GIPB GLOBAL PARTNERSHIP INITIATIVE FOR PLANT BREEDING CAPACITY BUILDING

harnessing plant genetic resources for development

A global platform dedicated to mobilizing education, policy, technology, germplasm exchange and information sharing to help unlock the value of plant genetic resources for all

http://km.fao.org/gipb/

Meeting the sustenance needs – food, feed, fiber, and fuel – of the global population is ever more complex and challenging. At the same time, however, our repertoire of solutions is expanding. The Global Partnership Initiative for Plant Breeding Capacity Building (GIPB) supports critical science-based pathways for substantial improvement in the world's ability to feed itself and progress economically in decades to come.

The improvement of crops through plant breeding is one of the most potent tools available for achieving multiple economic and social goals. There are remarkable examples of the application of plant breeding to benefit society, establishing a proven track record of contribution to food security and sustainable agriculture. The contribution of plant breeding can be even more dramatic in the future with its new molecular tools.

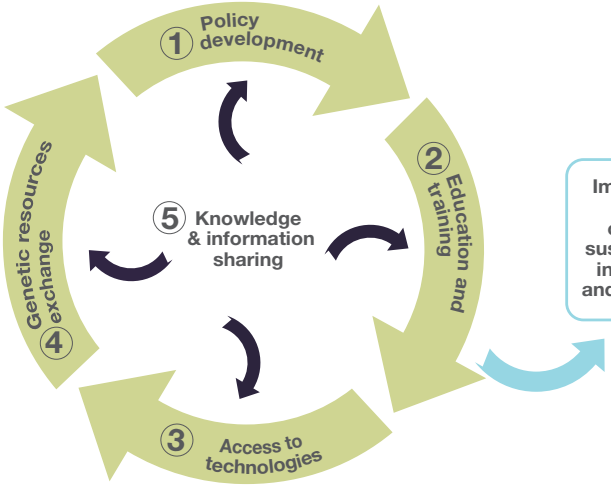
Inspired by the remarkable success of the Green Revolution technologies in reducing some of the most serious nutrition threats, many countries built new capacity for crop improvement research by training scientists, building infrastructure and providing operating support. However, many developing countries that invested in a comprehensive crop improvement strategy 20 or 30 years ago began to take success for granted, without fully recognizing the consequences of neglecting sustained support. Deteriorating infrastructure, lack of young trained scientists to take over from retiring ones, and poor operating budgets eventually slowed the flow of new technology. The populations in many of these countries are now at greater risk of hunger and the broad-ranging effects of poverty.

PLANT BREEDING BENEFITS:

- Food security: varieties with higher productivity and better yield stability
- Social benefits: varieties for poverty alleviation
- Economic benefits: pest resistant varieties, reducing the production cost
- Environmental benefits: varieties less dependent on inputs

Left: Colour diversity in *Phaseolus vulgaris* in a Sarajevo market, Bosnia and Herzegovina. Photographed by **Elcio P. Guimaraes**

Bottom: Selection of rice plants in segregating populations in Corrientes, Argentina. Photographed by **Elcio P. Guimaraes**



GIPB can contribute to strengthening the plant breeding capacity of developing countries to improve crops today and in the future. The beneficiaries of this initiative are the populations of countries that adopt the plant breeding systems for crop improvement.

"Plant breeding is a critical core expertise for any nation that intends to have a vibrant agriculture in the rapidly changing future"

ANN MARIE THRO

Why Plant Breeding?

Sustainable intensification of agricultural production by better use of plant genetic resources for food and agriculture (PGRFA) through effective plant breeding strategies is one of the best approaches for food security, climate change challenges and bioenergy production.

GIPB AND THE INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR AGRICULTURE (ITPGRFA)

Article 6 of the ITPGRFA deals with sustainable use of plant genetic resources for food and agriculture. GIPB is committed to fostering conservation, use and sharing of PGRFA to benefit society by way of the products of plant breeding, i.e. new improved varieties.

Placing Plant Breeding on the International Agenda

National capacities in plant breeding and crop improvement, using conventional and modern methods, are neither sufficient nor properly integrated to fully capture the benefits of the wealth of plant genetic variability available in the germplasm banks around the world.

Unfortunately, the role of plant breeding in agricultural development was taken for granted by many governments and donors over the past decades, leading to a sharp decline in the national capacity to develop new varieties. As the policy and science communities are brought together to face the challenge of strengthening plant breeding capacity for the future, the ability of agricultural systems to contribute to global food security and development will certainly become stronger.

■ Above: Cassava flower ready for crossing at Cruz das Almas, Brazil.
Photographed by **Wania Fukuda**

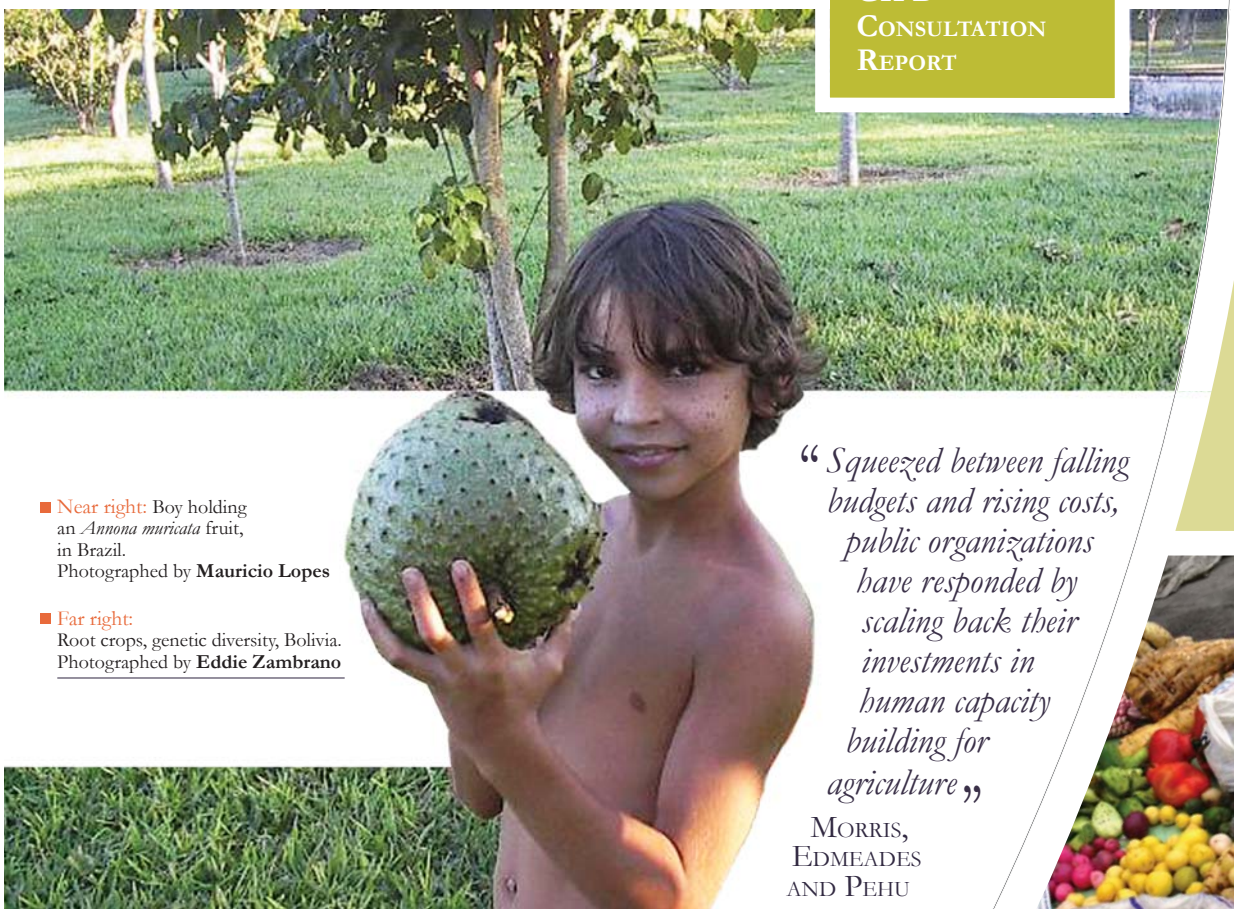
■ Bottom: Diversity in vegetables in a market at Vientiane, Laos PDR.
Photographed by **Elcio P. Guimaraes**

WHAT IS GIPB?

GIPB is a global partnership dedicated to increasing plant breeding capacity to improve crops for food security and sustainable development through better plant breeding and delivery systems. Plant breeders, policy makers, managers and technicians, donors and other partners are being linked together by the GIPB network, to cope in unison with the challenges of crop production and sustainable use of PGRFA.

GIPB is a platform open to all stakeholders involved in sustainable use of PGRFA and it combines the complementary facilitation role of FAO in connecting with other partners such as: CGIAR, GFAR, CIRAD, regional/ sub-regional organizations, foundations such as the Rockefeller, Gatsby and Bill & Melinda Gates Foundation, as well as NGOs, universities, civil society and individual scientists.

"There is a need for a capacity building initiative that is large enough in scale to generate and support a critical mass of plant breeders and technicians who can network effectively as part of a global system"
GIPB Consultation Report



■ Near right: Boy holding an *Annona muricata* fruit, in Brazil.
Photographed by **Mauricio Lopes**

■ Far right:
Root crops, genetic diversity, Bolivia.
Photographed by **Eddie Zambrano**

"Squeezed between falling budgets and rising costs, public organizations have responded by scaling back their investments in human capacity building for agriculture"
Morris, Edmeades and Pehu

GIPB Website

The GIPB website has a wide array of plant breeding information, tools, data, training, education for plant breeders:

- Knowledge Resource Centre (plant breeding gateway)
- Global forum
- Education and training
- Links to PB societies, associations and organizations
- Plant breeding and biotechnology capacity information.

Visit GIPB website and learn how useful it is for your plant breeding activities:

http://km.fao.org/gipb/

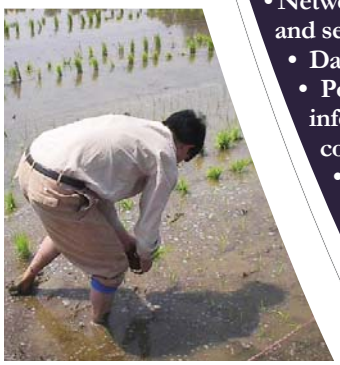
THE PRODUCTIVE CAPACITY OF PLANT GENETIC RESOURCES AND BREEDING PROGRAMS DEPENDS ON THEIR ABILITY TO TAKE ADVANTAGE OF NEW OPPORTUNITIES AND TECHNOLOGICAL NICHES.

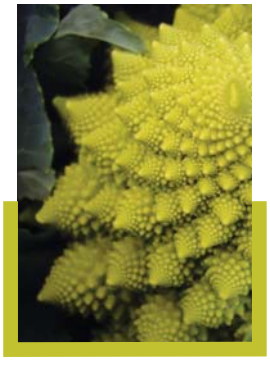
Working Alignments and Synergies

The future of plant breeding points to increasing interdependence of traditional and upstream disciplines, making it necessary to build and manage multidisciplinary teams. There is also a pressing need for the development of ways to enhance and share capacities, infrastructure, materials and information amongst research teams located across a country, a region, or even continents.

GIPB PRODUCTS AND SERVICES

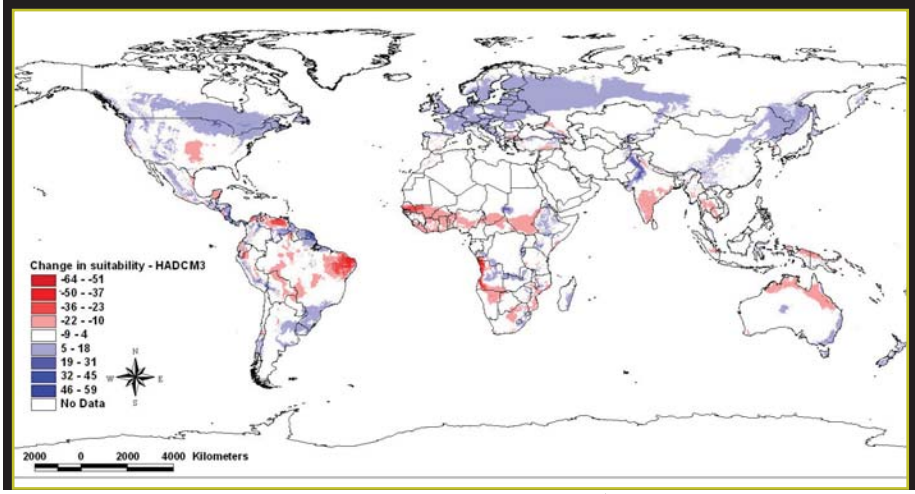
- Network with over 6,000 people working on PGRFA, plant breeding and seed sector
- Database with a comprehensive Knowledge Resource Center
- Portal with a wide array of plant breeding links, data, information, tools, training courses, and degree training courses
- Plant breeding capacity survey in developing countries
- Database with assessment of plant breeding and related Biotechnology with original data, charts, reports and papers available for consultation
- Support education and training in plant breeding activities





Changes in suitability averaged over all crops predicted by HadCM3 climate change model

AREAS SHOWN IN RED BECOME LESS SUITABLE, WHILE THOSE IN BLUE BECOME MORE SUITABLE



SOURCE: LANE AND JARVIS, 2007

Climate change is threatening agriculture and food production security.

GIPB is an important venue for tackling these challenges.

GIPB Objectives

[1] Support **policy dialogue and development** to strengthen and sustain developing countries' capacity to use plant genetic resources for food and agriculture;

[2] Support **education and training** in plant breeding and related scientific capacities relevant to utilization of plant genetic resources;

[3] Facilitate **access to technologies** in the form of tools, methodologies, know-how and facilities for finding genetic solutions to crop constraints;

[4] Facilitate **exchange of plant genetic resources**, from public and private breeding programs, that can enhance the genetic and adaptability base of improved varieties and production systems in developing countries;

[5] Share **information** focused on plant breeding capacity building to deliver newly available knowledge to policy makers, managers, leaders and breeders in developing country programs.

a platform facilitated by FAO

Address and Contacts

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