Aide memoire

Session	Session 3 – interlinkages between biodiversity and agriculture: Part I – Imperatives and implications
Title of presentation	Key ecosystem services for food and agriculture – the state of the world's genetic resources
Name of presenter	Irene Hoffmann

Abstract

The FAO Commission on Genetic Resources for Food and Agriculture (Commission) oversees and guides the preparation of global sectoral and cross-sectoral assessments of genetic resources for food and agriculture (GRFA), which are based predominately on country reports. Based on the assessments, policy instruments such as the *Global Plan of Action for Animal Genetic Resources* and *The Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture* were adopted. The Commission further monitors the implementation of its Global Plans of Action for animal and plant genetic resources through targets and indicators aligned with Aichi Target 13 and SDG 2.5., and dedicated web-based information systems.

Importance of maintaining genetic diversity as the basis for food production and livelihoods

Biodiversity provides the raw materials, combinations of genes, that produce the plant varieties and animal breeds upon which agriculture and food systems depend. Around 10,000 plant species have been used for human food since the origin of agriculture. Today, only about 150 plant species make up the diets of the majority of the world's population. Nine food crops (barley, beans, cowpeas, groundnut, maize, potatoes, rice, sorghum, wheat) make up about 70% of vegetal food supply, while five livestock species (cattle, sheep, goat, pig, chicken) provide more than 80% of livestock food production. In livestock, only less than 40 of the 50,000 known avian and mammalian species have been domesticated, with today about 14,700 reported national breed populations and 8,700 breeds. While there are hardly any wild relatives left of domestic animals, crop wild relatives prevail inside and outside protected areas.

Overview of the state of world's plant and animal genetic resources

Main factors leading to genetic erosion are similar for animal and plant GRFA: genetic dilution or replacement of local varieties, production system changes (mostly through intensification), inappropriate legislation/ policy and weak institutions and lack of profitability/ competitiveness. Drivers relevant for many of the crop wild relatives are land clearing, overexploitation, population pressure, environmental degradation and overgrazing.

As a general trend, the range of selected species/breeds/varieties declines with production intensification, but they provide higher shares of total production of the respective commodity, and are managed by a reduced number of breeding companies.

17 percent of the world's livestock breeds are classified as being at risk of extinction, while a further 58 percent of breeds are classified as being of unknown risk status because no recent population data are available. The low rate of reporting and the increase in the at-risk breeds puts into question the achievement of Aichit Taget 13. Equally in plant genetic resources, the high share of unknown number and status of varieties maintained on farm and *in situ* is a concern.

On the other hand, conservation programmes have increased over the past decade in both animal and plant genetic resources, and gene banks have increased in both size and number. Compared to 2009, the number of plant genetic resources genera and species conserved *ex situ* has increased significantly, as did the safety duplications of individual accessions. However, less progress has been made in *in situ* conservation and on-farm management of plant genetic resources.

How different actors at different levels are working to maintain genetic diversity

Progress has been made globally in national awareness raising about the value of GRFA, education and human capacity, building of national institutions for the management of animal and plant genetic resourcesand the development of legislation for their management (often linked to NBSAPs). Some genebanks cover plant and animal genetic resources.

While the sectoral assessments focus on provisioning ecosystem services, the ongoing global assessment on *The State of the World's Biodiversity for Food and Agriculture* tackles issues such as associated biodiversity and regulating and supporting ecosystem services. The preparation of the assessment further assists in integrating across sectors and the mainstreaming of biodiversity.

Key considerations

- Biodiversity for food and agriculture includes the variety and variability of animals, plants and micro-organisms at the genetic, species and ecosystem levels that sustain the ecosystem structures, functions and processes in and around production systems, and that provide food and non-food agriculture products.
- The sectoral Global Plans of Action provide the basis for national implementation and management of the respective genetic resources for food and agriculture, including for monitoring of their state.
- *The State of the World's Biodiversity for Food and Agriculture* report will provide the first ever global assessment of associated biodiversity and regulating and supporting ecosystem services.