

Sustainable Development Goal 2 is “End hunger, achieve food security and improved nutrition, and promote sustainable agriculture<sup>1</sup>”. To be able to meet the targets of this goal, it is fundamental to preserve and enhance the natural resource base and the ecosystems services as these are the foundation for all food and agricultural systems.

### INCREASED PRODUCTION IS NEEDED

To meet the future food needs, both agricultural production and productivity must grow even further. In too many cases, achievements in production have been associated with management practices that have degraded the land and the water systems upon which production depends.

Food production on land and in aquatic systems, already dominates much of the global terrestrial surface and this has significant impacts on ecosystems. Increased pressure on agriculture seriously compromises the long-term global capacity to produce food as well as the economic development needed for food security.

Degradation of ecosystems on land and in water, directly affects the food supply and the income of poor, increasing their vulnerability and creating a vicious circle of poverty, further degradation and hunger.

#### Glossary

**Biodiversity:** Short for biological diversity – the variety of all forms of life on Earth, including the variability within and between species.

**Ecosystems:** All the organisms in a given area, along with the physical environment with which they interact, such as a forest or a coral reef.

**Ecosystem Services:** The benefits people obtain from ecosystem processes, e.g. provision of food and clean water, regulation of climate, pollination of crops, and fulfilment of people’s cultural needs.

**Resilience:** The capacity of a system – be it a forest, city or economy – to deal with change and continue to develop.

### DEFORESTATION CONTINUES

Clearing of forest land for expansion of agriculture leads to severe environmental degradation that also increases the competition for other natural resources. For example, clearing of forests in highland areas causes soil erosion, which reduces the quality of drinking water for downstream users and water supply for sustaining aquaculture. Furthermore, the loss of forestland deprives forest



communities of plant and animal biodiversity that is often critical for their food security and income opportunities.

The loss of forest biodiversity also has an impact on global food security as it reduces the available gene material and thereby the options of breeding new crops and plant varieties that may allow food systems to better adapt to climate change.

In tropical and subtropical countries, agriculture is estimated to be the main driver of nearly 75% of deforestation. However, there are significant regional variations. In Latin America large-scale commercial agriculture account for 70% of deforestation, while in Africa small-scale agriculture is a more significant driver. Other drivers are urban growth, infrastructure development, migration and climate change.

### AGRICULTURE PROVIDES DIFFERENT VALUES AND SERVICES

From agricultural lands we get food, feed, fibres, fuels and pharmaceuticals. The potential for economic growth and poverty reduction from these different products and their value-chains is well-known.

In addition, there is a growing understanding of the environmental services that the agricultural sector can provide. If production is well-managed, agro-ecosystems also produce a variety of services such as; regulation of soil and water quality, absorption of carbon, managing watersheds, preserving biodiversity and landscape management.

In addition, the agricultural systems rely for their function on services provided by natural ecosystems, such as pollination, biological pest control, maintenance of soil structure and fertility, nutrient cycling and hydrological service. Depending on management practices, agriculture can also contribute to several disservices, such as water pollution, soil erosion, nutrient runoff, pesticide poisoning, greenhouse gas emissions and loss of biodiversity.

<sup>1</sup> Agriculture, includes livestock, forestry and fisheries

## ECOSYSTEMS PROVIDE FOUR TYPES OF SERVICES

Ecosystems services is basically what makes human life possible by, e.g. providing nutritious food, clean air and water, supporting pollination, formation of soils, regulating disease and climate, and providing recreational, cultural and spiritual benefits. The services can be grouped in four different types:

<b>PROVISIONING</b> services are the products obtained from nature, such as, food, fresh water, medicinal resources, fibers, wood and fuel.	<b>REGULATING</b> services are the benefits provided by nature that regulate our environment, such as, control of pests and pathogens, flood prevention, erosion control, climate regulation, water and air cleaning.	<b>CULTURAL</b> services are the non-material benefits provided by nature, which enrich our lives, such as recreation, cultural identity and spiritual well being.
<b>SUPPORTING</b> services are the underpinning services, which enable other services to function, such as soil formation, nutrient recycling and biological diversity maintenance.		

## POLLINATION MATTERS

Pollinator-dependent crops contribute to 35% of the global crop production volume. Pollinators are being increasingly threatened by factors such as changes in land use, intensive agricultural practices and pesticide use, alien invasive species, diseases and pests, pollution and climate change.

Pollinators are a source of multiple benefits beyond food provisioning as they contribute directly to medicines, biofuels, fibres and construction material.

## WHAT ABOUT CLIMATE CHANGE?

For agricultural ecosystems, there is evidence that some crop species and varieties currently grown in a particular area may not be able to adapt quickly enough to the changes. Since different species will react differently, the complex interactions among species will be disrupted, potentially affecting ecosystem services such as pollination and the control of crop pests by natural predators. Plant and animal pests are already spreading into new areas due to the change. Climate change will also contribute to existing long-term environmental problems, such as groundwater depletion and soil degradation, which will negatively affect food and agriculture production systems.

## WHAT SHOULD BE SIDA'S ENTRY POINTS?

Sustainable agricultural development should generally be promoted. This means agriculture that conserves land, water, as well as plant and animal genetic resources. It should also be environmentally non-degrading, technically appropriate, economically viable and socially acceptable.

**Promote agriculture based on diversifying farms and farming landscapes**, replacing or reducing chemical inputs, optimizing biodiversity and stimulating interactions between different species, as part of holistic strategies to build long-term soil fertility, healthy agro-ecosystems and secure livelihoods, i.e. 'diversified agroecological systems'.

**Integrating biodiversity and ecosystem services into agriculture and food production.** Policies, plans and actions should lead to a reduction of the pressures that agriculture places on ecosystem services, and strengthening the positive impact, such as promotion of diversified farming systems, regulation and control pesticide use, and support to alternative measures for protection.

**Mainstreaming conservation and biodiversity in agriculture.** This is done through both regulatory approaches to resource management and with subsidies such as for native species and for restoration of degraded and marginal land. Important is also the removal of harmful subsidies.

**Promoting positive incentives for farmers** e.g. by strengthening smallholder farmers organization and bargaining power, and training of farmers on compliance with sustainability certifications and quality management.

**Policy incentives for diversification** involving both consumers and producers can contribute to increased integration of biodiversity and ecosystem aspects in production, processing, trade, transport and consumption.

**Integrated landscape initiatives** involving government agencies, environmental organizations, private sector and farmers facilitate cross-sector integration and promote food systems that are diversified at multiple levels (fields, farms, landscapes, regions), and capable of managing resources more sustainably.

**Encourage on-farm conservation** through community seed banks and exchange networks, diversity seed and food fairs and other community run systems, with a special focus on women's contribution to agricultural diversity and systems.

**Farmers' rights to seeds** are essential to their food security and to global food security and biodiversity. Their right to save, select, exchange and sell seeds is critical when intellectual property rights are negotiated in trade agreements and other policy fora. Specific seed legislation can be encouraged and developed to support the access to seeds from traditional, often genetically heterogeneous, varieties through informal/traditional seed systems.