fighting malnutrition. So striking are their achievements that several similar associations have sprouted up in the district.

The Ivuso women first heard about pigeonpea from scientists working at ICRISAT and the Kenya Agricultural Research Institute (KARI) who were involved in the Pigeonpea Improvement Project for Eastern and Southern Africa – funded by the African Development Bank. They learned that the grains are rich in minerals, vitamins, fats, and protein and that cultivating the crop is beneficial to their lands.

An estimated 30 percent of children under age 5 in sub-Saharan Africa are underweight, mainly due to a deficiency of energy and nutrients. They would benefit from eating pigeonpeas as they

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# New TAC Chair Appointed

Dr. Emil Javier will begin a five-year term as TAC Chair on January 1, 2000. He was the unanimous choice of the Search Committee whose recommendation has been fully endorsed by the CGIAR System. Dr. Javier will attend the TAC meeting at ISNAR later this month as an observer, and will be at ICW99.

Emil Javier is already a member of the CGIAR family. He received his Ph.D in plant breeding at Cornell University, and has had a distinguished national and

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## CHINA LETTER:

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training there. One of the younger breeders, who has a successful hybrid, was sponsored in his M.Sc. and Ph.D. studies at the University of the Philippines at Los Baños by CIMMYT.

The technology is delivered to farmers by the Provisional Science and Technology Commission and the Guizhou Academy of Agricultural Sciences. Their enthusiasm and willingness to work in difficult conditions have fueled the farm revolution. They work well with the farmers in education and technology development, and there is obvious rapport between them and the communities. Luo Li and his team exude infectious enthusiasm as they work in the field.

### Impacts: Food Security and Higher Incomes

QPM is now grown on 15 ha in Maoli. This area has increased rapidly from year to year as more seed has become available.

QPM hybrids yield around 10 percent higher than other hybrids, in addition to providing grain with enhanced nutritional quality. While some of this grain is consumed directly by farm families, its primary use has been to improve pig production.

New animal production enterprises have both enhanced household food security and increased disposable incomes for all of the families concerned. By selling 30 pigs over the past three years, one farmer was able to build a new house, educate his children, and introduce resource-conserving technologies on his farm. Pig manure is being used in a simple methane digester to provide power for the home. Other farmers have invested in water-harvesting schemes for supplemental irrigation of crops.

Life in Maoli has been transformed through the introduction of QPM. One elderly woman farmer explained, "We have always worked hard, but this barely kept us alive until QPM arrived. Thank you for helping us. Now my family is happy, I have a good house, good clothes, and I can travel to the local town." She was 78 years old and had clearly endured much hardship.

In addition to the families in Maoli, over 20,000 families in Guizhou Province have experienced similar impacts. We also visited Jiubao Village in Hebei Province, north of Beijing, where QPM is already making a sizeable impact.

Reproducing these results in other provinces will require further work: developing efficient and effective QPM seed production systems; training more scientists; educating farmers; and evaluating impacts. But the start made in Guizhou couldn't be more encouraging.

My day in Maoli Village was one of the great privileges of working for CIMMYT; I will remember it for all of my life. The

skeptics may say, "But you have no baseline data. How can you measure the real impacts?" To them, I would say go and listen. Once you have seen and spoken with the farmers involved, your belief in research for development will be further strengthened. Seeing is believing.

– Prof. Timothy Reeves



CIMMYT Photo

ACKNOWLEDGMENTS:  
CIMMYT research on QPM

has been supported by core donors, by targeted contributions from the United Nations Development Programme (UNDP), and currently by the Nippon Foundation. The people of Guizhou Province extend their deep thanks. CIMMYT is seeking to expand work with QPM in China, in Asia, in Sub-Saharan Africa, and in Central and Andean Latin America. 🌱

# DELIVERING ON THE PROMISE OF AGROFORESTRY

Pedro Sanchez, Glenn Denning, and Anne-Marie Izac (ICRAF); Bruce Scott (ILRI)

Growing trees alongside crops is an ancient indigenous practice that gained the attention of agricultural researchers about 25 years ago. During the 1980s, agroforestry was considered to be a panacea for solving land-use problems in the tropics. Many development projects pushed agroforestry technologies without the benefits of solid research.

Now, as a result of a more scientific approach, agroforestry research is very much process-oriented. Two agroforestry interventions demonstrate how research and development are helping to improve the environment, reduce poverty, and increase food security for thousands of small farmers in Southeast Asia and Africa.

## Raising Africa's Soil Fertility through Improved Technology

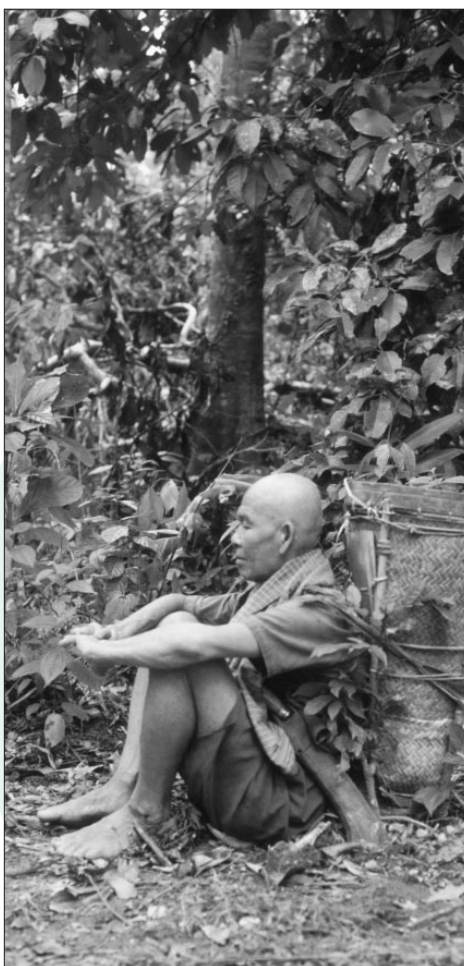
Soil fertility depletion on small farms is now recognized as the key cause of declining food security in sub-Saharan Africa. The most severely depleted nutrients are nitrogen and phosphorus. Although soils could be improved with imported mineral fertilizers, most farmers cannot afford them.

Africa has ample nitrogen in the air and phosphorus in many rock deposits; the challenge is to transfer these resources to where plants can use them. To restore nitrogen, land can be taken out of crop production and planted with fallows of leguminous nitrogen-fixing shrubs and trees. To increase phosphorus, indigenous rock phosphate combined with the biomass of non-leguminous shrubs can be applied directly to crops.

ICRAF and its partners have shown that two-year leguminous fallows accumulate about 200kg N/ha in their leaves and roots. When these are incorporated into the soil, maize yields double and sometimes quadruple. The greatest impact of this work has been in Southern Africa where more than 10,000 farmers are now using a 2-year fallow, 2 – 3-year maize rotation. An equivalent amount of mineral fertilizer would cost US\$ 240/ha in that

region, an unrealistic amount to farmers who make less than 1 US dollar per day.

In many areas of East Africa, smallholder farms need both nitrogen and phosphorus, necessitating the combined use of organic and mineral sources of nutrients. Short-term (6 – 16 months) improved fallows have proven to be an effective and profitable way of adding



Indonesia's Agroforests provide a wealth of products for small-scale farmers.

Jean Baxter

about 100kg N/ha and recycling other nutrients in the depleted soils of Western Kenya. Even fallows as short as six months have tripled maize yields in villages where many farmers are now practicing a fallow-crop rotation every year.

In phosphorus-deficient soils, Minjingu phosphate rock from northern

Tanzania is as effective and profitable as imported triple superphosphate. Farmers are applying 125 – 250kg P/ha as a capital investment, and expect a five-year residual effect. In addition, biomass transfers from hedges of the wild sunflower, tithonia, have increased yields of maize and high-value crops such as tomatoes and beans in western Kenya, where about 4,000 farmers are trying these techniques. Most of the dissemination is done at the village scale as a pilot development project, involving government agencies and NGOs.

Improved policies at the national, district, and community levels are emerging in support of these technological breakthroughs. They include making phosphorus fertilizer, high-quality seeds, and microcredit available to farmers. Kenya's government established and funded a pilot project on soil fertility replenishment for western Kenya. As a member of the CGIAR, the government is supporting ICRAF efforts to conduct strategic research underpinning the replenishment practices.

## Securing Tree Tenure in Southeast Asia

A second example shows how improved policies stem from a sound biophysical base. The complex agroforests in Sumatra, Indonesia are indigenous systems created over generations by people living at the margins of tropical rainforests. After slash-and-burn was carried out, food crops were planted along with coffee, pepper, fruit trees and the resin-producing damar tree. The trees eventually produce high-value products such as fruits, resins, medicinals, and high-grade timber.

Scientists have found that the villagers in Krui, Lampung Province, who depend on these complex agroforests, have a much higher standard of living than those who grow only crops. The problem has been that they did not have land tenure, since their agroforests are classified as State Forest Land. This created a great deal of uncertainty among Krui agroforesters.

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## AGROFORESTRY

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The Indonesian Minister of Forestry invited ICRAF scientists, including seconded scientists from ORSTOM (now IRD), France, two local NGOs, and Ministry of Forestry counterparts to document the attributes of the complex agroforests and develop policy options for solving the problem. The research culminated in January 1998, when the Minister of Forestry signed a historic decree that established an official precedent for community-based natural resource management in Indonesia. The decree recognizes the legitimacy of community-managed agroforests over a significant area of State Forest Land.

Already, 7,000 Indonesian farmers have benefited from this prototype, which could benefit millions more at the forest margins, by increasing incomes, improving resource management, and reducing social conflict. Researchers working on similar problems as far away as Cameroon took notice. There is hope that lessons can be shared between Indonesia and Cameroon regarding implementation options.

### Towards Greater Impact

Agroforestry research can deliver substantial benefits for smallholders. The challenge now is to move beyond this beginning to improve the lives of millions of farming households as soon as possible. ICRAF is now participating actively in pilot projects and large-scale development initiatives, and recently established a Development Division. Working in partnership with NGOs and national extension agencies that have strong developmental capabilities and experience, ICRAF is helping to identify, facilitate, and catalyze agroforestry-based development opportunities around the world. 

## FISH FARMING FASTEST GROWING FIELD OF AGRICULTURE

### News from the Future Harvest Website

Fish is a major food source for people throughout the world and the main source of protein for 1 billion people. For at least 150 million people, fish provide not only vital nutrition, but also a source of employment and income. Most of those who rely on fish for their livelihood are in developing countries. Aquaculture, the farming of fish, shellfish, seaweed, and other products, represents the fastest growing sector of global food production.


Between 1960 and 1996, global fish production for human consumption grew from 27 million to 91 million metric tons. The demand for fish will continue to rise with population growth, increasing incomes, and improved diets in developing countries. As the population continues to rise, so will demand for fish. Unfortunately, about 70 percent of the world's major fish species and 11 of the 15 major fishing areas are in decline and need urgent management. The decline in the world's fish stock results from overfishing, indiscriminate harvesting methods, and degradation of coastal and inland ecosystems.

One hope for meeting the rising demand for fish is aquaculture. Since 1984, the output of aquaculture has increased annually by 10 percent, whereas captured fish output has only increased 1.6 percent each year. Today, about one-fourth of the fish eaten by humans comes from aquaculture systems.

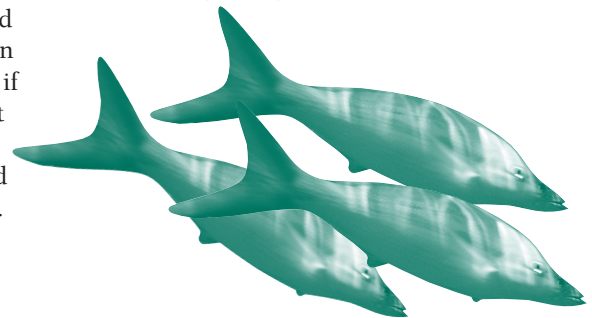
Aquaculture offers developing countries a means to earn foreign exchange through high-value species, such as pearls, prawns, and salmon, and a way for poor communities to maintain a healthy diet and earn an income. But if aquaculture projects are not carried out in an environmentally responsible way, they can cause water pollution, wetland loss, and mangrove swamp destruction.

Research has been one key to the successful growth of aquaculture.

Scientists also are seeking to improve the production and management of all fisheries resources in a way that benefits users and promotes a healthy environment. Some examples include:

- Breeding new fish species. Researchers have produced an improved strain of Nile tilapia, a hardy freshwater fish, that grows 60 percent faster than other farmed strains and yields three fish crops per year, instead of the usual two. Thanks to the new strain, fish farmers can expect higher productivity, higher profit, and higher yields.
- Integrating crop and livestock farming with aquaculture. Through assistance from research organizations, farmers in Malawi and other African countries are introducing small ponds into their home gardens for irrigation and to grow fish. They are also using the mud from the bottom of the fishponds as rich, organic fertilizer for their farming.
- Improving the livelihood of the rural poor. In Bangladesh, scientists are helping to turn numerous unused ponds and other water bodies into viable fish farms. Fish farming provides a new source of incomes for the rural poor, particularly women, who are usually responsible for the ponds. Using new systems developed through research, fish production in existing ponds has increased eightfold. 

For more, see: [www.futureharvest.com](http://www.futureharvest.com) and [www.cgiar.org/iclarm/](http://www.cgiar.org/iclarm/)



# URBAN FARMERS HOLD PIECE OF WORLD FOOD PUZZLE

## **Global initiative will boost productivity and sustainability of farming in 21st century megacities**

LIMA, PERU – The shantytowns of Lima sprawl across one of the world's most barren deserts. Yet their resourceful inhabitants have found ways to produce everything from sweet potatoes and artichokes to chicken, fish, and pork.

Many of these urban farmers are recent immigrants from the Andes mountains, where agriculture has been a way of life for centuries. Their skills have been put to good use in this burgeoning city of 8 million, providing critically needed food and income to some of the western hemisphere's most economically depressed neighborhoods.

As cities grow at unprecedented rates here and around the globe, urban farmers are becoming more important. Under a new initiative launched by CGIAR, some of the world's leading agricultural scientists will be looking for ways to help those farmers play an even bigger role.

"Researchers have been working for years to make rural agriculture more productive and sustainable," said Hubert Zandstra, Director General of the Lima-based International Potato Center (CIP), which will spearhead the effort. "In looking at the needs of urban farmers, we're pursuing the same goals as we are in the countryside – food security for developing countries, a way out of poverty for food producers, and better access to food for consumers."

The US\$500,000 Global Strategic Initiative on Urban and Peri-Urban Agriculture will link several of the CGIAR's 16 research centers with international aid agencies, nongovernmental organizations, and research networks in Latin America, Africa, and Asia. Among the sites to be considered for intensive study are Lima; Yaoundé, Cameroon; Harare, Zimbabwe; Manila, Philippines;

Accra, Ghana; Beijing, China; Dhaka, Bangladesh; Lusaka, Zambia; Dar es Salaam, Tanzania; Bogota, Colombia; and Maputo, Mozambique.

### **An Urbanizing World**

By 2015, more than half the world's population will live in urban areas. Of the nine cities projected to have populations exceeding 20 million, eight will be in developing countries. Feeding the growing numbers, Zandstra said, represents "one of the greatest challenges in the history of agriculture."



CIP Photo

Urban agriculture can be traced to the world's earliest civilizations. The Aztecs, Mayans, and Incas all produced food within the borders of their urban settlements. City farms were also crucial to the development of Europe. Indeed, the sites of many modern cities were selected because of their access to water and high-quality land.

Today an estimated 800 million people are engaged in some form of urban farming, whether tending home gardens or working in commercial livestock, aquaculture, forestry, or greenhouse operations.

Farmers in Cairo, for instance, raise 80,000 head of livestock, while 1.7 million inhabitants of Mexico City rely on city dairy farmers for their milk. Ninety percent of the leafy vegetables sold in the public markets of Dar es Salaam are grown within the city limits. In Kampala, Uganda, about 30 percent of

the population's need for meat and eggs is met by urban farmers. More than 16 percent of Harare's urban area is planted in crops.

In each of these cities, the trend is toward higher and more intensive production. Yet few governments today encourage urban farming or recognize its importance.


### **Seeking Technical Solutions**

"We have to focus more attention on urban farmers – both on their own needs, and on ways in which they can be more productive," said Wanda Collins, research director at CIP. "These people need technology that's appropriate to modern urban realities. We're hoping the research community can produce exactly that."

City-based farming can be extremely efficient, both economically and environmentally – recycling domestic wastes, for example, and adding green spaces to urban landscapes. It can also play a role in conserving biodiversity, improving family health, and expanding income options for women with children.

Research will focus not just on productivity, but on a range of environmental, health, economic, and public policy issues. Concerns include the quality of food produced in polluted water, health risks of urban livestock production, and difficulties in regulating informal markets.

At least 10 other CGIAR Centers are expected to take part in the urban farming initiative.

For more information, contact Christine Graves at the International Potato Center, (51-1) 349-6017 (Peru), or (1) 650-833-3365 (US), or by e-mail at: [c.graves@cgiar.org](mailto:c.graves@cgiar.org) Or visit CIP on the Worldwide Web at: [www.cipotato.org](http://www.cipotato.org) 

## NEW PEAS

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contain more minerals and 10 times more fat than ordinary peas, as well as five times more vitamin A and three times more vitamin C. The peas are 28 percent cheaper than meat and an equally good source of protein, making them an ideal supplement to traditional cereal- or tuber-based diets.

Armed with this new knowledge, Ivuso's first aim was to improve nutrition by increasing pigeonpea consumption among the local communities. The women baked and sold cakes and biscuits containing a high proportion of pigeonpea, sorghum, and millet flour instead of the conventional wheat. Diana Nzomo, the association's founder was justifiably proud when she claimed, "We have improved the quality of food eaten here."

Pigeonpea grains are mostly consumed whole in southern and eastern Africa. To promote more diverse forms of use, ICRISAT mounted training courses in India, Kenya, Malawi, Tanzania, and Uganda for food technologists, processors, and farmers, especially women. The women participants learned how to make


dhal or split pea, and studied traditional and modern dehulling methods used in India. Many have shared their knowledge with their friends and neighbors, thus creating a ripple effect in those countries.

Pigeonpea can also be a cash crop. It is already traded widely in Kenya's village markets and has enormous potential for large-scale commercialization – with ready markets in Asia, North America, and Europe. Local exporters estimate they could double their business if farmers provide reliable supplies of high-quality grain. Thus, it made good business sense when the Ivuso women began producing and selling improved pigeonpea varieties to other farmers. As the women began experimenting, with assistance from ICRISAT scientists, grain yield and quality improved. Within just a few years, Ivuso has become a major player in Makindu's thriving pigeonpea market.

Almost every part of pigeonpea is useful. The woody stems provide fuel and fencing material. The pods may be used as animal feed; the green leaves as fodder. Pigeonpeas also absorb atmospheric nitrogen and convert it into soil-nourishing nitrates. Each hectare of pigeonpea

provides benefits equivalent to 40kg of fertilizer. Its deep rooting system helps bind the soil and reduce erosion. More important, the plant can find enough water and nutrients to produce grain even in drought years. The new varieties and farming techniques developed by KARI and ICRISAT have further increased the crop's appeal.

Besides pigeonpea, the Ivuso women have also successfully adopted improved sorghum and millet technologies in their processing and baking enterprises. The Ivuso women carry out the whole range of food-related activities, from choosing varieties and sowing seeds, through nurturing and harvesting the crop, to processing and marketing. And the best among them train other farmers in seed selection, pest control, processing, and storage methods.

The Pigeonpea Project scientists are pleased to have played a role in this transformation because they know that no other crop offers such a remarkable combination of benefits for drought-prone areas of the semi-arid tropics. 

## New Leadership at Gender and Diversity Program

The Advisory Board of the CGIAR Gender and Diversity Program appointed Ms. Vicki Wilde as new Program Leader on July 1st. She is posted in Nairobi, Kenya at ICRAF, Host Center of the program.

In the short time since her appointment, Ms. Wilde has met with the Board at MTM'99, participated in the 4th CGIAR Women's Leadership and Management Course, and completed an efficient "hand-over" from former Co-Program Leaders Deborah Merrill-Sands and Sara J. Scherr. She has visited eight Centers to learn first-hand of their experiences, and emphasizes: "My guiding word for



ICRAF Photo

the CGIAR Gender and Diversity Program is 'relevance'. I want to get way past the jargon – to deliver a program of services that is directly useful and relevant to the needs and priorities of the Centers." Vicki Wilde has extensive experience working with organizational change and gender and diversity issues in both research and development, in countries throughout Asia and Africa. Based in Rome since 1989, she designed and led large and complex programs in international organizations including FAO, World Food Programme, and IFAD. She holds a B.A. in social ecology from the University of

California, Irvine and an M.A. in environmental psychology from City University of New York, and has published several widely used sets of training materials in the fields of gender, agriculture, and forestry.

She notes, "The expansion of the program to include both gender and diversity brings a host of new challenges, but it also means that this program is for everyone in the CGIAR, women and men, international and national research systems, northern and southern. I strongly believe that the positive management of gender and diversity issues is essential for organizational excellence, which in turn is essential for scientific excellence."

# TRADITIONAL WISDOM HELPS STEM AFRICAN DESERTIFICATION

The Turkana community in northwestern Kenya severely punishes anyone who cuts a tree from Moru Anayeche, the sacred forest that is believed to be their place of origin. The community also protects forests associated with the spirits of the dead and has age-old rules that help to preserve plants and trees found near riverbanks and houses. Forests are owned by elders, and forest preservation is the responsibility of the entire community.

Similarly, in Burkina Faso, some desert communities plant trees, such as *Acacia albida*, on their farms because they observed that the presence of such trees helped to increase crop yields. They also encourage the plowing of crop residues. The communities do not allow certain plant species – such as *Panicum laetum* (wild fonio) and *Cenchrus biflorus* (known locally as cram-cram) – to be used for firewood, because their grains are eaten during the dry “hungry season” when there are no more household stocks of millet and sorghum.

These are some of the valuable findings of a survey on traditional methods of natural resource management used by farmers and pastoralists living in the desert margins of sub-Saharan Africa. The survey was conducted by the Desert Margins Program – an effort launched by the CGIAR to enhance food security and reduce poverty by promoting innovative dryland management research.

The wisdom of desert communities is unfortunately fast disappearing. The rules and systems that once helped the resilient people of the desert margins to live in harmony with nature in a fragile ecosystem are increasingly being violated, not deliberately, but because of lack of alternatives. The Program was launched to preserve this wisdom.

Until recently, the Sahelian pastoralists and livestock followed rains north during the rainy season and retreated to greener pastures in the south during the dry season. Crops were planted, but

fields were allowed to lie in fallow to regenerate the soil. But now with the growing population, there are no longer any vast rangelands, nor is there enough farmland to leave in fallow.



The desert communities have not only been forced to abandon their nomadic life for a sedentary one, but have had to resort to overcultivation, overgrazing, and deforestation in order to survive in these stark regions. The delicate balance of life in the desert margins is snapping everywhere, bringing in its wake desertification and the specter of famine, the loss and degradation of human life and the environment.

These problems became even more acute when a long drought gripped the African continent from 1968 to 1973. Cultivated lands turned into deserts and thousands of people and cattle died of starvation. Worldwide concern led to a plan of action launched at the United Nations Conference on Desertification in 1977. Leading scientists and policy-makers firmly believed – and continue to believe – that if natural resources are sustainably managed, land degradation can be halted and the devastating effect of drought can be mitigated.

A series of international events culminated in the Earth Summit and the

signing of the United Nations Convention to Combat Desertification. In response, the CGIAR created a systemwide Desert Margins Initiative, with ICRISAT as the Convening Center. In 1998, the Initiative became a full-fledged Desert Margins Program with endorsements from various donors, including the International Development Research Centre (IDRC), the Eco-Regional Fund, the World Bank, the United States Agency for International Development (USAID), the Global Environment Facility (GEF), France, Israel, and Norway. It now operates in nine countries of Africa: Botswana, Burkina Faso, Kenya, Mali, Namibia, Niger, Senegal, South Africa, and Zimbabwe.

Drawing strength from this consortium of organizations, the Program focuses its work on selected environments. It is participatory in spirit and emphasizes on-farm research and demonstrations, taking into account social issues, local needs, and institutional options. Research is carried out by multi-disciplinary teams of scientists in each member country in close association with national, regional, and international programs, NGOs, and local communities.

The Program uses an ecoregional approach which combines physical, biological, and sociological dimensions of the production environment. The philosophy underpinning all activities is that the physical mechanisms leading to desertification are natural phenomena, but these are driven by social and economic forces. The Program is seeking to blend natural sciences and socio-economic research, while giving due importance to the wisdom of the small farmers and the nomads who have fine-tuned their survival to the vagaries of the land. 🌿

# TIME MAGAZINE HONORS DR. SWAMINATHAN

Dr. M. S. Swaminathan, currently Chair of the CGIAR's Genetic Resources Policy Committee and a former Director General of the International Rice Research Institute (IRRI), was recently named one of the 20 Most Influential Asians of the 20th century by TIME Magazine.

Dr. Swaminathan's work in crop genetics and sustainable agricultural development in India and throughout the South has earned him numerous honors: the first World Food Prize in 1987; the Tyler and Honda Prizes in 1991; and the UNEP Sasakawa Award in 1994.

The Special Issue of TIME issued a powerful tribute:

"The father of the Green Revolution used his skills in genetic engineering and his powers of persuasion to make famine an unfamiliar word in Asia."

In the mid-1960s, Dr. Swaminathan brought into India seeds developed in Mexico by Nobel Laureate, Norman Borlaug and, after cross-breeding them with local species, created a wheat plant that yielded much more grain than traditional types. Scientists at IRRI accomplished the same miracle for rice. Instead of facing chronic food shortages, a new era of agricultural productivity dawned in Asia, paving the way for the economic miracle of the 1980s and 90s.

For nearly five decades, Dr. Swaminathan has worked with scientists and policy makers on a wide range of problems in basic and applied plant genetics as well as agricultural research and development. As Secretary of the Ministry of Agriculture and Cooperation, he developed a strong food security system in India. He served as the director of the Indian Agricultural Research Institute (1966-72), the director general of the Indian Council of Agricultural Research (1972-1980), and India's secretary of agriculture (1980-81).


He also served as the independent chairman of the FAO Council (1981-85) and the president of the International Union for the Conservation of Nature and Natural Resources (1984-1990).

In addition, he chaired the UN World Food Congress in Rome in 1974 and was president of the National Academy of Agricultural Sciences of India.

After serving with IRRI from 1982 to 1988, Dr. Swaminathan returned to India to devote his efforts to environmental protection and sustainable agriculture through the Madras-based, M.S.

Swaminathan Research

Foundation (MSSRF). Today, the MSSRF has developed as a "foundation without walls," with its activities taking place at a wide range of institutions as well as at the village level. Dr. Swaminathan also serves as an Ambassador for Future Harvest.

Joining Dr. Swaminathan on the TIME list of the 20 Most Influential Asians was former Philippine President, Mrs. Corazon Aquino, Indian leader Mohandas Gandhi, Chinese leaders Sun-Yat Sen, Mao Zedong, and Deng Xiaoping, King Rama V of Thailand, former Presidents Sukarno of Indonesia and Ho Chi Minh of Vietnam, and the Dalai Lama of Tibet. 



World Bank, Curt Carnemark

## ICW99: *Reducing Poverty through Cutting-edge Science*

The worldwide fight to eliminate poverty and the critical role being played by scientific research is the principal theme of International Centers Week (October 25-29) at World Bank headquarters. This critical issue will be the subject of the keynote address by CGIAR Chairman, Ismail Serageldin, an introductory statement from FAO, a presentation by the Director General of IFPRI, and throughout specialized sessions of the Plenary during the five-day business meeting.

Center Presentations will feature "Inter-Center Collaboration in Combating Poverty." The preliminary results of studies carried out by the Impact Assessment and Evaluation Group (IAEG) on the poverty-related impacts of research on germplasm improvement, environment and integrated pest management will be presented.

The complete business meeting agenda is available on the CGIAR home page: [www.cgiar.org](http://www.cgiar.org)

# CGIAR AND NAS CONVENE BIOTECHNOLOGY CONFERENCE

Biotechnology and its potential impact on agriculture in developing countries will be the theme of an international conference on October 21-22, 1999 at the World Bank in Washington, DC. The conference, *Ensuring Food Security, Protecting the Environment, Reducing Poverty in Developing Countries: Can Biotechnology Help?* is sponsored by the CGIAR in partnership with the U.S. National Academy of Sciences (NAS).

There are two key objectives: (1) to broaden awareness of developing countries' views on issues associated with biotechnology and experiences with its use; and (2) to contribute to a better understanding of the scientific evidence underlying the risk and public policy issues related to biotechnology and how they might be addressed. By providing a forum for scientific debate and review of the best evidence on these issues, the conference aims to advance public understanding through participatory debate.

Representatives of national research organizations, academics, scientists, international agricultural researchers, non-governmental and community-based organizations, the private sector, development communicators, and the media have been invited to contribute their perspec-

tives. The conference will explore a diverse range of issues – technological, environmental, ethical, economic, and social – specifically regarding the needs of small farmers in developing countries.

Senior policy makers from developing countries in Asia, Africa, and Latin America and the Caribbean will share their views on and experiences with biotechnology in a series of parallel sessions. Small group discussions will address the following questions:

- What are the opportunities for deploying biotechnological approaches?
- What are the constraints to using these approaches?
- How can the CGIAR and international agricultural research centers assist developing countries to build national capacity in areas of biotechnology, including risk and regulatory issues and intellectual property management?


Critical issues and public concerns related to biotechnology, particularly in the context of developing countries, will be discussed in plenary. Topics to be addressed are:

- Risks to agriculture and environment
- Risks to human health

- Risks and impact on social and economic order
- Ethical challenges
- Roles of public and private sectors in biotechnology research for developing country agriculture
- Intellectual property rights

A special session on “Communicating Biotechnology” will focus on the important role of the media in informing the public about risks and benefits and in promoting a balanced discussion of the issues. The closing plenary will be devoted to presentation of a summary report. CGIAR and NAS will publish the proceedings of the conference.

Conference Cosponsors include:

The UN Food and Agriculture Organization; Global Forum on Agricultural Research; International Council for Science; International Fund for Agricultural Development; Third World Academy of Sciences; United Nations Development Programme; United Nations Educational, Scientific and Cultural Organization; United Nations Environment Programme; United Nations Industrial Development Organization; and Union of Concerned Scientists. 

## New TAC Chair

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international career, with strong involvement in the CGIAR. He is naturally suited to join the eminent line of TAC Chairs established by Sir John Crawford. He is particularly suited to provide the CGIAR with strategic advice and guidance in confronting the challenges ahead.

In the Philippines, he has been Minister of Science, Director General of the National Science and Technology Authority, Chancellor, University of the Philippines, and has just completed his term as President, University of the Philippines System.

He has been the Director General of Asia Vegetable Research Development



Center (AVRDC), and has served on CABI's Governing Board, the Board of ISAAA, and the Selection Committee for the World Food Prize.

Within the CGIAR System, Dr. Javier is currently Vice Chairman of the IRRI

Board of Trustees, and has been a Vice-Chairman of TAC, Chairman of the TAC Secretariat Review Team, Chairman of the IRRI Board, and a Senior Research Fellow at ISNAR. 

## What Are the Responsibilities of TAC?

The functions of TAC include:

- Assuring the quality and relevance of the Centers' science;
- Developing priorities and strategies, recommending resource allocations, and monitoring program implementation; and
- Reviewing strategic considerations within the external environment.

## ICARDA Hosts Conference on Dry Lands Development

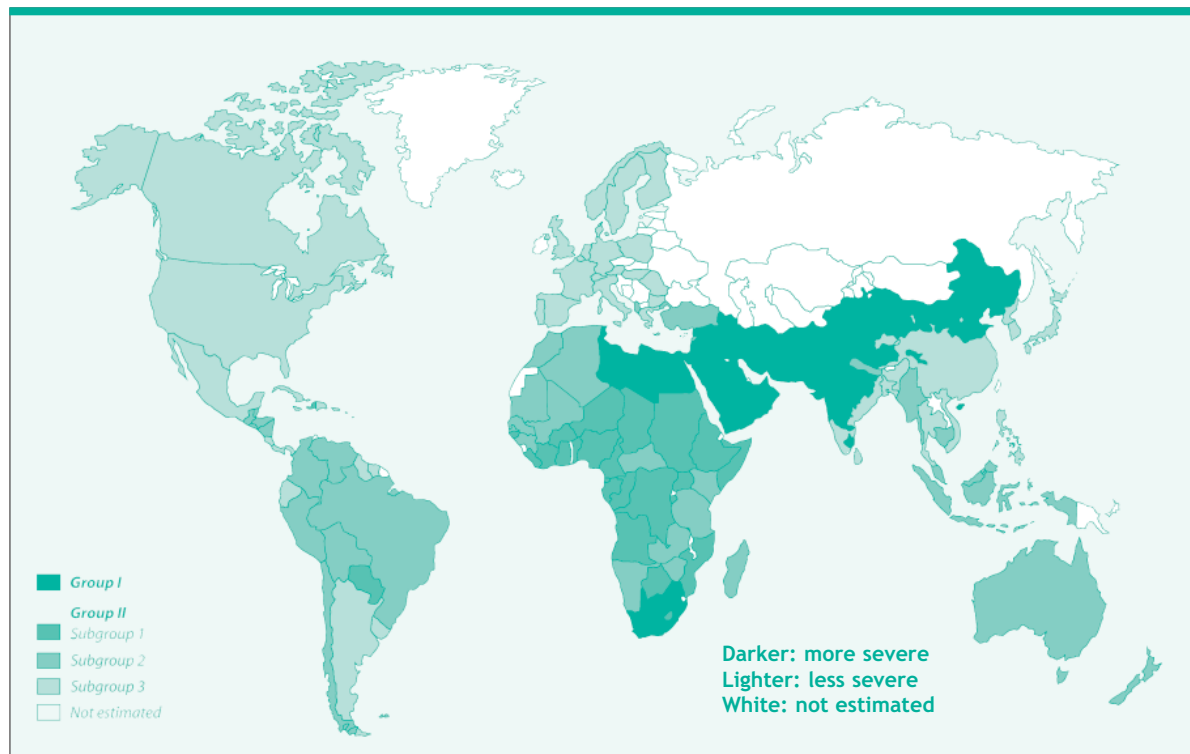
More than a billion poor people live in the dry areas of the developing world, and over 690 million of these people inhabit the West Asia and North Africa (WANA) region. Transforming agricultural production in these dry areas was the topic of a major conference, "Desert Development: Challenges Beyond the Year 2000," held August 22-27 in Cairo, Egypt, and co-sponsored by ICARDA, Texas Technical University, and the United Nations Environment Programme.

Organized under the auspices of the International Dry Lands Development Commission, the conference was hosted by Egypt's Ministry of Agriculture and Land Reclamation. The choice of locale was deliberate. Egypt has a long tradition of farming in dry areas and agriculture is a key economic sector. The inaugural session featured presentations by H.E. Prof. Dr.

Youssuf Wally, Deputy Prime Minister, Dr. Mahmoud Abu-Zeid, Minister of Public Works and Water Resources, Dr. Ismail Serageldin, CGIAR Chairman, and Prof. Dr. Adel El-Beltagy. In addition to the plenary sessions, participants visited Egypt's premier agricultural research institutions including the Agricultural Research Center, the Desert Research Center, the Agricultural Genetic Engineering Research Institute, and the Central Laboratory for Agricultural Climate.



## Projected Water Scarcity for Country Groups in 2025



IWMI graphic



## IITA Staff Reunite in Arkansas

An IITA Alumni Reunion was held May 21-24, 1999, at the premises of Winrock International near Morrilton, Arkansas. The purposes of the reunion were to renew friendships, refresh memories, exchange experiences, and also to become acquainted with the IITA of today. Henk and Carol Knipscheer served as hosts and program co-chairs for the 100 plus participants. Several current IITA staff members also attended the reunion.

During a special dinner gifts were exchanged and three short speeches were made. John Nickel remembered the early days of IITA. Bill Gamble reflected on his years of tenure, especially on the loyal, dedicated and highly competent staff members and their highly supportive families. Ermond Hartmans remembered IITA as one harmonious community of 45 nationalities that was well aware of the great potential of the African farmer.

Ermond Hartmans will help to organize a second reunion, targeted for the year 2001 with The Netherlands and Italy among the possible locations. Those who are interested to serve on the Organizing Committee are invited to contact Ermond. His address and e-mail are given in the IITA Alumni Directory which was distributed at the first reunion.

## Award to CGIAR Scientist

Dr. John Ryan, principal scientist at ICARDA, has been selected as one of the 1999 Fellows of the Soil Science Society of America. The award will be presented at a special luncheon at the Headquarters of the Society in Salt Lake City, Utah in November.

## Malaysian Scientists Win Fisheries Award

The *Naga* award for 1999 has been awarded to the late Prof. Abu Khair Mohammad Mohsin and Prof. Mohd. Azmi Ambak of the University Putra Malaysia for their book, *Marine Fishes and Fisheries of Malaysia and Neighbouring Countries*. The *Naga* Award is an annual award given by ICLARM for a scientific paper or book by a developing-country author(s) that has had a strong influence on research in any area of fisheries science (capture fisheries or aquaculture).

The book by Prof. Mohsin and Prof. Ambak was described by the judges as a *tour de force*. It is a comprehensive and beautifully illustrated compendium on the marine fishes and fisheries of Malaysia and will be of great value to fish scientists around the world, especially those interested in tropical fisheries. The book is the result of a five-year study of the fishes of the estuaries, coastal areas, and the Exclusive Economic Zone of Malaysia.

The award was instituted in 1982 ICLARM, the leading international research center engaged in strategic research for the sustainable management and development of aquatic resources (fisheries).

## In Remembrance: John Joseph Doyle

Dr. Jack Doyle was a veterinary surgeon and scientist who devoted his life to the alleviation of poverty, malnutrition, and environmental degradation in developing countries. To this end, he worked for 19 years in Africa. In 1975, he became a founding scientific staff member of the International Laboratory for Research on Animal Diseases in Nairobi, Kenya. He was appointed as the first Deputy Director General of ILRAD in 1991. In recent years, he also advised the World Bank and other development agencies on research management and the safe and effective use of new technologies to address developing country problems.

Jack Doyle died in Glasgow on June 29, 1999. He is survived by his wife, Gabrielle Persley. Jack's intelligence, vision, energy, compassion and commitment will be sorely missed by his family, friends and colleagues around the world. The staff of ILRI wrote to Gabrielle and Jack's father and sister:

"He left us more perhaps than he or even we realized. He left a standard, an alarmingly idiosyncratic, single-minded template. A man devoted to a single idea – that science could answer human problems. And the courage to keep after that no matter what."

## In Remembrance: Sir Ralph Riley

For nearly 25 years, the CGIAR system benefited greatly from the scientific advice and active involvement of Sir Ralph Riley, who was a distinguished leader of agriculture and related science in the United Kingdom over his long career. Sir Ralph served as a staff scientist and ultimately Director of the Plant Breeding Institute in Cambridge, U.K. from 1952 to 1978. He then worked as Secretary and later, Deputy Chairman, to the government's Agricultural and Food Research Council from 1978 to 1985.

Sir Ralph achieved numerous distinctions and awards during his career, including Fellowships in the Royal Society and Institute of Biology, the Wolf International Prize in Agriculture, and a Knighthood for his agricultural work in Africa.

Colleagues in the CG system will best remember Sir Ralph for his strong and dynamic contributions to the work of the TAC, to the scientific dialogue during Board meetings of IRRI and ICARDA, and to the deliberations of Review Panels for CIMMYT, IITA, and IRRI. He represented one of the world's leading centers of excellence in agriculture, and he shared that expertise in order to help the CGIAR remain on the scientific cutting-edge.

Among many other activities, Sir Ralph was a veteran of the Second World War, a professor of Botany at Nottingham, and the Secretary General of the International Genetics Federation. He died at age 75 in August. He is survived by his wife, Lady Joan Riley. Sir Ralph's numerous contributions to the CGIAR system and Centers will long be appreciated.

# THE CGIAR

## CGIAR Chairman

Ismail Serageldin

## CGIAR Executive Secretary

Alexander von der Osten

## Cosponsors

Food and Agriculture Organization of the United Nations

United Nations Development Programme

United Nations Environment Programme

The World Bank

## CGIAR Members

### Countries

Australia, Austria, Bangladesh, Belgium, Brazil, Canada, China, Colombia, Côte d'Ivoire, Denmark, Egypt, Finland, France, Germany, India, Indonesia, Iran, Ireland, Italy, Japan, Kenya, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Peru, Philippines, Portugal, Romania, Russian Federation, South Africa, Spain, Sweden, Switzerland, Syria, Thailand, Uganda, United Kingdom, United States of America

### Foundations

Ford Foundation, Kellogg Foundation, Rockefeller Foundation

### International and Regional Organizations

African Development Bank, Arab Fund for Economic and Social Development, Asian Development Bank, European Commission, Food and Agriculture Organization of the United Nations, Inter-American Development Bank, International Development Research Centre, International Fund for Agricultural Development, Opec Fund for International Development, United Nations Development Programme, United Nations Environment Programme, The World Bank

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