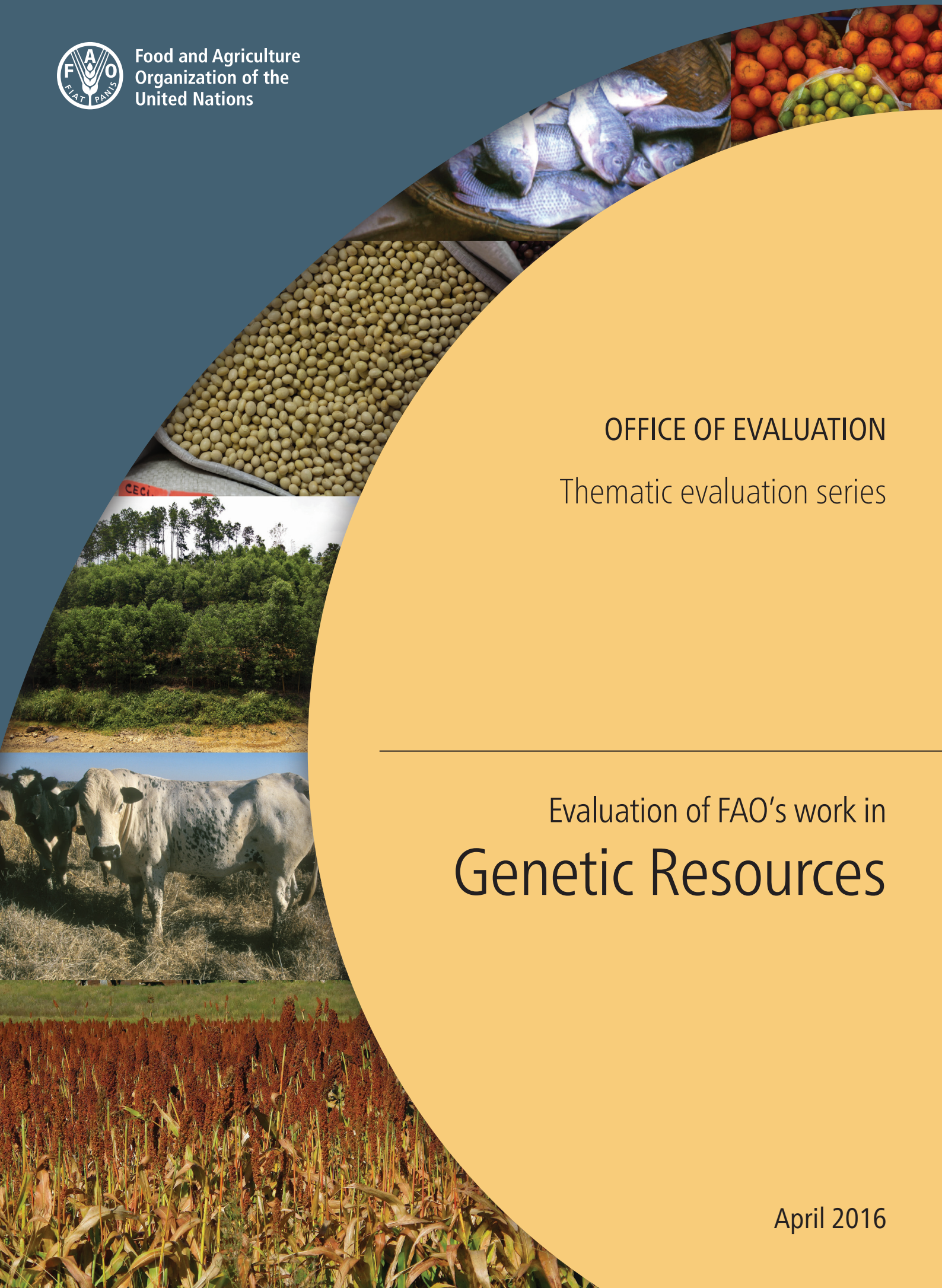
Food and Agriculture Organization of the United Nations



OFFICE OF EVALUATION

Thematic evaluation series

Evaluation of FAO's work in Genetic Resources

April 2016

THEMATIC EVALUATION SERIES

Evaluation of FAO's work in genetic resources

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
OFFICE OF EVALUATION

April 2016

Food and Agriculture Organization of the United Nations

Office of Evaluation (OED)

This report is available in electronic format at: http://www.fao.org/evaluation

For further information on this report, please contact:

Director, Office of Evaluation (OED)
Food and Agriculture Organization
Viale delle Terme di Caracalla 1, 00153 Rome
Italy
Email: evaluation@fao.org

Photo credits: cover (top to bottom) ©FAO/Giampiero Diana; ©FAO/K. Pratt; ©FAO/Rocco Rorandelli; ©FAO/Joan Manuel Baliellas; ©FAO/Jon Spaull; ©FAO/Sandro Cespoli

Contents

Acknowledgements ..... *v*
Acronyms and abbreviations ..... *vi*

Executive summary **1**

1. Introduction **10**

2. Background and context **12**
Normative GRFA activities 12
Technical assistance and capacity development activities 14

3. Resources available for FAO's GRFA work **15**

4. Purpose and scope of the evaluation **17**
Limitations of the evaluation 17
Structure of the report 18

5. Assessment of FAO's GRFA Work **19**
Global assessment of FAO GRFA activities by national focal points 19
Assessment of normative activities 19
Assessment of technical assistance/capacity development activities 22

6. Partnerships **30**
Partnerships in technical assistance projects 30
Institutional/normative partnerships 31
Cross-cutting issues 32

Tables, figures and boxes

Tables

Table 1: GRFA mandates/activities and lead units 10
Table 2: FAO Genetic Resources Projects 2007-15 (by sector) 14
Table 3: NFP perceptions concerning the impact of FAO GRFA work 19
Table 4: Selected cases for in-depth analysis 23

Figures

Figure 1: FAO GRFA knowledge integration 13
Figure 2: FAO's GRFA evaluation framework 17
Figure 3: Perceived usefulness of GRFA documents 20
Figure 4: Perceived usefulness of state-of-the-world reports and global plans of action 20
Figure 5: Perceived quality of FAO's global GRFA policy work 21
Figure 6: Perceived quality of FAO global GRFA policy work by Country Income Group 22

Boxes

Box 1: Dairy cattle and buffalo improvement project in Sri Lanka, TCP/SRL/3204 25
Box 2: Aquaculture investments for poverty reduction in the Volta Basin: creating opportunities for low-income African fish farmers through improved management of Tilapia genetic resources (TIVO), GCP/RAF/417/SPA 26
Box 3: Programme of support to improve peasant family farming availability, access and use of quality seed in the High Andes in Peru, Bolivia and Ecuador, "Andean Seeds Project" GCP/RLA/183/SPA 27
Box 4: Support for the elaboration of Madagascar's national report on forest genetic resources (FGR), TCP/MAG/3302 29

Acknowledgements

The Office of Evaluation of FAO would like to thank all those who contributed to this report. The evaluation team was managed by Bernd Bultemeier, with Sara Holst as Senior Evaluation Analyst and Eric Welch as Senior Consultant.

Additional contributors include Aseffa Seyoum Wedajoo, Expert in Plant Genetic Resources; Edouard Bonkoungou, Expert in Forest Genetic Resources; Chanda Nimbkar, Expert in Animal Genetic Resources; Isabel Lapeña, Expert in Plant Genetic Resources; Gea Galluzzi, Expert in Plant Genetic Resources; Thuy T. T. Nguyen, Expert in Aquatic Genetic Resources; Claire Billot and Thierry Leroy (CIRAD), Genetic Resources Experts; Claire Neirac (CIRAD), Legal Expert; Helen Joly (CIRAD), Population Geneticist.

Acronyms and abbreviations

ABS	Access and Benefit Sharing
AnGR	Animal Genetic Resources
AqGR	Aquatic Genetic Resources
CBD	Convention on Biological Diversity
CGIAR	Consortium of International Agricultural Research Centers
CGRFA	Commission on Genetic Resources for Food and Agriculture
DAD-IS	Domestic Animal Diversity Information System
DAD-Net	Domestic Animal Diversity Network
FAO	Food and Agriculture Organization of the United Nations
FGR	Forest Genetic Resources
GEF	Global Environment Facility
GIPB	Global Partnership Initiative for Plant Breeding Capacity Building
GPA	Global Plan of Action
GRFA	Genetic Resources for Food and Agriculture
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
MYPOW	Multi-Year Programme of Work
NFP	National Focal Point
OECD	Organisation for Economic Cooperation and Development
OED	Office of Evaluation
PGR	Plant Genetic Resources
SDG	Sustainable Development Goals
SO	Strategic Objectives
SOFA	State of Food and Agriculture
SOFI	State of Food Insecurity in the World
SOFIA	State of the World Fisheries and Aquaculture
SOFO	State of the World's Forests
SOW	State of the World
TCP	Technical Cooperation Programme
TIVO	Tilapia Genetic Resources Volta Project
WIEWS	Early Warning System on Plant Genetic Resources

Executive summary

Introduction

Overview of the features and evolution of FAO's work in genetic resources

ES1 Genetic resources for food and agriculture (GRFA) include the plant, animal, aquatic, microbial, forest and other genetic resources of relevance to agriculture, farming and food systems. GRFA are essential to global food production, especially considering the growth in population and consumption expected through 2050. They are the raw materials that farmers, herders, fishers, foresters, breeders (conventional as well as through biotechnology) and researchers rely upon to improve the quality and the amount of food produced. In addition, GRFA provide the building blocks for developing new materials that are adapted to changing climates or novel environments and production demands.

ES2 The Food and Agriculture Organization of the United Nations (FAO) is an important actor in the field of GRFA. Initially focused on plant genetic resources (PGR), FAO received in 1983 the mandate "to ensure that plant genetic resources of economic and/or social interest, particularly for agriculture, will be explored, preserved, evaluated and made available for plant breeding and scientific purposes". With the creation of the Commission on Genetic Resources for Food and Agriculture (CGRFA), FAO hosts an intergovernmental body that, since 1995, has a broadened mandate to "facilitate an integrated approach to agrobiodiversity and coordination with governments, which are increasingly dealing with policy issues regarding biological diversity in an integrated manner".

ES3 FAO's global instruments covering GRFA work are State of the World (SOW) reports[1] on GRFA (plant, animal, forest and soon also aquatic genetic resources and biodiversity) and their associated Global Plans of Action (GPAs). CGRFA is the main institutional body within FAO dealing with coordination and policies, while technical work (including networking and capacity development) is performed by the relevant technical units[2]. Through the Commission, FAO negotiated the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)[3], a legally binding instrument that established a multilateral system to promote conservation and sustainable use as well as fair access to PGR for food and agriculture, and to share the benefits derived from their use in an equitable way.

ES4 The establishment of the Commission and the ITPGRFA were expressions of increasing worldwide attention on genetic resources. The membership of the Commission has risen steadily, as have voluntary contributions to FAO's GRFA work. FAO Regular Programme funding covers staff positions at headquarters and many recurrent activities. Mandated GRFA work has increased over time, including additional SOW reports, related GPA activities, and the Commission's growing Multi-Year Programme of Work (MYPOW), all of which required increasing amounts of voluntary contributions. Field project activities are also overwhelmingly funded by voluntary contributions. FAO Technical Cooperation Programme (TCP) projects (funded by FAO's Regular Budget) have provided support primarily for SOW reporting, as well as GPA activities in some countries. Important milestones in recent decades include the following:

- In 1996, the first *State of the World's Plant Genetic Resources for Food and Agriculture*[4] report was launched, and the first Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture was adopted.
- In 2004 the *International Treaty on Plant Genetic Resources for Food and Agriculture* entered into force. The Treaty established a multilateral system of Access and Benefit

1 Global assessments of the status and trends of the respective genetic resources.

2 The Commission also provides technical assistance e.g. for elaboration of national plans. Generally speaking though, work on plant genetic resources is the responsibility of the Plant Production and Protection division; the Animal Production and Health division is responsible for animal genetic resources. The Forestry and Fisheries departments take the lead in forest and aquatic genetic resources, respectively.

3 The ITPGRFA was established within FAO as an Article 14 body with its own governance and oversight arrangements, and as such is not subject of this evaluation.

4 A second PGR SOW was launched in 2010, and the corresponding GPA adopted in 2011.

Sharing (ABS) that responded to the need for cooperation in the management, conservation and distribution of PGR.

- In 2007, the first ***State of the World's Animal Genetic Resources for Food and Agriculture***[5] was launched and a Global Plan of Action on Animal Genetic Resources was adopted by the FAO Conference.
- In 2007, the Commission adopted its ***Multi-Year Programme of Work*** that includes cross-sectoral activities such as ABS, targets and indicators, climate change, nutrition, ecosystem services and biotechnology.
- In the context of the preparation of the ***State of World's Forest Genetic Resources*** (finalized in 2014), the ***Global Plan of Action*** for the Conservation, Sustainable Use and Development of Forest Genetic Resources was adopted by the FAO Conference in 2013.
- Reports on the cross-sectoral ***State of the World's Biodiversity for Food and Agriculture*** and the ***State of the World's Aquatic Genetic Resources*** for Food and Agriculture (focused on farmed aquatic species and their wild relatives within national jurisdiction) are under preparation.

ES5 Since 2007, FAO has implemented over 90 GRFA-related projects worth USD 100 million within the framework of the Commission's MYPOW and FAO's own Strategic Framework (especially under Strategic Objective 2[6]). About two-thirds of the projects have focused on animal genetic resources (AnGR) activities under the GPAs, one-quarter of the projects on plant genetic resources (PGR), and the remaining ones on forest (FGR) and aquatic genetic resources (AqGR). FAO has also produced 34 normative and knowledge products (not counting statutory reports), including 17 on AnGR, eight on PGR, six on FGR, and three on AqGR. Regular Programme funding of GRFA work has declined from USD 12.8 million in 2008-09 to around USD 10.5 million in 2014-15[7].

Evaluation approach

ES6 In 2014-15, the Office of Evaluation (OED) assessed FAO's work related to forest, plant, animal and aquatic genetic resources during the period 2007-15,[8] in order to identify achievements and analyse factors that may have affected performance. The evaluation was led by an OED team including a senior consultant, six thematic experts covering Plant, Animal, Forest and Aquatic Genetic Resources, and researchers from the ***Centre de coopération internationale en recherche agronomique pour le développement*** (CIRAD).

ES7 The evaluation sought to answer two overarching evaluation questions: i) How effectively has FAO guided policies and approaches to sustainable use of genetic resources, especially at country level? and ii) What impact has FAO's technical and capacity development work had on member countries and institutional stakeholders? The evaluation was guided by additional sets of sub-questions, the most important of which were:

i What impact have FAO activities had on national/international policies and outcomes?

ii What impact has FAO had on technical capacity at country level?

iii How successful has FAO been in its efforts to foster information exchange, facilitate networks and integrate GRFA issues with other normative and policy work?

iv How effectively has FAO fostered partnerships around GRFA topics?

v To what extent has FAO accomplished the planned outputs and outcomes? Are there any institutional factors constraining GRFA work?

vi Are there areas of overlap or duplication within FAO or with the work of others?

vii To what extent have FAO's activities recognized diversity and how has this been integrated?

5 A second AnGR SOW was launched in 2016.

6 It appears that no specific GRFA work was included under any of the regional initiatives (http://www.fao.org/about/what-we-do/regional-initiatives/en/)

7 As reported to the Commission members (CGRFA-15/15/20.1): USD 3.2 million for Commission Secretariat, Intergovernmental Technical Working Groups, and implementation of MYPOW milestones, and USD 7 m allocated by the Strategic Objective Coordinators to different areas of work of the MYPOW, mainly under Strategic Objective 2. (Budget allocations for GRFA work are not easily identifiable in the Programme of Work and Budget of the Organization; the Commission document focused on allocations/activities that explicitly mention "genetic resources"; activities that contribute indirectly to GRFA work are not necessarily included.)

8 2007 was chosen as starting point as it coincided with the launch of the first State of the World Animal Genetic Resources for Food and Agriculture and the Commission's Multi-Year Programme of Work (MYPOW)

ES8 The evaluation was undertaken in a consultative manner using the following methods and tools: i) desk review of FAO's genetic resources work; ii) interviews and focus group discussions with FAO as well as external GRFA stakeholders; iii) country visits for case studies[9]; iv) surveys of key actors and stakeholders[10]; and v) bibliometric analysis.

Findings

ES9 The main findings of the evaluation are presented below, grouped by evaluation question.

a. What ***impact have FAO GRFA activities had on national or international policies and outcomes?***

ES10 As a respected authority on GRFA, FAO's CGRFA provides the only global forum for governments to discuss and negotiate matters specifically relevant to biological diversity and genetic resources for food and agriculture. The Commission is well respected, and the various SOW reports, GPAs and other normative or policy instruments have informed governments and the public on the importance of GRFA. FAO GRFA documents have had an international impact: citation analysis shows that in close to 100 FAO member countries, academic publications have cited key FAO GRFA policy documents. With regard to global policy processes, FAO GRFA documents were cited in five (out of 20) Convention on Biological Diversity (CBD) working documents during the 2007-2010 CBD ABS negotiation period[11].

ES11 In addition, and because of the work done by the Commission, GRFA is mentioned in global frameworks such as the CBD's Strategic Plan for Biodiversity 2011-2020 and the related Aichi Biodiversity Target 13, which relates to the conservation and sustainable use of GRFA. Moreover, indicators developed by the Commission are used in the Sustainable Development Goals (SDG) 2.5, and guidelines developed in support of national GPA implementation have helped countries in developing national policies. However, FAO's GRFA work lacks sufficient resources (e.g. there is very limited GRFA expertise in decentralized offices) to provide in-country and regional policy coordination and leadership.

ES12 The evaluation team's survey of National Focal Points confirmed that FAO's policy impact is perceived to be highest at the global level, followed by the national and regional levels. This is in line with the intentions of FAO's policy and normative documents, particularly the flagship policy documents, the Global Plans of Action.

b. What impact has FAO had on technical capacity at country level, as well as implementation of GRFA guidance documents?

ES13 FAO GRFA documents and technical assistance activities related to GRFA are considered useful by stakeholders, and higher-income countries in particular seem to appreciate FAO's work in the policy sphere. The evaluation team observed sectoral differences, however, in the perceived usefulness of GPAs: awareness of, and appreciation for, a GPA seems to rise over time.

ES14 FAO GRFA technical assistance projects can be categorized into three main types: technical dominant, policy dominant and information dominant. The two latter categories often were in support of SOW reporting or GPA implementation. In general, sustainability and impact of technical dominant projects were greater when technical assistance and capacity development were integrated with GRFA policy objectives. Projects that became embedded into national

9 Country case studies were undertaken in 26 countries (Azerbaijan, Brazil, Burkina Faso, Chile, Cote d'Ivoire, Ecuador, Ghana, Guatemala, Indonesia, Kenya, Kyrgyzstan, Lao Peoples' Democratic Republic, Lebanon, Madagascar, Malaysia, Morocco, Nepal, Peru, Philippines, Senegal, Sri Lanka, Tajikistan, Tanzania, Thailand, Turkey, Zambia); the case studies covered specific projects as well as general aspects of GRFA work in the concerned countries.

10 A survey of national focal points (NFP) was administered between July 2015 and August 2015 to a total of 527 individuals; a total of 285 useable responses were received (AnGR, 99; PGR, 69; FGR, 58 and AqGR, 27).

11 The Commission is also often invited by CBD Parties to contribute to biodiversity work in the areas of its mandate; likewise, many EU policy documents (e.g. Community programme on the conservation, characterisation, collection and utilization of genetic resources in agriculture) refer to FAO policy documents, in particular the GPAs, and also mention FAO databases such as DAD-IS.

policy processes tended to be more successful; short-term projects that provided information for SOW reports were also considered important for policy, but the awareness effect was often short-lived and countries did not independently continue updating their information.

c. How successful has FAO been in its efforts to foster information exchange, facilitate networks, and integrate GRFA issues with other normative and policy work?

ES15 FAO successfully linked its GRFA work to other normative and global policy work within the Organization.[12] The GRFA information systems developed by FAO (particularly the Domestic Animal Diversity Information System (DAD-IS) and the related Domestic Animal Diversity Network (DAD-Net), as well as the World Information and Early Warning System on Plant Genetic Resources (WIEWS) are essential tools that enable countries to comply with international reporting obligations, and stakeholders to access and share global information on GRFA. However, there is often little coordination across sectors at country level, and the infrastructure built for SOW reporting and monitoring often collapses after report submission.

d. How effectively has FAO fostered partnerships around GRFA topics?

ES16 The institutional landscape governing GRFA has undergone significant changes since FAO received its mandate for plant genetic resources in 1983. New independent organizations and instruments emerged such as the Convention on Biological Diversity (1993), Global Forum on Agricultural Research/GFAR (1996), Bioversity International (2006), and especially the Global Crop Diversity Trust (2004). Some of these new entities grew out of, or were created with support from FAO: Bioversity was initially the International Board for Plant Genetic Resources (IBPGR) with FAO acting as secretariat, and the Global Crop Diversity Trust was established through a partnership between FAO and the Consortium of International Agricultural Research Centers (CGIAR)/Bioversity.

ES17 In addition to supporting the creation of new bodies dealing with GRFA, FAO has established a number of partnerships, such as the joint work plan between the Secretariats of the CBD and the CGRFA. Commission meetings are attended by, and receive reports from, organizations such as Bioversity International, Global Crop Diversity Trust, CGIAR Secretariat, Global Forum on Agricultural Research, Convention on Biological Diversity[13] and others. Technical units have established informal as well as formal relations with several organizations. In addition, partnerships with important donors (France, Germany, Japan, Norway, Spain, Sweden and Switzerland) provide funding for GRFA events (e.g. meetings related to the Commission) as well as for technical assistance projects, often in support of SOW (and, to a lesser extent, GPA) activities. Technical units have invited researchers to contribute chapters to flagship reports for little or no compensation.

e. To what extent has FAO accomplished the planned outputs and outcomes?

ES18 FAO has made significant achievements during the period under review. In 2007, only two SOWs existed: the first State of the World report on PGR dated back to 1996, and the first AnGR SOW had just been issued. By late 2015, three additional SOWs (the second PGR, first FGR and second AnGR) had been finalized, and the Commission's membership had grown from 170 to 178 members. (Two additional SOWs – Aquatic Genetic Resources and Biodiversity – are being finalized.) However, there was a high dependency on voluntary funding to implement the Commission's MYPOW, including SOW reports and GPAs. While FAO has attracted a growing amount of extra-budgetary funding for GRFA activities, these voluntary contributions have not increased proportionately with the volume of work. At the same time, FAO's Regular Programme budget allocations indicate a declining trend, and FAO's Reviewed Strategic Framework seems to accord lower priority to GRFA work[14].

12 For example, Voluntary Guidelines to Support the Integration of Genetic Diversity into National Climate Change Adaptation Planning.

13 FAO also hosted important CBD meetings.

14 GRFA are not specifically mentioned among higher-level objectives or outcomes, and no indicator related to GRFA is present in FAO's current results framework. Also FAO's Regional Initiatives do not include a GRFA orientation. However, GRFA is present within the third Global Goal of Members: "sustainable management and utilization of natural resources, including land, water, air, climate and *genetic resources* for the benefit of present and future generations".

f. Are there areas of overlap or duplication within FAO or with the work of others?

ES19 Funding for GRFA work has not been high on the international agenda in recent years; partners like Bioversity had significant budget cuts in 2015, and the Global Crop Diversity Trust has faced difficulties to mobilize resources (the Trust is still well below its USD 500 million pledging target, given that only USD 170 million were pledged by late 2015). Thus, given the limited resources available for GRFA activities, the evaluation found no concrete examples for duplication of work, although other relevant organizations could be viewed as potential competitors, especially within the CGIAR system[15]. (A competition for voluntary contributions may exist, but the evaluation had no instrument to gauge this.) At the same time, CBD, Crop Diversity Trust and other organizations regularly participate in, and report to, CGRFA events. Within FAO, there was good collaboration among the sectors, as several projects managed by the Commission secretariat included sectoral activities implemented by the respective technical units. However, opportunities exist for improved coordination (e.g. between the Treaty and FAO units dealing with PGRFA, as in the case of the Global Partnership Initiative for Plant Breeding Capacity Building (GIPB), which could have benefited from being better integrated in an overall policy framework on sustainable use).

g. To what extent have FAO activities recognized diversity (national, regional, gender, professional background)? How has diversity been integrated into FAO's activities?

ES20 FAO has a long history[16] of recognizing diversity in its GRFA activities. This is most evident with regard to farmers' rights, as well as the role of women and youth in maintaining GRFA. AnGR work recognized diversity, for example, by stressing the importance of traditional herders and women as guardians of domestic animal diversity (2007); PGR work likewise stressed the contribution of smallholder farmers to GRFA conservation and management. An evolution on this theme is evident over time: the 2007 AnGr GPA did not mention gender; the 2011 2nd PGR GPA did so extensively; the 2013 FGR GPA acknowledged in its Strategic Priorities the important role of indigenous people and local communities, as well as gender, to a lesser extent.

Conclusions

ES21 The following conclusions are drawn from the main findings of the evaluation.

Conclusion 1

FAO is a respected authority on GRFA, and FAO's Commission on Genetic Resources for Food and Agriculture provides the only global forum for governments to discuss and negotiate matters specifically relevant to biological diversity and genetic resources for food and agriculture. The Commission is well respected, and the various SOW reports, GPAs and other normative instruments have informed governments and the public on the importance of GRFA. These normative products are especially useful for informing lower and middle income countries on the current GRFA situation, as well as developments governing the exchange of information and the transfer of GRFA. FAO's GRFA information systems are crucial resources enabling stakeholders to access and share information.

ES22 The majority of National Focal Points, representing member countries on GRFA matters, confirmed the usefulness of FAO's normative products on GRFA as well as the SOW country reports. There was also a clear consensus among stakeholders that the SOW country reports provide an impetus for collecting and maintaining GRFA data at the country level. Guidelines developed in support of national GPA implementation have helped countries in developing national policies.

15 For example, the Genetically Improved Farmed Tilapia (GIFT) created by the CGIAR WorldFish Center and partners was used in an FAO project in Ghana; WorldFish in turn exhibits FAO's guidelines on Genetic Resource Management in Aquaculture Development on their website.

16 For example, a 1996 paper on "Farmers Rights in the Conservation and Use of Plant Genetic Resources: A Gender Perspective".

ES23 FAO GRFA normative products have had an international impact: FAO GRFA documents were used[17] in the Access and Benefit Sharing negotiations (2007-2010) of the CBD, and cited in nearly 100 academic publications. Also as the result of work done by the Commission, GRFA products are mentioned in global frameworks such as the Strategic Plan for Biodiversity 2011-2020 of the Convention, the Aichi Biodiversity Target 13, and SDG Goal 2.5, all of which relate to the conservation and sustainable use of GRFA.

ES24 Many stakeholders underlined the importance of FAO's GRFA information systems, particularly DAD-IS and the related DAD-Net, as well as WIEWS, for accessing global information on GRFA and for sharing information with a wider community.

Conclusion 2

FAO has established a number of formal and informal partnerships involving GRFA activities. Within the Organization, FAO has linked its GRFA work to other normative and global policy work, and created synergies between CGRFA and FAO's technical work. While FAO has maintained its unique role as a neutral policy forum for GRFA, other institutions (some grown out of FAO) have entered the field, and FAO has lost some visibility and support to new initiatives.

ES25 There was little overlap or duplication of GRFA work either within or outside FAO. FAO has established a number of partnerships on GRFA, such as joint work plans between the Secretariats of the CBD and CGRFA. CGRFA meetings were attended by, and received reports from, organizations such as Bioversity International, Global Crop Diversity Trust, CGIAR Secretariat, Global Forum on Agricultural Research and CBD.

ES26 FAO's technical units have informal as well as formal relations with several organizations, and partnerships with important donors (France, Germany, Japan, Norway, Spain, Sweden and Switzerland) provide supplementary funding for GRFA events (e.g. meetings related to CGRFA) and technical assistance projects, often in support of SOW (and, to a lesser extent, GPA) activities. Technical units have also invited researchers to contribute chapters to flagship reports for little or no compensation.

ES27 FAO's GRFA work is linked to such normative and global policy work as the Voluntary Guidelines to Support the Integration of Genetic Diversity into National Climate Change Adaptation Planning. Several projects managed by the CGRFA secretariat included sectoral activities implemented by the respective technical units. Opportunities for further coordination exist, for example, between ITPGRFA and FAO units dealing with PGRFA, as in the case of GIPB, which could possibly have benefited from being better integrated into an overall policy framework on sustainable use.

Conclusion 3

At the country level, the results of technical assistance projects were mixed. In most cases, projects were relevant to the countries' needs, especially for middle and low income countries, and have developed immediate capacity. However, sustainability and longer term impact were frequently in doubt due to the one-off nature of these projects. In many countries, reporting arrangements were not institutionalized and coordination across sectors was not developed.

ES28 Many aspects of GRFA work require a longer time horizon, as legislative and regulatory changes concerning the conservation and management of GRFA (e.g. access and benefit-sharing, or intellectual property rights) often involve slow political processes.

ES29 Most GRFA technical assistance projects (both technical- and policy-oriented) were relevant and contributed to immediate capacity building. Few, however, had a lasting impact

17 The Commission is also often invited by CBD Parties to contribute to biodiversity work in the areas of its mandate; likewise, many EU policy documents (e.g. Community programme on the conservation, characterisation, collection and utilization of genetic resources in agriculture) refer to FAO policy documents, in particular the GPAs, and also mention FAO databases such as DAD-IS.

due to a lack of synergies and linkages with ongoing policies, projects, programmes and platforms. Focal Points on plant, animal, forest, or aquatic genetic resources were seldom engaged in cross-sectoral coordination; arrangements for SOW reporting often dissolved after report submission and had to be developed again each time. There was little evidence that after project termination ex-post assessments were undertaken to learn about: (i) follow-up efforts to sustain the project; (ii) continuing barriers, opportunities and needs for assistance; and (iii) a compilation of lessons that could inform future projects.

ES30 FAO's guidance and capacity development support was appreciated by countries where it has a presence through ongoing project activities, but less so in countries where it does not. This is likely a consequence of the one-off nature of assistance provided to countries from headquarters, and the low level of GRFA expertise in most decentralized offices.

Conclusion 4

FAO GRFA activities recognized diversity, including national/regional, gender, youth and professional diversities.

ES31 FAO has a long history of recognizing diversity in its GRFA activities, such as the 1996 paper "Farmers Rights in the Conservation and Use of Plant Genetic Resources: A Gender Perspective". FAO papers and guidance documents increasingly promote farmers' rights, emphasize the role of women and youth in maintaining GRFA, and recognize the importance of traditional societies, women, smallholder farmers and indigenous people to GRFA conservation and management.

Conclusion 5

To some extent, GRFA work has not been fully synchronized within FAO (Commission and technical units). Changes in FAO's overall strategic priority setting were not always reflected in the CGRFA work programme, and the implementation of ongoing mandated GRFA activities was not always without competition for limited resources. The time may be opportune to look into FAO's institutional architecture for GRFA work, and develop ideas for better integration and increasing synergies.

ES32 GRFA work has become less visible in FAO's Reviewed Strategic Framework, approved by the FAO Conference in 2013[18], and Regular Programme allocations decreased over the 2014-2015 biennium. At the same time, through CGRFA FAO was given the mandates for additional SOW reports: Aquatic Genetic Resources and Biodiversity are currently under preparation, in addition to the three already finalized SOWs, and CGRFA has committed to the Third Plant Genetic Resources and the Second Forest Genetic Resources SOW reports. Furthermore, FAO is expected to manage the reporting efforts, and to monitor implementation of the GPAs for AnGR, PGR and FGR (and for aquatic genetic resources and biodiversity in the future).

ES33 FAO has successfully mobilized extra-budgetary contributions for GRFA work, which increased in the 2014-2015 biennium. However, recent examples suggest that these voluntary contributions have not grown proportionately to the increased volume of work, especially in the context of the Aquatic Genetic Resources report, and that funding and staffing constraints may begin to affect GRFA work in general, particularly the CGRFA's Multi-Year Programme of Work. In this regard, FAO could optimize work-planning and resource allocation as well as explore new ways of doing business to maximize the use of limited resources.

18 GRFA are not specifically mentioned among higher-level objectives or outcomes, and no indicator related to GRFA is present in FAO's current results framework. Also FAO's Regional Initiatives do not include a GRFA orientation. However, GRFA is present within the third Global Goal of Members: "sustainable management and utilization of natural resources, including land, water, air, climate and genetic resources for the benefit of present and future generations". FAO-developed indicators are used to monitor the Aichi targets of the Convention on Biological Diversity (CBD), and SDG Goal 2.5.

Recommendations

ES34 Based on the above conclusions, two strategic recommendations are made below.

Recommendation 1

FAO should maintain its core expertise of providing key normative products and activities at the global level, given their high relevance and proven usefulness. At the same time, the Organization needs to explore new ways of integrating GRFA work within FAO, and make renewed efforts to confirm FAO's presence as a global authority on GRFA. In parallel, FAO should more proactively pursue partnerships to utilize external resources, whether technical or financial.

ES35 In optimizing its work-planning, FAO must reflect on where and how to draw the line between (i) facilitating global CGRFA policy decisions and responding to countries' needs; (ii) maintaining sufficient scientific and technical understanding of GRFA, and providing policy expertise and leadership as an effective boundary organization; and (iii) sustaining its recognized and valuable position as an honest broker while satisfying country needs for informed opinion, advice and policy leadership.

ES36 To improve efficiencies, FAO should pursue more effective integration across sectors at headquarters and in countries. It could consider the integration and rationalization of some functions across sectors. The recent restructuring of the Organization could also help in this regard, if technical experts can be relieved of some operational burdens, and supported by improved collaboration and role sharing between technical and operational units.

ES37 The Organization should consider how some of the work could be shifted to external resources through partnerships. The network mode developed around DAD-IS and DAD-Net could provide a basis for expanded information platforms and networks. Work done on the basis of longer term partnerships with recognized knowledge institutions could provide models for wider replication in other sectors as well. For example, many researchers freely contributed chapters to the 2nd Animal Genetic Resources SOW[19], and AnGR participated in several EU-funded research programmes.

ES38 FAO should pursue more partnerships beyond the traditional boundaries, highlighting the importance of genetic resources for agricultural development, food security, and climate change adaptation and mitigation. A broad and well-managed genetic base is needed to make progress in each of these sectors[20]. Particularly in relation to climate change issues, the Organization could more actively stress the role of genetic resources, and could engage with private sector initiatives in relation to the commercial use of GRFA.

Recommendation 2

Regarding technical assistance and capacity development support on GRFA at the country level, FAO should refrain from one-off technical assistance provided mainly from headquarters. Instead, support should be integrated into country programmes to ensure long-term engagement and capacity development. To this end, effective collaboration and role-sharing between technical and operational units are critical, as well as capacity building of decentralized offices.

ES39 FAO's one-off technical assistance was often inadequate in responding to countries' long-term needs and properly developing their GRFA capacities, including the development of legislative and institutional frameworks. Supporting capacity development of this nature requires a framework for continuous engagement on the ground. This implies that GRFA assistance should be embedded into the Country Programming Frameworks and their implementation plans.

19 A model already explored by the 2nd PGR SOW in 2010.

20 Good management of genetic resources is indispensable for agricultural development, and ultimately food security: for example in the sphere of plant genetic resources, access to a broad spectrum of genetic material is needed for the development of improved varieties, which exhibit a larger disease tolerance and a reduced need for environmentally harmful inputs such as pesticides while often providing higher nutritional value.

ES40 The Organization's current restructuring (especially the creation of Strategic Programme Teams) offers an opportunity to move in this direction. The operational units, especially country offices, should be fully empowered by FAO's engagement at the country level. For these efforts to succeed, however, capacity building of decentralized offices is imperative. While country offices will not require technical experts on GRFA, they will need a basic understanding of GRFA issues, and the ability to identify opportunities and seek technical guidance and support when needed.

ES41 The above suggestions would increase FAO's ability to secure resources at different levels. Country-level support could be financed by resources identified at the country level, while voluntary, thematic funding could provide technical expertise to support activities at either headquarters or decentralized offices.

1. Introduction

1 Genetic resources for food and agriculture (GRFA) include the plant, animal, aquatic, microbial, forest and other genetic resources of relevance to agriculture, farming and food systems. GRFA are essential to global food production, especially considering the growth in population and consumption expected through 2050. They are the raw material that farmers, herders, fishers, foresters, breeders (conventional as well as through biotechnology) and researchers rely upon to improve the quality and the amount of food produced; GRFA also provide the building blocks for developing new materials that are adapted to changing or novel environments and production demands.

Table 1: GRFA mandates/activities and lead units

Core activities	Lead unit(s)
Commission on Genetic Resources for Food and Agriculture (CGRFA): The Commission, which is the only intergovernmental forum specifically dealing with all components of biodiversity for food and agriculture, oversees and guides the preparation of periodic global assessments, and negotiates global action plans, codes of conduct and other instruments relevant to conservation and sustainable use.	Deputy Director General for Natural Resources
Plant Genetic Resources Group (AGPMG): The Seeds and Plant Genetic Resources team assists Member Countries in developing effective policies and capacities for an integrated approach to conservation and sustainable use of plant genetic resources for food and agriculture, including seed systems, for increasing crop production and achieving food security.	Director AGP (Plant Production and Protection Division; concurrently Coordinator of Strategic Objective 2)
Animal Genetic Resources Branch (AGAG): FAO's work in the field of animal genetic resources (AnGR) management takes a broad approach, addressing technical, policy and institutional issues, and taking account of interactions with other aspects of natural resource management, production system dynamics and general economic development.	Director, AGA (Animal Production and Health Division)
Forestry Department (no unit specifically dedicated to GRFA work): Actively working with its Members to assess the global state of genetic diversity in the world's forests and find solutions to the threats facing them. The Organization also promotes best practices in forest genetic resources management, specifically in the areas of conservation, exploration, testing, breeding and informed use of new biotechnologies.	Director, FOM (Forest Assessment, Management and Conservation Division)
Fisheries and Aquaculture Department (no unit specifically dedicated to GRFA work): The Aquaculture Branch (FIRA) is responsible for programmes and activities related to the development and management of marine, coastal and inland aquaculture, with regard to technical, socio-economic and environmental aspects, as well as the conservation of aquatic ecosystems, including biodiversity. The Marine and Inland Fisheries Branch (FIRF) is responsible for all programmes and activities related to the management and conservation of fishery resources, including mainstreaming biodiversity and ecosystem concerns in fisheries management through an ecosystem approach to fisheries.	Director, FIR (Fisheries and Aquaculture Resources Use and Conservation Division)

Source: FAO websites in 2015

2 In October 2011, the Food and Agriculture Organization of the United Nations' (FAO's) Programme Committee requested the Office of Evaluation (OED) to carry out an evaluation of *FAO's work on genetic resources (then Organizational Results A4, B3, C4, E6, F3)*: "the sustainable use of plant and animal genetic resources to meet the growing and changing food demand while ensuring biological diversity are interlinked challenges. The work of the Organization in this area contributes to several Strategic Objectives, in particular Strategic Objectives A, B and C, and reflects the multidimensional nature of genetic resources. The Evaluation will assess the work on policies and capacity development with respect to the management of forest, plant, animal and aquatic genetic resources, as well as to the conservation and sustainable use of biological diversity for food and agriculture."

3 The evaluation was intended to provide FAO management and member countries with an assessment of the contribution of FAO's work on genetic resources towards the conservation and sustainable use of genetic resources and biological diversity for food and agriculture in member countries. In addition, the evaluation is to account for FAO's achievements to the Organization's Governing Bodies and Senior Management, but also to analyse the economic, political, social and legal issues that have had an effect on FAO's genetic resources work. The evaluation covers national, regional and global FAO GRFA projects and programmes from 2007 to 2015[21].

21 2007 was chosen as starting point as it coincided with the launch of the first State of the World Animal Genetic Resources for Food and Agriculture and the Commission's Multi-Year Programme of Work (MYPOW)

2. Background and context

4 FAO is an important actor in the field of GRFA. Initially focused on plant genetic resources (PGR), FAO received in 1983 the mandate "to ensure that plant genetic resources of economic and/or social interest, particularly for agriculture, will be explored, preserved, evaluated and made available for plant breeding and scientific purposes". With the creation of the Commission on Genetic Resources for Food and Agriculture (CGRFA), FAO hosts an intergovernmental body which, since 1995, has a broadened mandate to "facilitate an integrated approach to agrobiodiversity and coordination with governments, which are increasingly dealing with policy issues regarding biological diversity in an integrated manner".

5 FAO's global instruments covering GRFA work are State of the World (SOW) reports on genetic resources (plant, animal, forest and soon also aquatic genetic resources and biodiversity) and their associated Global Plans of Action (GPAs); the CGRFA is the main institutional body within FAO dealing with coordination and policies, while technical work (including networking and capacity development) is performed by the relevant technical units. Through the Commission, FAO negotiated the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), a legally binding instrument that established a multilateral system to facilitate access to plant genetic resources for food and agriculture, and to share the benefits derived from their use in a fair and equitable way. Important milestones in recent decades were the following:

a. In 1996, the first State of the World's Plant Genetic Resources for Food and Agriculture report was launched, and the first Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture was adopted.
b. In 2004 the International Treaty on Plant Genetic Resources for Food and Agriculture entered into force. The Treaty established a multilateral system of Access and Benefit Sharing (ABS) that responded to the need for cooperation in the management, conservation and distribution of PGR.
c. In 2007, the first State of the World's Animal Genetic Resources for Food and Agriculture was launched[22] and a Global Plan of Action on Animal Genetic Resources was adopted by the FAO Conference.
d. In 2007, the Commission adopted its Multi-Year Programme of Work (MYPOW) that includes cross-sectoral activities such as ABS, targets and indicators, climate change, nutrition, ecosystem services and biotechnology.
e. In the context of the preparation of the State of World's Forest Genetic Resources (finalized in 2014), the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources was adopted by the FAO Conference in 2013.
f. By late 2015, reports on the cross-sectoral State of the World's Biodiversity for Food and Agriculture and the State of the World's Aquatic Genetic Resources for Food and Agriculture (focused on farmed aquatic species and their wild relatives within national jurisdictions) were under preparation.

Normative GRFA activities

6 Support for the implementation of FAO's normative instruments (primarily State-of-the-World reports and Global Plans of Action, as well as standards and technical and policy guidelines) represents the major aspect of FAO's technical guidance and assistance to countries. This includes activities such as the organization of national or regional stakeholders' workshops, collection of data, and strategic policy planning exercises. Technical support is provided to conduct national GRFA assessments, and technical guidelines are produced to help implement the different priority areas identified in the GPAs.

7 FAO's work on knowledge integration covers two dimensions:

a. Vertical integration among the various levels of governance, from local to global;
b. Horizontal integration across GRFA sectors and with other dimensions of production systems, natural resources management, and economic development.

22 The Second SOW AnGR was finalized in 2015.

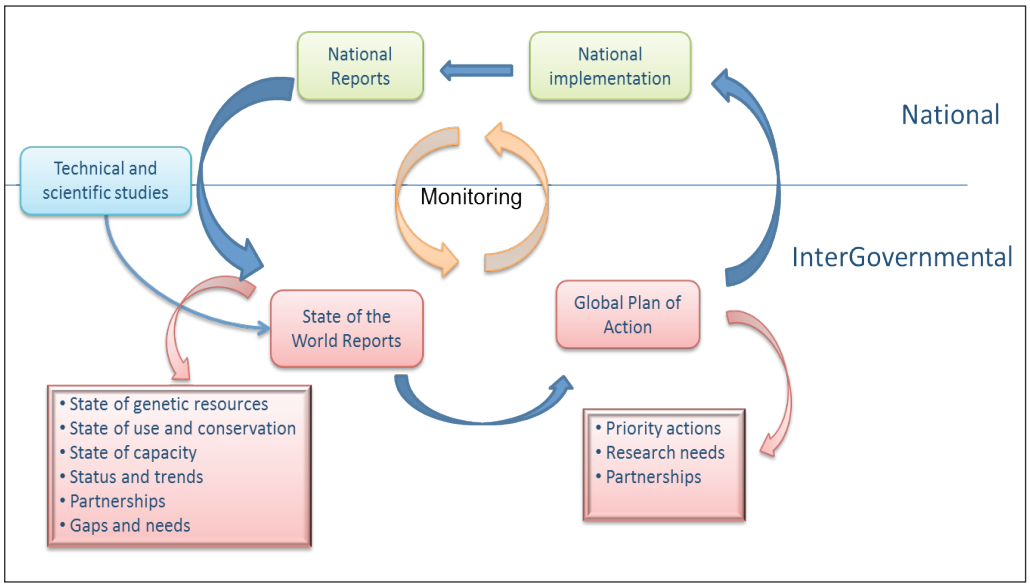


Figure 1: FAO GRFA knowledge integration

8 *Vertical knowledge integration* relies, although with noticeable differences across sectors, on a comprehensive architecture of national, regional, and global contacts; a repository for data, documents and information on sectors; and a monitoring tool for assessing globally the State of World's genetic resources in question.

9 For plant genetic resources, the knowledge integration is based on i) an information system, World Information and Early Warning System on PGRFA (WIEWS), which includes information about the state of world's PGRFA[23]; ii) a network of national focal points whose task is to monitor the implementation of the Global Plan of Action for PGRFA, and to support the preparation of iii) a periodic report on the State of the World's Plant Genetic Resources.

10 A similar architecture has been developed for animal genetic resources: the Domestic Animal Diversity Information System (DAD-IS) is the information system hosted by FAO that *"provides users with searchable databases of breed-related information and images, management tools, and a library of references, links and contacts of Regional and National Coordinators for the Management of Animal Genetic Resources. It provides countries with a secure means to control the entry, updating and accessing of their national data".*[24] FAO does not currently manage a global information system for either aquatic genetic resources or forest genetic resources[25].

11 Horizontal integration refers to the integration across sectors and with other dimensions of production systems, natural resource management and economic development.

12 Even though the collection, management and monitoring of data and information about GRFA follows a similar pattern for most sectors, building on the experience with plant genetic resources, effective knowledge integration across sectors of GRFA is a relatively new endeavour within FAO. It can be traced back to the adoption of the Commission's Multi-Year Programme of Work (MYPOW), and to the preparation of the State of World's Biodiversity for Food and Agriculture.

23 "The information system used by FAO for the preparation of periodic, country-driven global assessments of the status of conservation and use of PGRFA. WIEWS also monitors, on the basis of country reports, the implementation of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture, adopted in 2011. National Focal Points, appointed by Governments, may provide relevant information through a dedicated Reporting System."

24 http://dad.fao.org/

25 REFORGEN, a database on forest tree species and the management of their genetic resources, was initiated in 1993 but has largely been dormant since 2012

13 As for the Commission's MYPOW, efforts to approach the various sectors as a whole are noticeable, in particular for ABS and climate change issues. For example, the Technical Team of Legal Experts on ABS have interacted with the various Intergovernmental Technical Working Groups to develop a common approach for the preparation of a guidance document, "Elements to facilitate domestic implementation of access and benefit-sharing for different subsectors of genetic resources for food and agriculture" (CGRFA 2014).

14 With regard to climate change, formal connections with the Committee on World Food Security and Nutrition have been established through the High Level Panel of Experts on Food Security and Nutrition to include the consideration of climate change impacts on GRFA, and the potential role of genetic resources in coping with climate change (HLPE, Report on Food Security and Climate Change - 2012).

Technical assistance and capacity development activities

15 The evaluation divided FAO's work on technical assistance and capacity development into three main categories:

- technical projects;
- policy projects; and
- information / awareness projects.

16 These projects (especially in the policy and information categories) often provided dedicated support for the implementation of FAO's normative instruments (e.g. GPA and SOW).

Table 2: FAO Genetic Resources Projects 2007-15 (by sector)

Fund group	No. of projects	Total budget in US$ (DWH)
PGR		
GCP	7	13 914 952
TCP	15	4 787 086
Others	6	5 765 749
Total	28	24 467 787
AnGR		
GCP	8	2 813 079
TCP	20	3 433 427
UTF	7	17 041 452
Others	21	46 961 423
Total	55	70 249 381
FGR		
GCP	3	2 991 257
TCP	6	474 691
Total	9	3 465 948
AqGR		
GCP	1	1 403 498
TCP	2	846 000
Total	3	2 249 498
Grand total	95	100 432 614

17 Dedicated FAO projects that provide technical support for GRFA conservation, use and management are limited in number; a much larger number of seed- or breeding-related projects may include some GRFA work as a marginal aspect. Especially in the field of aquatic genetic resources (AqGR) and forest genetic resources (FGR), few technical assistance projects (other than support for the FGR SOW reporting) have been implemented by FAO. Regarding animal genetic resources (AnGR), cross-cutting issues such as animal identification, recording and traceability seem to have increased in recent years.

3. Resources available for FAO's GRFA work

18 The membership of the Commission has risen steadily. Voluntary contributions from member countries also show an increasing trend during the period under review. At the same time, efficiency savings were realized with regard to initial SOW reporting: for the first PGR SOW in 1996, the total cost of the preparation and publication amounted to USD 5.5 million and was fully supported with extra-budgetary resources received from France, Germany, Italy, Japan, The Netherlands, Norway, Spain, Sweden, Switzerland, and the United States of America. For the Second Report, about USD 3 million were spent including extra-budgetary resources from Canada, Italy, Japan, The Netherlands, Norway, and Spain. For the preparation of the Third Report, it is estimated that about USD 1.9 million will be required as extra-budgetary funds, provided that USD 1.1 million can be secured from the Regular Programme[26].

19 GRFA work in FAO depends on a mix of Regular Programme funding and voluntary contributions: FAO Regular Programme funding covers established staff positions, and many recurrent and mandated activities. However, the Commission's Multi-Year Programme of Work and especially the flagship activities, such as SOW reports and GPAs, would be severely hampered without voluntary contributions. Extra-budgetary contributions fund a variety of elements, including additional staff at HQ and in the field; TA projects in support of GRFA work; field activities in the context of SOW and GPA work; and consultations needed for the preparation of CGRFA sessions as well as the travel of delegates from developing countries to Commission sessions. Field project activities are overwhelmingly funded by voluntary contributions; FAO TCP projects (funded by FAO's Regular Budget) have provided support primarily for SOW reporting and GPA support in some countries.

20 It is difficult to provide an overview of Regular Programme and voluntary funding made available for GRFA work over the years, for several reasons: i) FAO's organizational set-up underwent significant changes during the period under review, making budget allocations impossible to compare; ii) there is no single organizational unit that covers all of FAO's GRFA work. In general, all units dealing with GRFA have been able to attract extra-budgetary (voluntary) resources made available by donors.

21 Beginning in 2011, the Commission Secretariat provided an overview of the resource situation: the 2011 report showed Regular Programme allocations to GRFA work in the 2008/09 biennium of USD 12 263 000 (no indication was given of FGR or AqGR work, nor of voluntary contributions). For the 2010/11 biennium, the Regular Programme allocation rose to USD 13 555 000 (this time including allocations for AqGR (USD 140 000) and FGR (USD 891 000). Extra-budgetary resources based on project delivery estimates for the same biennium were given as USD 11 125 000.

22 For the 2012/13 biennium (now under FAO's new Strategic Framework), the Regular Programme budget allocations were given as USD 14 592 000, while extra-budgetary allocations were estimated at USD 10 252 000. The information provided by the Commission Secretariat became less detailed in 2015 (reports to CGRFA in 2011 and 2013 gave breakdowns mostly by Organizational or Unit Results). For the 2014/15 biennium, the Regular Programme resources available for the Commission's MYPOW had declined, and were summarized as follows:

- ring-fenced resources for the Commission's Secretariat, the three Intergovernmental Technical Working Groups and a contribution to the implementation of milestones foreseen by the Commission's MYPOW for the biennium 2014-15 amounted to USD 3.2 million;
- resources allocated by the Strategic Objective Coordinators to different areas of work of the MYPOW, mainly under Strategic Objective 2, amounted to approximately USD 7 million (predominantly for technical staff); and

26 Likewise, the cost of the first AnGR SOW is estimated a USD 4 million, while the estimate for the 2nd AnGR SOW is less than USD 2 million; the savings are attributed to better use of IT, and less need for capacity development in several countries.

- extra-budgetary resources amounting to about USD 23.7 million[27], including about USD 10 million to support national and sub-regional implementation of the Global Plan of Action for Plant Genetic Resources, and about USD 10 million to support national and regional implementation of the Global Plan of Action for Animal Genetic Resources.

23 It was not easy to compare staffing levels over time, as unit designations changed, posts remained vacant, and job descriptions did not always indicate the percentages to be spent on GRFA work. However, it was clear that the number of staff working on PGR and AnGR between 2007 and 2015 has declined. During the period under review, neither the Fisheries Department nor the Forestry Department had full-time Regular Programme funded positions dealing with GRFA. However, the Forestry Department had a full-time position funded by extra-budgetary resources (from 2011/2012 to July 2015) dealing with SOW reporting and GPA follow-up[28]. This position was only added to the Fisheries Department in 2016, which may have contributed to some reported problems (mainly related to communication and delays), as the State of the World's Aquatic Genetic Resources reporting process had already begun in 2013, and first workshops in preparation for the report were organized in early 2015.

27 In 2014, FAO reported to the Intergovernmental Technical Working Group on AnGR (corresponding figures for PGR were not available) that FAO had *"received funds to support the implementation of the Global Plan of Action at global level from France, Germany, Norway, Spain, Sweden and Switzerland (total of approximately USD 1.9 million) and for regional and country projects from India, Mongolia, Mauritania, Nepal, Saudi Arabia, Turkey, the World Bank, the European Union, the Global Environment Facility, the African Development Bank and International Atomic Energy Agency(IAEA), through the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture (total of approximately USD15.3 million) ... FAO is also associated with several European Commission-funded projects that provide stipends for developing-country participants and support the generation and dissemination of knowledge."*

28 However, the Regular Programme position dealing with FGR at the Forestry Department was vacant for more than one year (March 2014 - April 2015).

4. Purpose and scope of the evaluation

24 In 2014-15, OED assessed FAO's work related to forest, plant, animal and aquatic genetic resources, as well as to the conservation and sustainable use of biological diversity for food and agriculture, during the period 2007 to 2015. The evaluation will be presented to the Organization's Governing Bodies and Senior Management with the aim of identifying achievements and analysing institutional, economic, financial and other issues that have had an effect on FAO's genetic resources work.

25 The evaluation identified three main dimensions of FAO's GRFA work: policy/normative, capacity development/technical assistance and knowledge integration. The two overarching evaluation questions were:

i How effectively has FAO guided policies and approaches to sustainable use and development of genetic resources, especially at country level?

ii What impact has FAO's technical and capacity development work in genetic resources had on member countries and institutional stakeholders?

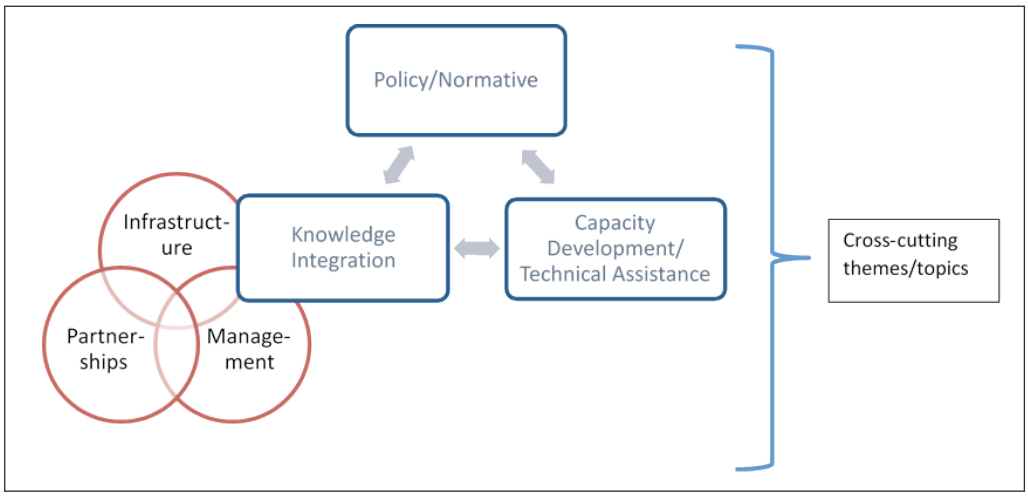


Figure 2: FAO's GRFA evaluation framework

26 The evaluation was undertaken in a consultative manner and used the following methods: i) desk review of FAO's genetic resources work; ii) interviews and focus group discussions with FAO as well as external GRFA stakeholders; iii) country visits for case studies[29]; iv) surveys of key actors and stakeholders[30]; and v) bibliometric analysis.

Limitations of the evaluation

27 The limitations of this evaluation concern the coverage of institutional issues. In particular, the evaluation does not cover the International Treaty on Plant Genetic Resources for Food and Agriculture[31], which is housed within FAO but established as an Article 14 body with its own governance and oversight arrangements.

29 Country case studies were undertaken in 26 countries (Azerbaijan, Brazil, Burkina Faso, Chile, Cote d'Ivoire, Ecuador, Ghana, Guatemala, Indonesia, Kenya, Kyrgyzstan, Lao Peoples' Democratic Republic, Lebanon, Madagascar, Malaysia, Morocco, Nepal, Peru, Philippines, Senegal, Sri Lanka, Tajikistan, Tanzania, Thailand, Turkey, Zambia); the case studies covered specific projects as well as general aspects of GRFA work in the concerned countries.

30 A survey of national focal points (NFP) was administered between July 2015 and August 2015 to a total of 527 individuals; a total of 285 useable responses were received (AnGR, 99; PGR, 69; FGR, 58 and AqGR, 27).

31 The International Treaty is an important player in the genetic resources, among others in facilitating information exchange, where it is given a key role for sharing fairly and equitably the benefits derived from the use of PGRFA under its Multilateral System.

28 FAO's work on genetic resources has undergone a number of institutional changes (e.g. redefinition of units and changing mandates), which made it difficult to trace the resources used over time, including staff resources and budgets allocated to genetic resources.

29 Information regarding achievements at country level on the sustainable use of genetic resources and safeguarding biodiversity is available from various monitoring/reporting mechanisms (especially FAO's Field Programme Management Information System), but no specific tagging (i.e. identification) for GRFA work exists. The evaluation concentrated on activities dealing with conservation and management of GRFA; initiatives that emphasized breeding, seed development and other issues were largely excluded from the evaluation scope.

30 Analysis of the impact of FAO documents on the academic and grey literature was limited by the search process, which focused only on English language journals and international sources for grey literature. As a result, care has to be taken when interpreting the results of the bibliographic analysis.

Structure of the report

31 The report contains five chapters and an executive summary. Chapter one presents a short introduction. Chapter two provides a description of FAO GRFA work, the subject of the evaluation, and information on the evaluation, including purpose, scope, methodology and limitations. Chapter three gives an assessment of FAO's GRFA work, in the normative field as well as with regard to its technical assistance work. The report concludes with sections on partnerships and cross-cutting issues. More information on specific topics is provided in the appendices.

5. Assessment of FAO's GRFA Work

Global assessment of FAO GRFA activities by national focal points

32 The evaluation's survey of National Focal Points (NFPs) included open-ended questions about FAO's national, regional and global impact[32]. The responses (differentiated by policy, knowledge integration and capacity development) show that in the perception of NFPs, by far the most significant overall impact of FAO GRFA work has been in the field of policy and normative guidance.

Table 3: NFP perceptions concerning the impact of FAO GRFA work

	National (%)	Regional (%)	Global (%)
Policy/normative	40	26	59
Knowledge integration – management	23	12	8
Knowledge integration – partnerships	2	16	6
Knowledge integration – information	4	4	4
Capacity development/technical assistance	18	13	6
Little or no impact	10	8	1
Don't know/not applicable	8	21	21
Other	3	5	4
Total number of individuals responding	183	158	155

Multiple mentions possible

33 The policy impact was perceived to be highest at the global level, followed by the national and regional levels. This is in line with the intentions of FAO's policy and normative documents (the flagship policy documents are not without reason called Global Plans of Action). Next were impacts related to policy and knowledge integration, while capacity development (especially at the national level) ranked third. This result is not surprising considering the relatively small number of technical assistance projects implemented by FAO.

Assessment of normative activities

34 Interviews conducted with GRFA stakeholders found a clear consensus that SOW country reports encouraged the collection of GRFA data; interviewees consistently acknowledged the important role of FAO in promoting the collection of good quality GRFA data by national governments. Interviews in Africa, Latin America and Asia across all sectors (including AqGR which is currently underway) confirmed that without the SOW country reports, much less would be known about the countries' agrobiodiversity. The NFP survey responses also showed strong agreement with the interview results across sectors regarding the importance and usefulness of SOW country reports (Figure 3).

35 The results of the NFP survey showed that a wide majority of respondents considered the main GRFA documents produced by FAO to be either useful or very useful. As NFPs serve as a policy liaison between the Commission and member countries, these results provide important evidence of the policy relevance of FAO GRFA documents.

32 The survey of NFPs included three separate open-ended questions about FAO's national, regional and global impacts; the responses received were coded into separate policy, knowledge integration and capacity development categories, and three categories of knowledge integration distinguished among statements identifying administrative or managerial integration, integration of partners and integration of information. As some respondents are included multiple statements, percentages sum over 100%.

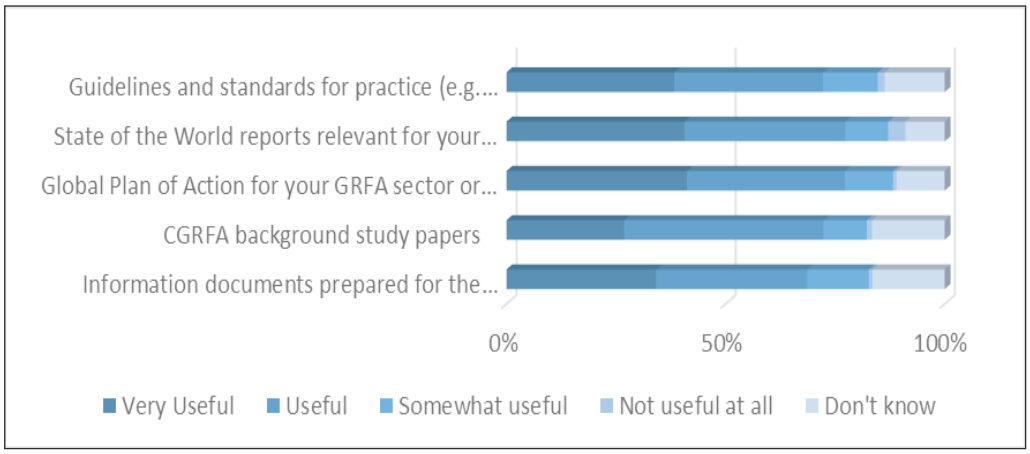


Figure 3: Perceived usefulness of GRFA documents

36 Figure 4 presents differences in perceived usefulness of SOW reports and GPAs across sectors. While all GPAs are perceived as useful, there is a clear pattern of increasing usefulness (on a four-point scale) of the GPAs from Forest Genetic Resources to Animal Genetic Resources to Plant Genetic Resources. The pattern is less clear for SOW reports. One interpretation of this graph takes into account the history of GPAs by sector: Considering that PGR was developed before AnGR and that FGR is the most recent, policy guidance that has been established longer may be perceived as more useful.

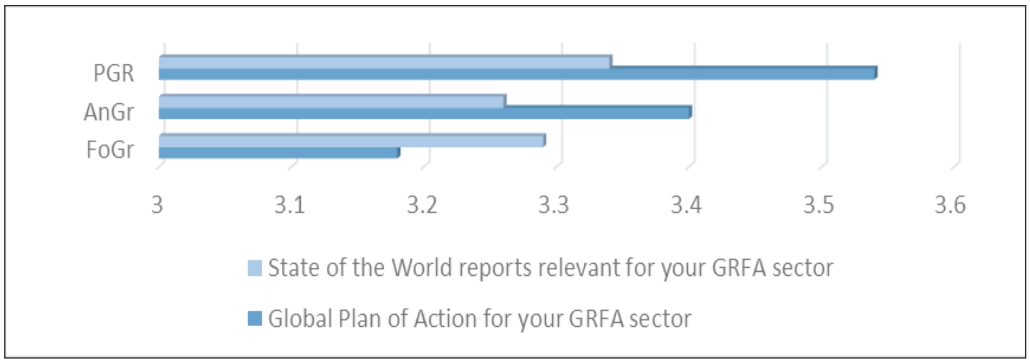


Figure 4: Perceived usefulness of state-of-the-world reports and global plans of action

37 Concerning the SOW country reports, more NFPs agreed (51.1%) than disagreed (31.5%) that data collection stops after the country report submission, indicating that the data collection process is often not sustained beyond producing country reports feeding into the SOW. The discontinuation of plant genetic resources reporting, for example, is not surprising considering that it took 14 years from the first State of the World report for Plant Genetic Resources to the second SOW (1996 to 2010); however, as State-of-the-World reporting frequencies are getting shorter, and regular updating of genetic resources information is required also for other international instruments and undertakings (e.g. the Convention on Biological Diversity's (CBD's) Aichi target 13 or Sustainable Development Goal SDG 2.5[33]), a more permanent reporting mechanism would be advantageous.

38 Although many NFP respondents agreed (42.7%) that the SOW country reports are often used in national debates and decisions, indicating that the reports have had some impact on national policy, an equal number disagreed. This suggests that in some countries the reporting process to FAO happens in isolation from national policy processes. The reasons for this dichotomy should be further analysed.

33 "By 2020 maintain genetic diversity of seeds, cultivated plants, farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at national, regional and international levels, and ensure access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge as internationally agreed."

39 According to about half of the respondents (48.7%), the country reporting process was not adequately funded, and a majority indicated that it was necessary to reduce the scope of the country report due to a lack of funding. Interviewees (outside the NFP survey) noted that in many cases national level funding was not provided for data collection. Rather, country report data collection tasks were assigned to government employees in addition to their normal workload.

40 Finally, most NFP respondents found that coordination across sectors for the country report was insufficient. Interviewees often noted that lessons learned and infrastructure developed for data collection for one country report was not transferred to people undertaking a different country report.

41 The data collection process for the AnGR SOW has been substantially streamlined through the development and sustained management of the Domestic Animal Diversity Network (DAD-Net), an electronic communication network structure that is not only well used and well regarded, but often considered by interviewees to be a lifeline to global information on AnGR. DAD-Net is used as a communication and organizing device in which the community shares information relevant to data collection, technical and policy topics. In contrast, the PGR team has adopted a hub-and-spoke approach that places more demands for obtaining information on FAO staff, rather than on the network.

42 The NFP survey asked about the effectiveness of each of three different GRFA information systems maintained and managed by FAO: Global Partnership Initiative for Plant Breeding Capacity Building[34] (GIPB); WIEWS; and Domestic Animal Diversity Information System (DAD-IS).

43 FAO's best known genetic resources information system is DAD-IS – almost 90 percent of individuals responsible for Animal Genetic Resources were aware of it. Among individuals responsible for Plant Genetic Resources, around 70 percent knew of WIEWS[35]. Similarly, more NFPs responsible for animal genetic resources considered DAD-IS as 'very effective' than NFPs responsible for plant genetic resources considered WIEWS or GIPB as 'very effective'. Percentages for 'ineffective' or 'very ineffective' were also lower for DAD-IS than for WIEWS or GIPB.

44 The quality of FAO's GRFA policy work related to various aspects of the global policy agenda received NFPs' ratings between 'good' and 'very good'. Very few respondents (around 10%) gave quality ratings of 'very high', and between 15 and 20 percent responded 'don't know'. The results highlight, however, the primary importance of FAO's GRFA policy work.

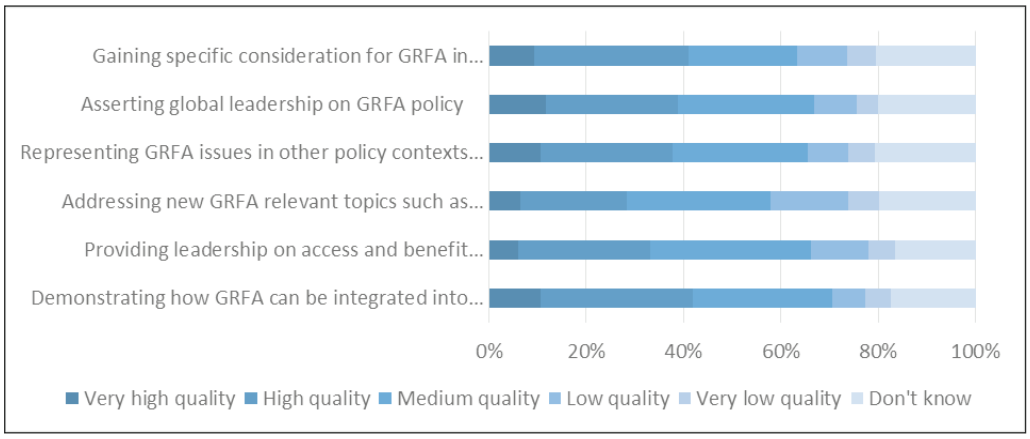


Figure 5: Perceived quality of FAO's global GRFA policy work[36]

34 The Global Partnership Initiative for Plant Breeding Capacity Building (GIPB) is a multi-partner platform convened by FAO to act as an information clearing house for sustainable use of plant genetic resources for food and agriculture. The GIPB was included in some questions although it appears to be largely dormant.

35 42 percent of PGR respondents did not know the GIPB, which is a largely dormant information portal.

36 Five-point scale from very low quality to very high quality.

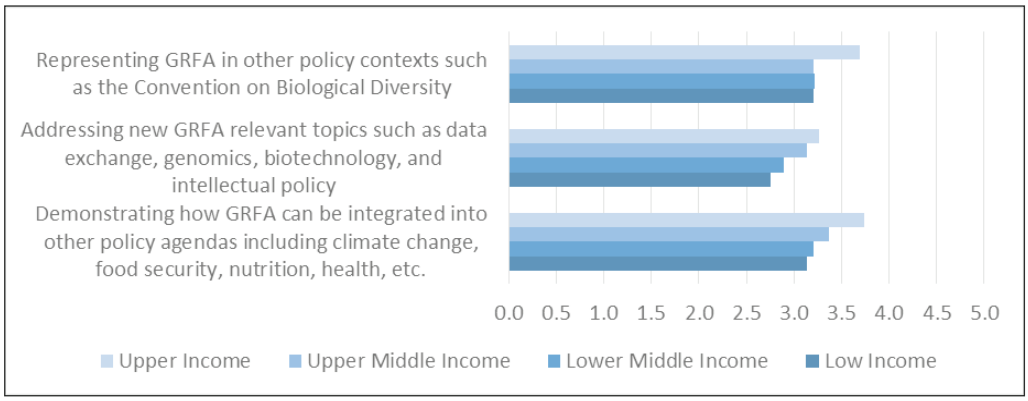


Figure 6: Perceived quality of FAO global GRFA policy work by Country Income Group

45 An interesting survey result in this context is that higher income countries[37] generally rate FAO's work in the policy sphere higher than lower income countries in three areas: (i) representing GRFA in other policy contexts; (ii) addressing new GRFA-relevant topics; and (iii) demonstrating how GRFA can be integrated in other policy agendas such as climate change and nutrition.

46 The evaluation also included a bibliometric analysis based on ten FAO documents, from which a full set of publications that cite the FAO documents were identified and extracted[38]. The 1996 first State of the World's Plant Genetic Resources report was the highest cited policy document, with 123 citation counts from the academic literature. The 2007 first State of the World's Animal Genetic Resources and the 2010 second Report on the State of the World's Plant Genetic Resources had the highest citation counts (27) from the grey literature. "Plant breeding and farmer participation" was the non-policy document that had the most citations (28). On the other hand, the 2013 Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources received six citations in the grey literature, but zero citations in academic literature, Global Policy Processes documents, and National Biodiversity Action Plans[39]. Because this is a relatively new document, it can be assumed that it had less time to accumulate citations, although the absence of a reference in the National Biodiversity Action Plans is surprising.

Assessment of technical assistance/capacity development activities

47 The evaluation selected a range of FAO projects related to GRFA, including regional and country projects promoting the transfer and development of technical skills for sustainable agriculture, food production, farming and breeding techniques, among others. The identification of GRFA-related projects was not straightforward, as no specific coding exists in FAO's Field Programme Management Information System. Therefore, identification and selection of projects was done as a two-step process: i) examination of FAO databases to identify potential GRFA projects; and ii) requests to FAO staff to provide recommendations of appropriate projects. Careful attention was given to identifying cases that: i) were conducted in different global regions; ii) included all four types of genetic resources; and iii) occurred at different times during the evaluation timeline (2007-2015).

48 In response to the survey, NFPs rated the quality of FAO projects in slightly over 20 percent of cases as high or very high, while medium and low quality ratings each received around 35 percent. These results provide evidence that most NFPs considered the quality of FAO's technical assistance work, as well as the quality of FAO's understanding of a country's technical assistance needs for GRFA, to be moderate or lower.

37 Country income groups (low, lower middle, upper middle and high income countries) according to World Bank classification (http://data.worldbank.org/about/country-and-lending-groups#Low_income).

38 The analysed documents were taken from Thompson Reuters Web of Science (WoS), Bioversity International, CABI, CIAT, CIMMYT, IFRI, ILRI, World Bank, and CBD. All ten FAO documents were taken into account in the academic literature analysis, while only policy-related documents (8) were considered in the grey literature analysis. Academic publication data are drawn from Thompson Reuters WoS databases for the period 1996-2015. (WoS is a bibliographic database that covers publications of about 12,000 research journals.) Grey literature data were extracted from literature produced by selected major institutions working for/with FAO for the period 2007-2015.

39 However, forest-specific academic literature not covered by the original bibliometric analysis contains references to FAO FGR work.The National Biodiversity Action Plans analysed consist of 131 action plans. It should be noted that a 2009 review of National Biodiversity Action Plans found that genetic diversity was neglected by most Plans.

Table 4: Selected cases for in-depth analysis

Project title	Short name	Group	GRFA Type	Country/countries
GCP/RLA/182/SPA Seeds for Development (Reforzamiento de las políticas de producción de semilla de granos básicos en apoyo a la agricultura campesina para la seguridad alimentaria en países miembros del CAC)	PGR_ Guatemala	**T**, P	*PGR*	Costa Rica, Panama, Belize, Nicaragua, Honduras, Guatemala, El Salvador
GCP/RAF/453/SPA Improvement of Rice Production in West Africa	PGR_Rice WAF	**T**	*PGR*	Ivory Coast, Mali, Mauritania, Niger, Senegal
TCP/SRL/3204 Dairy cattle and buffalo improvement	AnGR_Sri Lanka	**T**	AnGR	Sri Lanka
TCP/NEP/3105 Dairy cattle and buffalo improvement	AnGR_Nepal	**T**	AnGR	Nepal
GCP/RAF/417/SPA Inversiones de la Acuicultura para la Disminución de la Pobreza en la Cuenca del Volta: Crear Oportunidades para los Piscicultores Africanos de Bajo-Ingreso mejorando el manejo de los recursos genéticos de Tilapia	AqGR_TIVO	**T**, P	AqGR	Ghana
TCP/SFS/3402 Support for the development of national strategies for plant genetic resources for food and agriculture	PGR_SADC	**P**	*PGR*	Botswana, Lesotho, Malawi, Mozambique, Tanzania and Zambia
GCP/RLA/183/SPA: "Programa de apoyo a la agricultura familiar campesina en Perú, Bolivia y Ecuador para mejorar la disponibilidad, el acceso y el uso de semilla de calidad en las zonas Alto Andinas"	PGR_Andean Seeds	**P**	*PGR*	Bolivia, Ecuador, Peru
TCP/SNO/3401 Optimizing the Use of Plant Genetic Resources for Food and Agriculture for Adaptation to Climate Change	PGR_Near East	**P**	*PGR*	Egypt, Iran, Jordan, Lebanon
GCP/ECU/086/GFF Mainstreaming of the use and conservation of agro biodiversity in public policies through integrated strategies and in situ implementation in three provinces in the Andean highlands	PGR_Andean Highlands	**P**, T	*PGR*	Ecuador
GCP/RAS/240/JPN Capacity Building and Regional Collaboration for Enhancing the Conservation and Sustainable Use of Plant Genetic Resources in Asia	PGR_Asia	**I**, P	*PGR*	Bangladesh, Bhutan, Cambodia, Kingdom of India, Indonesia, Lao, Peoples' Democratic Republic of Malaysia, Mongolia, Myanmar, Nepal, Federal Democratic Republic of Pakistan, Philippines, Regional Asia and Pacific, Sri Lanka, Thailand, Kingdom Of Viet Nam

Project title	Short name	Group	GRFA Type	Country/countries
GCP/GLO/190/SPA Assistance for preparing the National Report on Plant Genetic Resources for Food and Agriculture (PGRFA), and strengthening national PGRFA systems in Latin America for the implementation and monitoring of the Global Plan of Action for the Conservation and Sustainable Use of PGRFA	*PGR_LA19*	**I**	*PGR*	*Main activities* in Costa Rica, Chile, Guatemala, Nicaragua, Paraguay, República Dominicana, Salvador and Venezuela *Less involved* Argentina, Bolivia, Brasil, Cuba, Ecuador, México, Perú and Uruguay
TCP/SEC/3401 Baby 01 Regional Synthesis on the Forest Genetic Resources of Central Asia	FGR_CA	**I**	FGR	Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan
Participation in the Regional African workshop on AqGR	AqGR_WAF	**I**	AqGR	Multiple West African countries
TCP/BKF/3303 Rapport National sur l'état des Ressources génétiques forestières du Burkina Faso	FGR_Burkina	**I**, P	FGR	Burkina Faso
TCP/MAG/3302 Rapport National sur l'état des Ressources génétiques forestières du Madagascar	FGR_ Madagascar	**I**, P	FGR	Madagascar
TCP/SFS/3402 Support for the development of national strategies for plant genetic resources for food and agriculture, and institutional visits: ILRI, African Union (AU-IBAR), SADC Plant Genetic Resources Centre.	Mix_ESAfrica	I, T, P	Mixed	Kenya, Tanzania, Zambia
Visit to Morocco as important player on Genetic Resources' matters in the Near East	Mix_Morocco	I, T, P	*Mixed*	Morocco
GCP/SEC/003/TUR Promoting the Management of Animal Genetic Resources in SEC countries	AnGR SEC	I, **P**		Azerbaijan, Kyrgyzstan, Tajikistan, Turkey

49 In general, the evaluation observed that technically dominant projects tended to fully accomplish their immediate objectives. For example, as proposed and designed, the dairy cattle and buffalo improvement project in Sri Lanka[40] established a milk, fat and protein recording scheme during the FAO-funded project. A similar project in Nepal[41] also accomplished the intended objectives within the budget and time period of the project. Technical projects scored 4.4 on average for impact (on a scale from one to six, where one is very poor and six is excellent). The highest score was given to the AnGR Nepal project. Prior to the FAO-funded Dairy Cattle Improvement Programme, Nepal imported milk from India; now milk is sold to India, and the foundation of a scientific dairy breeding programme has been established.

50 However, only one of the five technical projects reviewed received a 'good' rating for sustainability, and all others received either adequate or inadequate. The 'good' project, AnGR Sri Lanka, established a scientifically sound and practical approach for a pedigree

40 TCP/SRL/3204 Dairy cattle and buffalo improvement

41 TCP/NEP/3105 Dairy cattle improvement

and performance recording scheme, and the Government of Sri Lanka has responded positively by making follow-up funding available. In contrast, the AnGR Nepal project initially led to an increase in milk production and the introduction of a scientific pedigree and performance recording system; however by 2015 it was found that the number of recorded herds had been reduced from about 855 to about 300, possibly due to the Nepal Dairy Cattle Improvement Programme no longer enjoying a high priority in the government system.

Box 1: Dairy cattle and buffalo improvement project in Sri Lanka, TCP/SRL/3204

Background: The project was requested by the Sri Lanka Government, as local milk production at the time met only about 20% of the demand being fulfilled by local production, an artificial insemination scheme was stagnant, and the dairy sector in Sri Lanka was characterized by relatively low productivity. Furthermore, limited record keeping resulted in a lack of information among farmers about their own animals' milk production and reproductive potential; this in turn led to mediocre breeding programmes featuring poor quality sires.

Project: The Dairy cattle and buffalo improvement project had a budget of USD 335 000 and was implemented from March 2010 to December 2011. The main objectives of the project were (i) to establish a pedigree and performance recording system (PPRS) in dairy cows and buffaloes to identify high-yielding females and inseminate them with imported semen; the resulting bulls would then be used for an artificial insemination service to genetically upgrade the wider population; and (ii) to improve productivity by providing expert advice in feeding and reproductive management to farmers, government livestock development personnel and veterinarians.

Outcomes: A Pedigree and Performance Recording System was established during the project. This scheme was still operating in 2015 and continues to use the original database designed for the project; 8 000 cows were registered and milk is being recorded for the 2 300 cows that are lactating. Training in improved feeding and management was given to farmers and local staff, and 14 bull calves were selected as artificially inseminated bulls based on the PPRS system.

Outcomes – Milk production: Currently about 40% of Sri Lanka's milk is produced domestically, and the project is thought to have contributed to increased production. However, the impact should also be attributed to other factors – there have been a series of other crossbreeding and upgrading programmes.

Sustainability and limitations: The Government of Sri Lanka, convinced about the merit of a systematic pedigree and performance recording scheme, have continued to fund it since FAO funding ended. Interviews indicated that the Sri Lankan government will continue to provide funding in the future. For example, the Department of Animal Production and Health (DAPH) has implemented and expanded the PPRS.

However, there are errors in the data retrieval programme which cannot be solved locally. Data collected are not being used to the fullest extent. The DAPH programme has competent workers, but there is a clear need for further direction and guidance on the compilation, interpretation and use of data to achieve the expected outcomes and a high level of success.

51 In other technically dominant projects, not all objectives were fully accomplished. For example, the Tilapia Genetic Resources (TIVO) fish breeding project (presented in Box 2) showed that the project achieved its main objective (the continuation of a breeding programme for the Akosombo strain of Tilapia) but that other objectives have not been accomplished, such as the genetic characterization of tilapia genetic resources; establishment of farming and conservation zones; development of a regional plan to improve and disseminate genetically improved tilapia; and development of policies and strategies for sustainable use and conservation of tilapia genetic resources. The evaluation found that the main reason for this underachievement was underfunding, and inadequate attention given to the possible institutional support needed to ensure sustainability.

Box 2: Aquaculture investments for poverty reduction in the Volta Basin: creating opportunities for low-income African fish farmers through improved management of Tilapia genetic resources (TIVO), GCP/RAF/417/SPA

Background: The current per capita consumption of fish in Africa, estimated at 9.7 kg, is the lowest in the world (average of 19.2 kg) (FAO, 2014), and projected to decline at an annual rate of one percent to 5.6 kilograms during the 2010–30 period (The World Bank, 2013). By 2050, the African population is expected to double to 2.4 billion and the total food fish demand will grow substantially (by 30 percent between 2010 and 2030). FAO and the Government of Spain jointly identified the promotion of sustainable aquaculture as a key priority, and formulated the development of a breeding project for Nile tilapia (*Oreochromis niloticus*).

Project: The overall objective of the TIVO project was to contribute to the development of capacity to manage aquatic genetic resources for sustainable use and conservation. The project aimed to make genetically improved tilapia seed available to small and medium sized aquaculture farms in the Volta Basin; TIVO was a three-year project with a total budget of USD 1.4 million (EUR 1 million), started in 2008 and ended in 2011.

Outputs: The project achieved some expected outputs, but not all. Facets that were completed include the continuation of the breeding program for the Akosombo strain of Nile tilapia; establishment of a bio-secure quarantine and containment facility for introducing new strains of Nile tilapia; development of a dissemination system thereof; and provision of training for hatchery managers and farmers. The component on genetic characterization of tilapia genetic resources was not completed within the project timeline, but it has since been completed and the team is preparing to publish the results. The experiments on comparison of performance of Genetically Improved Farmed Tilapia (GIFT) vs Akosombo were incomplete due to increased risk management when the project ended, but some results are purported to be available now. Other objectives have not been accomplished, such as establishment of farming and conservation zones; development of a regional plan to improve and disseminate genetically improved tilapia; and development of policies and strategies for sustainable use and conservation of tilapia genetic resources. However, there was a change in national policies related to the importation of the GIFT fish. This may not have been a direct result of the project, but it appears that the process and stakeholder consultations leading to the project certainly facilitated this change.

Outcomes and impact: The project made a significant impact on building technical capabilities in selective breeding for tilapia and the development of the dissemination system of the improved seed thereof. Some positive impacts on rural livelihoods and food security were observed.

Sustainability and limitations: The potential impact on sustainable use and conservation of genetic resources of tilapia is limited considering the unfinished work and limited project time frame and budget; work that involves development of regional policies and strategies requires a longer time frame than three years. The breeding programme for tilapia is still ongoing with support from the Government of Ghana through a World Bank and a government funded project.

52 The policy-dominant projects generally outperformed the technical-dominant projects, though not by a wide margin. The project GCP/RLA/183/SPA (Andean Seeds)[42] had a balanced set of policy and technical objectives; FAO contributed significant policy assistance through writing and preparing seed legislation, technical standards, and regional seed strategies, as well as capacity development for policy formulation and implementation; this included FAO's support of farmers' organizations and FAO's mediation in negotiation processes with national seed companies.

42 GCP/RLA/183/SPA Programa de apoyo a la agricultura familiar campesina en Perú, Bolivia y Ecuador para mejorar la disponibilidad, el acceso y el uso de semilla de calidad en las zonas Alto Andinas

Box 3: Programme of support to improve peasant family farming availability, access and use of quality seed in the High Andes in Peru, Bolivia and Ecuador, "Andean Seeds Project" GCP/RLA/183/SPA

Background: Although traditional crops contribute to 80% of the food security of the rural population and are an important source of income for families in the High Andes in Peru and Ecuador, access to quality seed is limited due to tight supply and high costs. The project aimed to improve family farmers' access to, and use of, quality certified improved seeds and traditional seeds in the High Andes to meet food and nutritional needs, and as means of income generation and market integration for peasant communities.

Project: The project had a budget of USD 5 177 516 and ran from July 2010 to June 2015. The main objective was to improve family farmers' food security in highland areas in Peru and Ecuador through increased yield and production of staple grains and tubers via the diffusion of quality seed and the extension of quality seed planted areas. The project components included capacity building for the production and use of quality seed; strengthening peasant organizations and creating farmers' seed enterprises; promotion of a culture among peasant farmers in the use of quality seed; development of resilient structures to face natural disasters and emergencies; and the creation of a regulatory and institutional environment where farmers' seed systems are recognized.

Outputs: The Andean Seeds Project is considered to have been successful in terms of meeting the targets that were initially fixed in Peru, Ecuador and Bolivia. Specific outputs include: (i) *Quality seed production increased*: Networks of seed grower associations have been created that distribute and sell certified seed among local farmers in the highlands. As a result of small seed enterprise formation through the project, the market for certified seed has increased; (ii) *Peasant training*: Thousands of participants attended training events focused on developing tools and skills for the production, use and management of quality seed. Farmer Field Schools have trained more than 2 500 participants and 125 farmer trainers. It is estimated that over 9 000 families have benefited from access to quality seed produced through the project; and (iii) *Reduced vulnerability:* Community risk-management systems have been developed on a pilot basis and leaders of public institutions and farmers' organizations have been trained on risk management and emergency responses (24 in Ecuador and 35 in Peru).

Outcomes and impact: Seed produced and marketed under the project satisfied 37% of the local demand for seed, exceeding the initial target of 20%. The performance of Andean crops, due to the use of quality seeds, exceeded farmer and project stakeholder expectations: from the initial target of 20% yield increase, to a final 51% average yield increase (potato yield increase of 90%; bean yield increase of 51%). As an unintended consequence, the Puno Regional Government in Peru, has prioritized the use of Andean crops quality seed within the new Regional Development Program; the Huanuco Regional Government, also in Peru, has also approved a Strategic Regional Plan for Seed (*Plan Estratégico Regional de Semillas de la Región Huánuco 2015-2021*). The project's promotion of seed laws and technical standards that benefit production, certification and marketing of farmer native varieties, as well as improving their integration into the market and the formal seed system, resulted in "Seed Regulation 494, in Development of the Seed Law" being developed and approved in Ecuador.

Sustainability and limitations: The project's accomplishments are significant. However, FAO appears to have missed an opportunity to link this project with its agenda on PGRFA conservation and sustainable use. PGRFA were not mainstreamed in the design of the project, and PGRFA conservation and their sustainable use were not major considerations in the design; the project was perceived in isolation from the PGR Global Plan of Action.

A number of people interviewed highlighted that FAO should take advantage of its recognized position to play a more proactive in-country policy role. Interviewees noted that FAO should better use its legitimacy as facilitator and coordinator among the diverse map of actors involved in the conservation and sustainable use of PGRFA at the national level. Such an effort, it was perceived, could help in the development of processes that have been initiated nationally.

53 The project "Support for the development of national strategies for plant genetic resources for food and agriculture" (TCP/SFS/3402) was active in six countries (Botswana, Lesotho, Malawi, Mozambique, Tanzania and Zambia), and created awareness about the importance of the conservation and use of genetic material to reduce poverty, adapt to climate change and achieve food and nutrition security. However, despite the positive impacts of the project, barriers to the efficient exchange of genetic materials are significant. These include provider concerns about how recipient countries are using their materials, and limited information about the characteristics of genetic materials held in gene banks.

54 Project sustainability depends on three main factors to ensure sustainability: (i) in-country stability (absence of political upheaval, administrative discontinuity and fundamental reorganization); (ii) embeddedness in policy systems; and iii) continued availability of funding beyond project termination. The Global Environment Facility (GEF)-funded Lao Agrobiodiversity Project "Mainstreaming Biodiversity in Lao PDR's Agricultural and Management Policies, Plans and Programs Project" (UNTS/LAO/015/GEF) demonstrates how FAO helped to develop and implement a national agricultural biological diversity programme with a significant genetic resources dimension. Due to the broad participation of stakeholders in Lao PDR, the prospects for sustainability appear good. On the whole, the policy projects ranked slightly lower on impact, and slightly higher on sustainability than the technical and information-oriented projects.

55 Information-focused projects mostly rated lower than other categories for impact and sustainability – despite the fact that these projects often achieved their primary objective of improving information and creating awareness on genetic resources. The majority of these projects provided support for SOW reporting, which was accomplished in every case. However, project design often included longer term goals of strengthening the national systems for GRFA, and improving national capacities for managing and exchanging information on GRFA.

56 Projects aiming for strengthened national GRFA systems were mostly over-ambitious. For example, although the project "Assistance for preparing the National Report on Plant Genetic Resources for Food and Agriculture (PGRFA)" (GCP/GLO/190/SPA) was found to have facilitated the reporting process in every country, the strengthening of national PGRFA systems was much less in evidence.

57 The project "Regional Synthesis on the Forest Genetic Resources of Central Asia" (TCP/SEC/3401) also managed to produce reports as expected. However, limited financial resources and inadequate institutional structures diminished the potential for developing legal frameworks for protecting the environment, and the lack of an integrated approach among key actors (farmers and local communities, scientific institutes, government agencies, and the private sector) prevented effective conservation interventions. Thus, the sustainable effects are likely limited.

58 Similarly, the FGR Madagascar (TCP/MAG/3302) project's objectives were to support both the preparation of the SOW FGR report and national planning on conservation and sustainable use of FGR. The process focused mostly on the former, at the expense of national planning. The project seems to have ended with the production of the country report and its use for the preparation of the global reports (SOW and GPA). Given the very limited budget, the design was at fault by expecting follow-up actions beyond the implementation of the project's immediate purpose.

Box 4: Support for the elaboration of Madagascar's national report on forest genetic resources (FGR), TCP/MAG/3302

Background: Madagascar is very rich in biodiversity, and conserving the country's biodiversity is among the most critical global priorities for conservation action. Madagascar has invested heavily in efforts to conserve the country's biodiversity: protected areas increased from 1.7 million hectares in 2003 to 6 million hectares in 2012. Nevertheless, the status of forest genetic resources was not well known, and forest cover and related data cannot be used as a surrogate to assess the status of FGR.

Project: This was a small-scale project funded with USD 37 000 from the FAO Representation's TCP Facility, signed in May 2011 and operational until 2013. The objectives were: i) to support the production of a national report on the state of FGR of Madagascar, which would contribute to the first report on the State of the World for FGR; and ii) to create a strategic planning tool that enhances the conservation, sustainable use and development of forest genetic resources at the national level. Madagascar established a report committee and organized two workshops to support the preparation of the country report.

Outputs: The main expected project output, a national report on the state of FGR of Madagascar, was completed and submitted by the technical committee to the Government of Madagascar in 2012. In addition, the project identified decision-making tools and recommended ways to enhance FGR management; highlighted the contributions of FGR to food security, poverty reduction and sustainable development through the identification of forest species used for food, for income generation and for various environmental services such as soil and water conservation; and provided guidance on the management of selected forest tree species in agroforestry systems to enhance ecological functions in crop fields.

Outcomes: After the country report was produced and submitted to FAO, neither Madagascar nor FAO took action to follow up on recommendations made by the report. The project seems to have ended with the production of the country report and its use for the preparation of the global reports (SOW and Global Plan of Action). A possible indirect effect was the submission for GEF funding of a project titled "Conservation of Key Threatened, Endemic and Economically Valuable Species in Madagascar" by the government office that acted as FGR focal point.

Sustainability and limitations: The implementation of TCP/MAG/3302 has been effective, but apart from facilitating the SOW report preparation, the project has had no identifiable impact. Given the project's budget, the expectation that the project would support national planning on conservation and sustainable use of FGR, in addition to SOW report preparation, was overly optimistic. The country report did not lead to national strategic planning on FGR.

6. Partnerships

59 Partnering with other organizations and institutions was a necessary prerequisite for FAO's genetic resources work. In normative as well as technical assistance work, collaboration not only with governments but also with agencies, non-governmental organizations and others has become a fundamental component.

Partnerships in technical assistance projects

60 The evaluation found that the effectiveness of FAO partnerships in technical assistance projects tended to be uneven. In general, the partnerships appeared to work more effectively in policy dominant projects.

61 For the West Africa Rice project, FAO partnered in the Ivory Coast with the Centre National de Recherche Agricole, the National Office for Rice Development, Association Nationale des Semenciers de Côte d'Ivoire, Agence Nationale d'Appui au Développement Rurale, the Inter-professional Fund for Agricultural Research and the Agricultural Council. In Senegal, FAO partnered with the Institut Sénégalais de Recherches Agricoles, AfricaRice, the Senegal River Delta development and exploitation company, and the National Agency for Agricultural and Rural Council. The partnerships were critical for accomplishing project objectives.

62 In Guatemala, the project GCP/RLA/182/SPA worked to strengthen community organization capacity through linkages of cooperation with public research and extension institutions and other stakeholder experts, including community promoters, technical extension staff and farmers-trainers. Additionally, the project was innovative in developing partnerships among agriculture governmental delegations, local authorities, civil society and private enterprises.

63 When partnership effectiveness was rated low, it was primarily for reasons of management and institutional environment. In the case of the AqGR TIVO project in Ghana (GCP/RAF/417/SPA), two problems were identified: (i) the lack of a communication plan, and the lack of guidance in terms of timelines and reporting for contracts to partners led to the poor flow of information to relevant partners; and (ii) reports from partners who were contracted to undertake certain tasks were not available, or were not submitted to FAO or various committees established by the project.

64 Partnerships for capacity development projects were more easily coordinated and managed when the projects built on existing platforms or infrastructure established in prior projects, and when government agencies had a strong interest in the project.

65 Partnerships were also developed to pursue grant opportunities. One example is a writeshop organized by FAO in Lao PDR to develop a proposal to GEF on "Mainstreaming Biodiversity Conservation for Sustainable Use into Inland Fisheries Practices in Freshwater Ecosystems of High Conservation Value". Parties involved included national, provincial and district level officials, university researchers, private industry and UN agencies.

66 Discussions in Malaysia indicated that the FGR team engaged the Asia Pacific Forestry Research Institutions and Asia Pacific Forest Genetic Resources Programme networks to develop support and identify data collection experts for the FGR SOW.

67 Bioversity International was frequently identified as an important partner for many country projects. For example, Bioversity was significantly involved in the National Information Sharing Mechanism (NISM) in Malaysia, including improving the survey, and providing training and follow up on implementation. Bioversity International has also been a partner in numerous other projects and activities, including work on FGR that has helped fulfil FAO's technical needs.

Institutional/normative partnerships

68 Much of FAO's genetic resources work is organized along structured and strategic partnerships with knowledge institutions (such as universities and other research organizations) and knowledge networks. For example, through network contacts, researchers have contributed chapters to flagship reports for little or no compensation. However, the intensity of these partnerships differs according to technical sectors; AnGR work seems to have benefited most from this form of partnership. There are also examples where work is outsourced to external consultants who are mobilized on an as-needed basis. This work could be better framed on a longer term partnership with recognized knowledge institutions.

69 On the whole, FAO has adapted to the changing institutional landscape governing GRFA; since FAO received its mandate for plant genetic resources in 1983, a number of new independent organizations and instruments have come into existence, such as CBD (1993); the Global Forum on Agricultural Research (established by World Bank, International Fund for Agricultural Development, FAO, International Service for National Agricultural Research, and the Swiss Agency for Development and Cooperation in 1996); Bioversity International (2006); and especially the Global Crop Diversity Trust (2004). Many of these new entities were created with support from FAO: apart from the Global Forum, Bioversity was initially housed in FAO, and the Global Crop Diversity Trust was established through a partnership between FAO and the Consortium of International Agricultural Research Centers (CGIAR)/ Bioversity.

70 Much of FAO's genetic resources work is done in coordination partnerships with most relevant international institutions dealing with genetic resources. There are joint work plans between the Secretariats of the CBD and the CGRFA; Commission meetings are attended by, and receive reports from, organizations such as Bioversity International, Global Crop Diversity Trust, CGIAR Secretariat, Global Forum on Agricultural Research, Convention on Biological Diversity and others; and the CBD hosted important meetings in FAO. Technical units have established informal as well as formal relations with several organizations. In addition, partnerships with important donors (France, Germany, Japan, Norway, Spain, Sweden and Switzerland) provided funding for GRFA events (e.g. meetings related to the Commission) as well as for technical assistance projects, often in support of SOW (and, to a lesser extent, GPA) activities.

71 Within the context of genetic diversity and climate change, partnerships are being entertained with regional research and development institutions such as the West and Central African Council for Agricultural Research and Development, Association for Strengthening Agricultural Research in Eastern and Central Africa, Centre for Coordination of Agricultural Research and Development for Southern Africa, and North Africa Sub-Regional Organisation.

72 In interviews with FAO staff and national representatives, it was noted that the newly approved Intergovernmental Technical Working Group (ITWG) on AqGR has the potential to improve interaction and coordination between the CGRFA and Committee on Fisheries (COFI). This would be of importance, as AqGr is relevant to a number of GRFA policy topics, such as conservation, sustainable use, resilience and ecosystem services. At the same time, COFI has recently convened an Advisory Working Group on Aquatic Genetic Resources and Technologies, which may further improve interaction between CGRFA and COFI (but may also overlap with the ITWG); the modes of engagement between the Advisory Working Group and the future ITWG are currently being elaborated.

73 For AnGR, formal and informal contacts are being maintained to research consortia and universities, including through annual student exchange programmes; the Animal Genetic Resources Branch (AGAG) also participates in several EU-funded research projects and networks. Many researchers contributed without remuneration chapters to the Second Report on the State of the World's Animal Genetic Resources, and co-authored articles with AGAG staff in peer-reviewed journals. (AGAG staff enjoy a high scientific reputation, as most AnGR documents are produced by AGAG staff themselves, with little subcontracting to outsiders.)

74 In the case of FGR, FAO has also benefited from both formal and informal partnerships with CGIAR Centres (in particular Bioversity International and the World Agroforestry Centre) and other international and national research organizations. The partnerships also included regional networks on FGR; FAO would not have been able to finalize the first SOW-FGR without in-kind contributions from different international and national partners. The results of many thematic studies prepared in conjunction with the SOW-FGR process were published as a special issue in a peer-reviewed journal, which increased the Organization's visibility. Regional networks were crucial partners for FAO in organizing regional workshops in the SOW-FGR context, which helped identify strategic priorities for the Global Plan of Action on FGR (adopted by the FAO Conference in 2013).

75 The International Treaty on Plant Genetic Resources for Food and Agriculture does not fall into the scope of this evaluation. It is however worth noting that, despite excellent collaboration in some fields, certain activities could have benefited from better coordination between the Treaty and other FAO bodies or units dealing with PGRFA. The example of GIPB offers a good example of the kind of missed opportunities arising from this lack of coordination. It was noted by FAO staff and national representatives that embedding GIPB within a broader policy framework (such as the one offered by ITPGRFA on non-monetary mechanisms) could have ensured more visibility and hence greater sustainability and relevance for GIPB, while benefiting the Treaty in terms of technical support for implementation.

Cross-cutting issues

76 FAO's GRFA work has a long history of recognizing diversity, including gender (e.g. the 1996 paper "Farmers' Rights in the Conservation and Use of Plant Genetic Resources: A Gender Perspective"). Respect for diversity was most evident in the treatment of farmers' rights, and in highlighting the role played by women and youth in maintaining GRFA. AnGR work recognized diversity, for example, by stressing the importance of traditional livestock keepers as guardians of domestic animal diversity (2007); PGR work likewise stressed the contribution of smallholder farmers to GRFA conservation and management. (There was an evolution of the recognition of gender in GRFA documents: the 2007 AnGr GPA did not mention gender; the 2011 2nd PGR GPA did so extensively.

77 Although the Commission is essentially a neutral forum and information broker (e.g. through the commissioning of research and information papers, without assuming a norm-setting mandate), it was an early supporter of farmers' rights. Often in connection with the in-situ conservation of genetic resources, and in synergy with gene banks, the CGRFA promoted the concept that genetic resources are a heritage of mankind. The concept of farmers' rights was developed in the early 1980s in the context of intellectual property rights (IPR). IPR concepts, however, often disregarded the fact that, in many cases, innovations were based on accumulated knowledge and inventions that had been created over millennia by generations of men and women in different parts of the world. The farmers' rights concept spread within FAO (e.g. to the Globally-important Ingenious Agricultural Heritage Systems (GIAHS) initiative), and when the Treaty entered into force in 2004, it was the first international agreement to recognize the rights of farmers.

78 CGRFA and the GIAHS initiative share the common goal of conserving and managing GRFA in support of global food security and sustainable development. Over the years, the GIAHS initiative has made regular presentations to CGRFA on their piloting approaches for engaging communities, and local and national governments in the adaptive management of agricultural heritage and conservation, and management of GRFA. However, it appears that not many concrete links exist between GIAHS in-country sites and in-situ conservation sites inspired by the CGRFA and the Treaty; a more systematic collaboration could provide additional synergies.

Food and Agriculture
Organization of the
United Nations

OFFICE OF EVALUATION
www.fao.org/evaluation