Introduction

In Annex 2 of the first SoW report, a number of crops of major and minor importance for food security in oneor more global subregions were surveyed for the state of their diversity. Similarly in this Appendix, major crops (wheat, rice, maize, sorghum, cassava, potato, sweet potato, beans (*Phaseolus*), soybean, sugar crops, and banana/plantain) and a number of globally minor, but subregionally or nationally major, crops (millets, roots and tubers other than the ones listed bove, pulse crops other than species of *Phaseolus*, grapes, tree nuts, and vegetables and melons) are surveyed. While this range of crops is not a definitive list of staple or important food and oil crops, it does include examples of different crop groups (cereals, food legumes, roots and tubers, tree crops), species with different breeding systems (cross-pollinating, self-pollinating, clonally propagated), and crops of temperate and tropical origins. It also includes crops for which there has been great investment in conservation and improvement, notably wheat, rice and maize, as well as crops for which there has been relatively less investment, such as cassava, sweet potato, and plantain. This list of major and minor crops also provides a good sampling of the crops listed in Annex 1 of the ITPGRFA, although not all crops surveyed here are in Annex 1 (e.g. soybean, groundnut, sugar cane, grape and some millets).

The purpose of this Appendix is not simply to repeat information presented in Chapters 1, 2, and 3 of the main report, but to highlight some of that information in a crop-oriented context. General information is provided here on the major patterns of production and on the area harvested of the major and minor crops over the years 1995 through 2008; the composition of their genepools; the state of *in situ* diversity for crop species, if wild forms exist, and of CWR and *in situ* conservation programmes (more details are given in Chapter 2); specific reports of genetic erosion; summaries of the status of major *ex situ* collections (more details are given in Chapter 3 and Appendix 2); the status of safety duplication of *ex situ* collections, gaps, opportunities and priorities in the extent of coverage of the genepool diversity in *ex situ* collections; the extent of documentation, characterization and evaluation of collections; issues related to utilization of collections; the impact of climate change on priorities and concerns for both *in situ* and *ex situ* conservation; and the role of specific crops for sustainable production systems, organic production systems, and farmer opportunities. In the individual crop sections that follow, specific concerns are highlighted.

Diversity status

Since 1995, more than 1 million germplasm samples have been added to *ex situ* collections and at least a quarter of these accessions are the result of new collecting missions (from fields, markets, and nature). The remainder are probably a result of increased exchange of accessions among collections. The number of accessions is not a direct measure of diversity. There are many germplasm descriptors from which the diversity status of a collection can be inferred (for example, passport information, phenotype information for many characters, genotype information from many possible markers and assays, and basic taxon biology). The assessment of diversity thus depends upon the uniform availability of such information for the collections to be studied. As pointed out by many sources, uneven documentation of crop germplasm is a major shortcoming for most collections. Even less is known about the state of diversity represented in genebank accessions of wild species related to crops or about the status of diversity in taxa growing in any sort of natural reserve or other *in situ* conservation areas. As pointed out in Chapter 2, very few (<50) CWR have been assessed for their diversity status compared to the hundreds of known CWR. Many country reports have stressed concern for

the lack of attention paid to both *in situ* and *ex situ* conservation of CWR. Chapter 2 also reports on the CGRFA-commissioned study to identify conservation priorities and specific locations for critical *in situ* conservation of CWRs of the major food crops in almost all continents.

The negative impact on biological diversity and efforts at germplasm conservation and utilization caused by armed conflicts and outright war was noted in Chapter 2, but was also strongly emphasized by some country reports. Political instability, changes in political systems, economic disparities and uneven development across national landscapes have also negative repercussions on biological diversity and both precede and follow outright conflicts. Specific impacts include destruction of habitat, basic infrastructure and the collections themselves. Even as studies and reports have been identifying gaps and deficiencies and raising alarms, there has been progress in diversity assessments since the first So report, motivated by many factors, actors, and initiatives:

• increasing country compliance with mandates of the 1992 CBD (*in situ* and *ex situ* conservation and access and sustainable use of biodiversity) as well as national biodiversity strategies and action plans for carrying them out;
• the coming into force of the ITPGRFA and steps taken by countries for its implementation;
• the FAO Commission on Genetic Resources for Food and Agriculture, the first SoW report, and the subsequent GPA;
• the international research organization IPBGR/ IPGRI/Bioversity International and its efforts at research, documentation, and training dedicated to conservation of agrobiodiversity;
• the efforts of the international centres of the CGIAR with their various mandated crops;
• national and regional efforts (for example, the United States Department of Agriculture [USDA], the United States Agency for International Development [USAID], the Swedish International Development Cooperation Agency [Sida], the European Commissions) at training and capacity building for conservation and utilization in countries with priority crops;
• the establishment of the GCDT and its efforts to motivate assessments and conservation strategies and to provide funding to carry out the priorities thus established.

As reported in Chapter 2, since 1995 many countries have carried out specific surveys and inventories at least at the level of species, either as part of their National Biodiversity Strategy and Action Plans or within the framework of individual projects.