



Forest

Genetic Resources

**International Plant Genetic
Resources Institute**

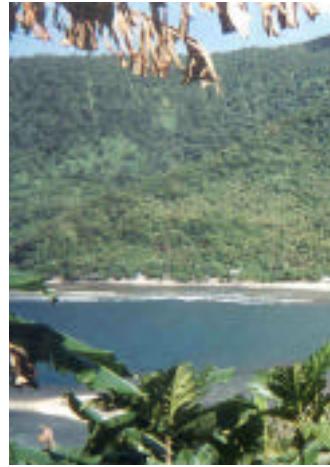


IPGRI's Strategic
Action Plan

Forest Genetic Resources: FGRI's strategic action plan

Why Forest Genetic Resources matter

Forests comprise a rich and complex system that yields a vast array of products and socioeconomic and ecological benefits that affect our lives in many fundamental ways. Through the production of timber and non-timber products (including wood, food, fodder, medicines, fuel-wood, fiber), forests sustain the livelihoods of millions of people around the world and thus play an important role in the subsistence of local communities and national economies. Social services provided by forests are widely recognized, e.g. generation of employment and reduced vulnerability of social groups such as women and the poor, sustainability of agricultural systems, improvement of urban and peri-urban living conditions, maintenance of the cultural and religious heritage, and provision of recreational opportunities. Forests also serve a multitude of environmental functions, including regulation of the water cycle and climate, conservation of soil, water and nutrients, carbon sequestration, and air detoxification.



Forest tree species are steady, long-lived organisms with long generation spans, which need to adapt to and survive in changing environmental conditions. A single forest tree species contains tens of thousands of genes, whose combination can vary from one location to another, from population to population, and even from plant to plant. Different combinations of genes within the same species produce the wide range of characteristics, such as resistance to diseases or the ability to survive extreme environmental pressures, that allow species' survival, adaptation and evolution. This genetic diversity also enables farmers and breeders to select, use and plant woody plants having desired production characteristics.

Sustainable forest management involves the management of forests in a manner that ensures that their overall capacity to provide environmental and socioeconomic benefits is not diminished over time. Central to the sustainable development of forests is the challenge of balancing resource use and conservation. Measures need to be devised for maintaining satisfactory levels of diversity in forest ecosystems and for promoting the sustainable use of this diversity for development. It is therefore essential that the significance of Forest Genetic Resources (FGR) be considered in relation to forest and natural resources management practices in order to undertake effective interventions for their conservation and use.

The challenge of sustainable use of FGR is particularly severe in the context of many developing countries, where poverty restricts the available options for economic development and leads to short-term perspectives in the use and management of natural resources, including FGR. In this regard, the genetic diversity contained within and among species can be thought of in terms of biological, environmental, as well as social and economic value of actual or potential importance.

Challenges for FGR

Major threats to FGR include deforestation, habitat degradation, over-harvesting of timber and non-timber products, introduction of invasive species, atmospheric pollution, climate change and forest fragmentation, as a result of the conversion of forest habitats to lands for agriculture, cattle ranching and urbanization. Some of these activities are threatening FGR with unprecedented rates of genetic erosion.

In the tropics, for example, entire ecosystems and habitats are currently undergoing serious degradation due to widespread clearing of forestlands. Many tropical forest species, including unique tree populations, are becoming extinct in their original habitats. Losses due to extinction are irreversible, and when they occur at the current alarming pace, they represent a high risk for the environment. According to FAO, natural forests in developing countries decreased by 15 million ha annually between 1990 and 1995. It has been estimated that tropical forests have now been reduced to only 7% of the earth's surface.



Devastating diseases, some of them introduced to new areas, have had drastic effects on inter- and intraspecific diversity.

The development and implementation of methods and strategies for FGR conservation and sustainable use needs to take into account a host of challenges, which can be broadly classified under three categories:

- **Biological challenges:**

The basic biology of most tropical forest plants is largely unknown, as regards taxonomy, phenology, breeding system, ecological interactions, seed viability, etc. Furthermore, 1) the occurrence of many tropical trees in extremely low densities, 2) the difficult access to high and large-canopy trees, 3) the time needed to attain sexual and economic maturity, as well as 4) the risks of spreading pathogenic organisms associated with the transfer of germplasm at regional and international levels, pose formidable logistic difficulties to data acquisition, thus representing major constraints to the accumulation of biological knowledge.

- **Socioeconomic challenges:**

Millions of the world's poor rely on a wide variety of forest products to sustain their livelihoods. These communities often constitute ethnic minority groups, which lack adequate representation in national decision-making regarding resource use. Their knowledge of the ecosystems they inhabit is often underestimated and their specific needs are poorly understood. In addition, the long-term economic returns of research, development and improvement of FGR have been poorly appreciated, thereby limiting much needed investments for conservation.

- **Policy and capacity-building challenges:**

In developing countries in particular, lack of effective policy frameworks can impede collaborative conservation initiatives as well as regional and international agreements on forestry issues. Inconsistency and disharmony between modern legislation and traditional rules and regulations often result in conflicts regarding access to forest resources, which further hampers conservation action. The implementation of effective conservation initiatives also can be hindered by the lack of trained personnel. Capacity-building and specific training activities are therefore prerequisites for developing effective FGR programmes.

Concern regarding the overall decline of FGR has led to an urgent call for action to conserve, manage and sustainably use forest genetic resources. This involves developing actions and policies to ensure the continued existence, evolution and accessibility of these resources for present and future subsistence of forest-dependent and rural communities.

IPGRI's FGR Programme objectives



IPGRI's overall mission is to encourage, support and undertake activities to improve the management of genetic resources worldwide, as well as to help eradicate poverty, increase food security and protect the environment.

The conservation and use of forest genetic resources is one of eight priority domains of IPGRI's strategy. The specific goal of IPGRI's FGR programme is to ensure the continuous availability of these resources for present and future use, through *in situ* and *ex situ* measures that allow species adaptation and evolution to changing environments.

The scope and complexity of challenges to be addressed by the FGR programme require the development of a strategic framework, which ensures the optimum use of limited resources to maximize the impact of specific actions. Therefore IPGRI's FGR programme focuses on two major areas:

Strengthening institutional frameworks and contributing to international collaboration and policy-making

Partnerships have been forged with national and regional programmes as well as with international programmes involving key stakeholders in the international FGR arena. The goal of the FGR Programme is to support:

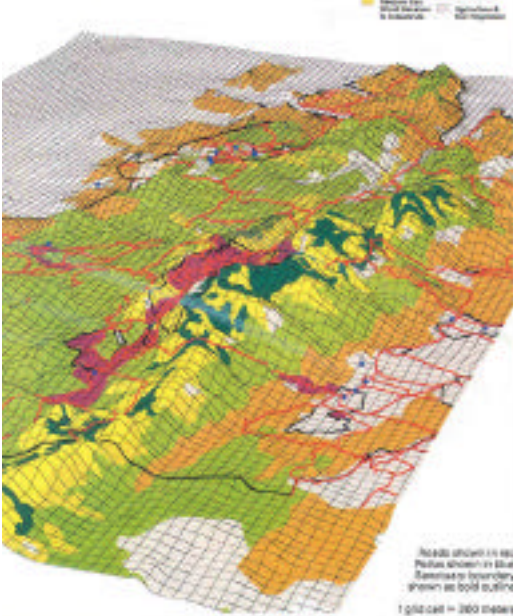
- the effectiveness and coordination of national programmes, including development and harmonization of appropriate policy options for conservation and sustainable use of FGR through broad participation at different levels;
- capacity-building, including enhancement of human resources through training;
- public awareness raising;
- participation in regional and international networks.

Generating knowledge and developing appropriate methodologies and tools for conservation and use of forest genetic resources

IPGRI's FGR Programme generates knowledge and promotes the development of methodologies and tools to allow more effective and sustainable conservation and use measures in the following key areas:

- assessment of the extent and patterns of losses in forest diversity at the genetic, species and ecosystem levels;
 - design of *in situ* conservation programmes;
 - development of *ex situ* conservation options;
- identification of national priority ecosystem and species for research;
 - location and measurement of genetic diversity.

Billigiri Rangaswamy Temple Sanctuary, Karnataka
Vegetation cover



Strategic FGR research domains

There is growing recognition that conservation and sustainable management and use of forest resources are pressing priorities. However, limited knowledge of the impacts of deforestation, of the uncontrolled exploitation of useful species, and other threats to forest genetic resources, constitute serious gaps which, in turn, limit the decision-making capability of national, regional and international implementing agencies. IPGRI's FGR Programme currently concentrates its work on the following research areas.

Criteria for effective priority-setting

Priority-setting for FGR conservation and use is essential for the efficient allocation of limited resources of time, funds and personnel to conservation work.

A targeted research on decision strategies on priorities for conservation and use of FGR, in collaboration with the University of British Columbia, allowed the collation of extensive available information on the most frequently recorded threats to forest species, through an in-depth literature review. Monitoring requirements for each class of threat have been described.

A manual on procedures for application of genetic markers to diversity assessment in forest species has been annotated: it lists information on the different tools being used to measure genetic diversity, and their suitability in different contexts.

A decision framework for prioritizing species, populations and conservation management interventions has been tested under different social arrays and ecological conditions.

Species prioritization is also a key component for the collaborative IPGRI-INBAR work on Bamboo and Rattan, two non-wood resources of paramount importance.

The objective of this research activity is to provide national programmes the tools needed to develop strategies and to identify priority actions for effective conservation and sustainable management and use of forest genetic resources. It is also intended to assist national programmes to identify priority populations for inclusion in regional and national programmes, based on:

- the biological characteristics of the ecosystems and species;

- the extent and nature of existing threats;
- the environmental and economic value of different species;
- the genetic diversity within species and populations;
- the social and human importance of species and ecosystems.

The research is expected to develop a general procedure to support the development of comprehensive strategies for complementary *in situ* and *ex situ* conservation and management options.

Patterns of genetic variation

Before deliberate interventions for conservation and use of FGR can be proposed, considerable gaps in knowledge need to be filled. Little is known of the patterns of threats and genetic erosion at ecosystem, species and intraspecific levels. In turn, genetic erosion cannot be mitigated without appropriate knowledge of the distribution of genetic variation. Such information on the patterns of loss of genetic diversity is generally lacking, not only on the levels of diversity, but also on the adaptive patterns of some distinctive populations. IPGRI's FGR Programme therefore investigates the amount and spatial organization of genetic variation in species with contrasting modes of distribution, dispersion, pollination and seed-dispersal mechanisms. For rare and endangered species, genetic studies are integrated with demographic and ecological studies to develop management and restoration plans.

Processes affecting genetic variation

Deforestation and the resulting forest fragmentation, uncontrolled logging, fire and over-harvesting of non-timber forest products and other types of disturbances may all have detrimental effects on the maintenance of genetic diversity. However, the nature and extent of the effects of these interventions on diversity and the impact of genetic processes such as selection, genetic drift, mating system and migration need to be well understood. The goal of the programme is to develop empirical field indicators, correlated with genetic parameters, and guidelines that integrate genetic and silvicultural requirements to support the decision-making process of sustainable forest management and conservation activities. Conservation research in the tropics has shown that tropical forest tree species possess high levels of genetic diversity, maintain great proportions of genetic variation within and among populations, are predominantly outcrossed and have high levels of geneflow.

Several IPGRI projects are currently evaluating the impact of anthropogenic disturbance to Forest Genetic Resources. Studies on the impact of fragmentation are in progress on tropical forests species in Sumatra, tropical dry forest species in Costa Rica and Atlantic forest species in Brazil.

Comparisons among pre- and post-fragmentation generations allow scientists to quantify the levels of fragmentation-induced genetic drift and inbreeding, which can lead respectively to the loss of genetic diversity and to a decreased fitness.

The outcomes of these research activities shed additional light on species reproductive behaviour (pollination, seed maturation and dispersal), and on the recognition of its role in determining patterns of genetic diversity in fragmented habitats.



Research on locating genetic diversity is ongoing in the Middle East, Mainland Southeast Asia, and sub-Saharan Africa on timber and non-timber species of socioeconomic importance or in particular danger of extinction. The research focuses on identifying the distribution ranges of the selected species, studying their taxonomy, pollination and seed dispersal behaviour.

Ecogeographic surveys are conducted throughout the natural distribution range of the species, samples for genetic intraspecific diversity studies are collected and then analyzed using various genetic markers.

Methods for conservation and use of FGR

Efficient conservation can best be achieved through an appropriate combination of *in situ* and *ex situ* methods which have distinct advantages. The choice of conservation methods and techniques will depend on the precise objectives of the particular conservation effort, the nature of the species in question, as well as on the resources available, including funds, trained personnel, infrastructure and technologies. The involvement of local key stakeholders through a participatory planning approach is essential to ensure high possibilities of success of conservation efforts.

In situ conservation of FGR allows the continuation of natural selection processes and the maintenance of the evolutionary or adaptive capacity of ecosystems. A central problem

The FGR Programme is also investigating the effect of selective logging on the population dynamics of timber and non-timber forest resources in the Western Ghats (India), Costa Rica and Cameroon.

Because of their long life cycle, trees can survive as adults without regeneration. Thus, as self-regenerating resources trees may be compared to living genebanks. However, in cases where over-harvesting is applied, tree populations can occur as “living dead”, conveying the illusion of persistence, when they are actually on their way to extinction. The impact of this practice on FGR is being monitored by means of contrasting genetic diversity measures along a gradient between logged sites at various extents and unaffected populations.

A multidisciplinary research approach to *in situ* conservation and use has been applied to model ecosystems in Brazil and Argentina.

By integrating socioeconomic, genetic and ecological aspects the project is contributing to the understanding of impacts of human activities on forest genetic resources and providing a sound scientific base for sustainable forest management and development. The project work plan was greatly enhanced by the involvement of relevant stakeholders in its planning phase. The rationale behind this approach is the assumption that, under a suitable institutional and educational framework, local people can play an active role linking conservation and use in the context of their own socioeconomic interests.



for sustainable development is striking a balance between uses of resources and their conservation, such that satisfactory levels of development can be maintained. A variety of approaches are possible which combine strictly protected areas with multiple-use areas managed by local people or with natural forests managed for productive purposes, or with forest plantations intensively managed for the production of wood, or other products of importance to local communities. The programme conducts research on the appropriate combination of the different approaches and on methods for measuring and monitoring genetic diversity.

Key areas of *ex situ* research include work on maintaining viability of recalcitrant seeds,

more effective use of *in vitro* conservation methods, and determining where pollen and even DNA storage can make effective contributions. In addition, the programme contributes to establishing field genebanks where provenances are carefully sampled to represent species' distribution range. Serving as conservation stands, they can form breeding populations for future use, and provide an important element of an overall complementary conservation plan for any species linking conservation directly to use.

IPGRI's FGR Programme contributes actively to the increased knowledge on the science and technology of seed handling and storage of tropical seeds through its collaboration with DFSC (Danida Forest Seed Centre). The informal international network of tropical seed scientists from the North and the South, promoted by the FGR Programme, has developed a robust and efficient research protocol for collecting, handling, testing seeds and screening their desiccation tolerance and optimal storage conditions. The protocol has been successfully applied by all member institutes to the investigation of some 20 tropical tree species, which were chosen in consultation with all participant countries. Through such collaboration, the programme achieves not only the development of effective and highly relevant technologies, but also the sharing of ideas, capacity-building and scientific advancement of its partners. Country research capacity is further improved through the twinning of research institutes from the developed and the developing worlds.

EUFORGEN

The European Forest Genetic Resources Programme (EUFORGEN) was endorsed at the second Ministerial Conference in Helsinki (1993) and was established in October 1994 as the implementation mechanism of Strasbourg Resolution S2 (Conservation of Forest Genetic Resources) adopted at the first Ministerial Conference on the Protection of Forests in Europe. EUFORGEN aims at ensuring the conservation and sustainable use of forest genetic resources in Europe. The Programme is the first regional network on FGR coordinated by IPGRI in collaboration with the FAO Forestry Department. It is financed by participating countries (i.e. it is self-sustained) and is operated as a multilateral trust fund which functions through individual agreements with thirty participating countries. The Programme is overseen by a Steering Committee composed of National Coordinators from all participating countries acting as a link between the coordinating secretariat and national institutions involved in the activities on forest genetic resources. The Steering Committee meets every three years to review the progress made, discuss issues of gene conservation in Europe, and to make recommendations for the future of the Programme.

EUFORGEN operates through five species networks in which forest geneticists and other forestry specialists work together to analyze needs, exchange experiences and develop conservation strategies and methods for selected groups of species (Conifers, European Poplars, Mediterranean Oaks, Noble Hardwoods and Social Broadleaves). These networks also contribute to the development of conservation strategies for the ecosystems to which these species belong. Network members from participating countries carry out an agreed workplan with their own resources, as inputs in kind to the Programme. The collaborative tasks typically include exchange of data and information, development of technical guidelines, common information standards and databases, preparation of joint project proposals, exchange of genetic materials, literature overviews etc. The networks have provided a large number of outputs to date. Following the recommendation made by the second Programme's Steering Committee meeting in 1998, the second five-year phase of EUFORGEN has been launched as of 1 January 2000.

SAFORGEN

Recognizing the trans-national nature of issues related to the conservation, improvement, use and management of forest genetic resources, African national forestry experts have recommended the establishment of a regional Programme on FGR for Sub-Saharan Africa during several meetings. They also recommended that IPGRI coordinate this regional initiative in consultation with FAO as well other international organizations including ICRAF and IUFRO. The proposition was first made at the meeting of heads of African Tree Seed Centers in 1997, and further developed during Regional Training Workshops on the Conservation and Sustainable Use of Forest Genetic Resources in Western and Central Africa and Madagascar in March 1998 and in Eastern and Southern Africa in December 1999.

Therefore, IPGRI's FGR Programme has taken steps to assist countries in establishing SAFORGEN, the Sub-Saharan Forest Genetic Resources Programme, a voluntary, regional instrument for promoting collaboration in research and development efforts on forest genetic resources conservation and use. The aims of SAFORGEN are (i) to assemble knowledge and analyze needs in forest genetic resources (ii) develop technical concepts and methodologies and (iii) promote the exchange of expertise and information among participating countries. SAFORGEN is initially structured around four networks of species groups, including food, fodder, medicinal and wood species. Early activities focus on networking with national programmes, regional organizations and events on forest genetic resources, the establishment of the Programme, and the development of pilot proposals in the four areas of concentration.

IPGRI's FGR Programme benefits greatly from its collaboration with FAO for the development of subregional plans of action on forest genetic resources in Sub-Saharan Africa. Indeed, SAFORGEN should serve as a useful tool to help countries implement several key recommendations of the subregional plans of action, which are being developed for Sahelian as well as Eastern and Southern Africa.

IPGRI's FGR strategy at work: a practical application to the conservation and use of bamboo and rattan genetic resources.

Bamboo and rattan are two major non-timber forest products of Asia, whose annual world trade value has been estimated at around US\$ 14.5 billion, providing gainful employment for rural people.

However, the current extraction process of these two products is leading to severe genetic erosion of the resource base and the information needed to develop and promote integrated strategies for conservation and use is largely lacking on many species. IPGRI's FGR Programme was requested by INBAR (International Network for Bamboo and Rattan) to take a lead role in activities related to bamboo and rattan genetic resources since early 1993. Heretofore, significant information has been generated, assembled, compiled and distributed by IPGRI's FGR Programme, helping researchers and decision-makers from over 20 countries to realize the importance of resource availability through linking genetic improvement with conservation of genetic diversity of bamboo and rattan.

Priority species lists were prepared, in collaboration with experts from partner countries, and published jointly by IPGRI and INBAR. The lists of selected species are periodically revised, as research

activities continue disclosing additional information on their actual and potential importance.

Ecogeographic surveys were carried out to assess patterns of priority species distribution in several countries and samples have been collected for assessing patterns of intraspecific genetic variation using molecular methods.

The impact of human activity on genetic diversity of



bamboo and rattan is being studied in the Western Ghats of India, along a gradient of varying anthropic pressure. *Ex situ* conservation is carried out mostly on an *ad hoc* basis, where good plant materials are cultivated in village groves, home gardens, botanic gardens and sacred groves. Promising results were produced by studies to determine optimum conditions for seed collection, storage, viability, germination and seed vigour. From the very beginning, solid efforts were made in training activities to promote the need for conservation and use of bamboo and rattan genetic resources on a sustainable basis. Training opportunities were offered through the organization of courses/workshops, as well as through support to participants to attend training events organized by others. Regional cooperation and networking are carried out in close collaboration with INBAR.

The *modus operandi* of the FGR Programme



Several approaches, which reflect areas where IPGRI has a comparative advantage, enable the FGR Programme to contribute effectively to the conservation and use of FGR by:

- Working on **intraspecific genetic diversity**, thus complementing the efforts of a wide range of national and international partners on ecosystem-level management of forests.
- Adopting a **holistic approach** and **global perspective** which recognizes the importance of maintaining biodiversity at the genetic, species and ecosystem levels and emphasizes the integration of genetic diversity considerations into sustainable management and use of FGR. IPGRI's overall programmatic focus on problems of a global or generic nature that can be addressed through work on carefully selected "model" species or ecosystems will also feed into its approach to FGR work. The aim is to yield broadly applicable solutions to problems and constraints identified at different levels. Accordingly, selection of model forest ecosystems, tree species and management systems in different ecoregions will form a fundamental part of IPGRI's strategy on FGR.
- **Adopting a multidisciplinary research approach** that utilizes the in-house expertise and experience in ethnobotany and socioeconomics, as well as legal and policy analysis, information management, capacity-building, training and network operation in genetic resources conservation.
- Applying IPGRI's **extensive experience** in many relevant conservation areas, gained from its work on crop genetic resources to FGR. This includes work on locating and monitoring genetic diversity, germplasm collecting, various *ex situ* conservation methods such as seed storage and *in vitro* techniques, as well as guidelines for safe movement of germplasm.
- **Establishing effective partnerships** with a wide range of carefully selected partners around the world to pursue specific research activities. The Institute operates primarily as a catalyst and facilitator, contracting most of its research to partner institutions, thus increasing the effectiveness of its work.
- **Working with networks** for promoting collaboration and partnerships among actors with a wide range of expertise and perspectives to address common problems in genetic resources work. IPGRI develops and supports regional, thematic and crop-specific networks. Valuable experience has been gained through involvement in the European Forest Genetic Resources Programme, the work conducted in collaboration with the International Network on Bamboo and Rattan, and the achievements of the thematic network on recalcitrant and intermediate tropical forest tree seeds.

International collaboration on FGR

Even though a Global Plan of Action on FGR is not yet in place, several international conventions and schemes have effective implications on FGR management.

IPGRI's FGR Programme is joining efforts with partners at international level to identify, in a timely and proactive way, crucial FGR-specific policy and legal aspects, which need to be taken into account in national plans and international conventions.

Close relationships have been forged with FAO's Forestry Department, which plays a key role in raising awareness of conservation and better utilization of FGR, under the guidance of FAO Panel of Experts on Forest Gene Resources.

IPGRI collaborates closely with other CGIAR centres involved in forestry research, in particular, with CIFOR and ICRAF and with the CGIAR system-wide programme on genetic resources (SGRP) based on the respective comparative advantages of the centers.

The FGR Programme also maintains close links with international organizations such as IUCN, WCMC, ITTO, IUFRO Biodiversity Research Group and its Task Force on management and conservation of FGR. Productive collaboration is ongoing also with advanced research institutes such as CIRAD Forêt, Oxford Forestry Institute, Danida Forest Seed Center, CSIRO, Royal Botanic Garden at Kew, and the World Forestry Institute in Germany.

Capacity-building

Much like the institute as a whole, capacity-building is a fundamental objective of IPGRI's FGR Programme and cuts across most of its activities. The Programme aims at building the capabilities of national programmes to assess and meet their own needs for FGR conservation and sustainable use. An effort is also made to stimulate and facilitate linkages between programmes both regionally and internationally. Partners in national programmes are mostly forestry research institutions, but also include university teams, NGOs and government departments.

By contracting research to selected national institutions, which are mostly located in developing countries, the Programme promotes 'on-the-job' training in areas such as genetic resource surveys, genetic diversity assessment and conservation methods. Thus, it assists scientists in improving the skills needed to lead the development of their genetic resource programmes. In addition, direct partnership with advanced research laboratories in specific activities such as research on the handling and storage of intermediate and recalcitrant forest seeds further enriches collaboration and support to researchers.

IPGRI's FGR Programme actively pursues opportunities for promoting national agendas in forest genetic resource conservation by bringing together national programmes with various degrees of involvement in FGR research. These initiatives contribute to enhanced interactions, the dissemination of updated information, higher coordination and effective collaboration between partners, as well as improved capacity and overall impact in genetic resource conservation.

Capacity-building is also undertaken through support to the development of regional plans for the conservation, management and improvement of FGR, which is being spearheaded by FAO in the South Pacific, Sahelian Africa, Eastern and Southern Africa, as well as other regions. The FGR programme, in collaboration with ICRAF and CIFOR, supports and actively participates in regional workshops where countries assess the state of resources, and establish action plans for priority forest genetic resources. In Sub-Saharan Africa, IPGRI has been instrumental in establishing SAFORGEN, the regional programme on forest genetic resources, which countries consider as the most appropriate mechanism to promote coordinated collaboration and exchange information on FGR.

These national or regional consultations produce a diversity of tools, including lists of priority species, technical guidelines and research proposals, which can be directly applicable in FGR programmes. IPGRI's FGR Programme also works at reinforcing capacities directly through technical training workshops, which offer a comprehensive view of the various elements involved in the conservation and sustainable use of forest genetic resources or focus on specific thematic areas.

The future



Despite being relatively young, IPGRI's FGR Programme has progressively grown in thematic and geographic coverage, and is currently carried on by approximately 10 staff members located at headquarters as well as in regional offices. Regional research programmes and networks are gradually growing in number and impact, becoming increasingly active at local level, and gaining scientific recognition and strong support by national programmes. Furthermore, modern techniques in the field of molecular technology for the assessment of genetic diversity provide IPGRI's FGR Programme and researchers with unique opportunities to gain deeper insights on patterns of genetic diversity and on processes affecting its distribution. Web-based technologies available for information management are disclosing a wide range of the newest effective, inexpensive and original solutions for collecting, storing and disseminating knowledge worldwide, even though these tools are not yet available to all.

IPGRI views the conservation and sustainable use of FGR as a key strategic choice to meet the social, economic and environmental demands of the 21st century. The Institute offers its scientific and technical expertise to build a long-term global effort for improved management of the world's forest genetic resources. IPGRI recognizes that this ambitious scope is not the responsibility of a few nations and institutions, but it must be the focus of a collective and concerted action, involving Governments, Universities, Research Institution, NGOs and the private sector.

IPGRI is confident that, with the invaluable help of its partners and collaborators, it will fulfil its mandate in the field of conservation and use of forest genetic resources, meeting the expectations of its stakeholders worldwide.