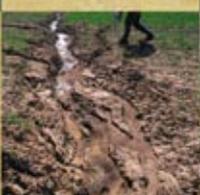
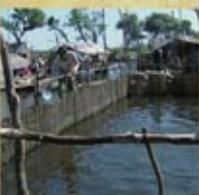
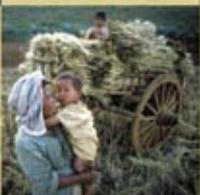
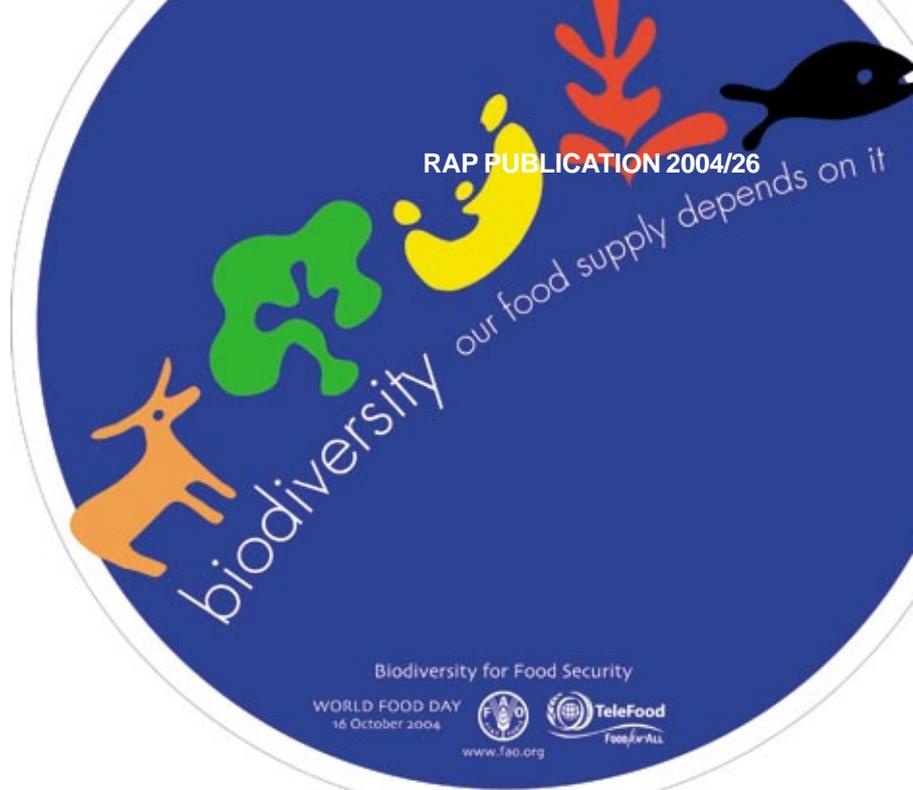


Biodiversity *for food security*





Biodiversity for food security

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
REGIONAL OFFICE FOR ASIA AND THE PACIFIC
Bangkok, 2004

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Biodiversity for food security



2004
World Food
Day/
TeleFood
theme

Each year on 16 October, the Food and Agriculture Organization of the United Nations celebrates World Food Day in commemoration of its founding on that day in 1945. The World Food Day theme and TeleFood campaign for 2004, "Biodiversity for food security", pay tribute to biodiversity's role in ensuring that people have sustainable access to enough high-quality food to lead active and healthy lives.



Biological diversity is fundamental to agriculture and food production. People rely on the variety of food, shelter, and goods for their livelihood. Yet, humans put increasing pressure on species and their environments. As a result, many plants and animals are at risk, as well as essential natural processes such as pollination by insects and the regeneration of soils by micro-organisms.

To feed a growing population, agriculture must provide more food. It will also be essential to increase its resilience by protecting a wide array of life forms with unique traits, such as plants that survive drought or livestock that reproduce in harsh conditions. Sustainable agricultural practices can both feed people and protect the oceans, forests, prairies and other ecosystems that harbour biological diversity.

A rich variety of cultivated plants and domesticated animals are the foundation for agricultural biodiversity. Yet people depend on just 14 mammal and bird species for 90 percent of their food supply from animals. And just four species - wheat, maize, rice and potato - provide half of our energy from plants.

Apart from the absolute number of species, it is also essential to conserve genetic diversity within each species. Modern agriculture has encouraged many farmers to adopt uniform high-yielding types of plant or animal. But when food producers abandon diversity, varieties and breeds may die out – along with specialized traits. This rapidly diminishing gene pool worries experts. Having a broad range of unique characteristics allows plants and animals to be bred to meet changing conditions, while giving scientists the raw materials they need to develop more productive and resilient crop varieties and breeds.





Rather than a single crop variety that guarantees a high yield, farmers in developing countries are more likely to need an assortment of crops that grow well in harsh climates, or animals with resistance to disease. For the poorest farmers, the diversity of life may be their best protection against starvation. Consumers also benefit from diversity through a wide choice of plants and animals. This contributes to a nutritious diet, particularly important for rural communities with limited access to markets.

More than 40 percent of the land's surface is used for agriculture, placing a large responsibility on farmers to protect biodiversity. By using appropriate techniques like no-tillage agriculture, reduced use of pesticide, organic agriculture and crop rotation, farmers maintain the fragile balance with the surrounding ecosystems. With plants, animals and their environments intact, a range of essential natural processes is preserved. Livestock, insects, fungi and micro-organisms decompose organic matter, transferring nutrients to the soil. Bees, butterflies, birds and bats pollinate fruit trees. Swamps and marshes filter out pollutants. Forests prevent flooding and reduce erosion. And natural predators keep the growth of any one species in check.



FAO estimates that about three-quarters of the genetic diversity of agricultural crops have been lost over the last century. And of 6 300 animal breeds, 1 350 are endangered or already extinct. Global efforts to conserve plants and animals in gene banks, botanical gardens and zoos are vital. But an equally important task is to maintain biodiversity on farms and in nature, where it can evolve and adapt to changing conditions or competition with other species. As custodians of the world's biodiversity, farmers can develop and maintain local plants and trees and reproduce indigenous animals, ensuring their survival.

Since the birth of agriculture 10 000 years ago, farmers, fishermen, pastoralists and forest dwellers have been managing genetic diversity by selecting plants and animals to meet environmental conditions and food needs. Farmers everywhere possess priceless local knowledge, including a highly-tuned sense of how to match the right variety or breed with a particular agricultural ecosystem. Conserving biodiversity for agriculture will require efforts on many fronts including measures to preserve the environment, better education, increased research and government support. FAO will continue to count on the collaboration of its partners, including other international organizations; research, trade and policy institutes; grassroots community groups, the public and consumers.

More than 840 million people remain hungry around the world and still more suffer from micronutrient deficiencies. Global efforts have so far been insufficient to reach the World Food Summit and related Millennium Development Goal of reducing the number of hungry by half by 2015. Biodiversity is a key ally in fighting malnutrition. Its protection is something we cannot afford to forget.

Address by HRH Princess Maha Chakri Sirindhorn

It is a great pleasure for me to join all of you again on World Food Day at the FAO Regional Office for Asia and the Pacific.

In our turbulent world of today, we face many challenges in various important areas in order to secure the well-being of the people and other living creatures on this planet. In this context, biodiversity plays a key role in sustainable development and poverty alleviation. As we all know, the poor, especially in rural areas, depend on biodiversity for food, fuel, shelter, medicines and livelihood. We depend on biodiversity and its ecosystem services such as air and water purification, soil protection, disease control and reduced vulnerability to natural disasters. The selection of *Biodiversity for food security* as the theme for World Food Day celebrations this year recognizes and emphasizes the importance of protection and sustainable management of biodiversity for alleviation of poverty and enhancing food security.

FAO has been instrumental in initiating a number of international agreements to conserve biodiversity and to ensure that the resources are sustainably used, and the benefits from their use are equitably distributed. We recognize the pivotal role of biodiversity but

biodiversity issues have seemingly been neglected.

We also recognize the valuable technical support and policy advice provided by the FAO to member countries in management and utilization of natural resources for increasing agricultural production, rural development and food security. Its contributions in these fields are well known and recognized.

It is critical that we understand that biodiversity is interlinked with poverty alleviation and food security. Without biodiversity there is no sustainable development, poverty alleviation and food security, and without sustainable development we cannot possibly hope to conserve or sustainably use our natural resources. In the developing world, more than 1.2 billion people currently live below the international poverty line, earning less than US\$1 per day. Among the poor, many have problems obtaining adequate, nutritious food for themselves and their families. It is alarming to note that hunger and malnutrition claims 10 million lives every year, one life every 5 seconds. Six million children under 5 die every year from hunger.

Addressing these issues needs an integrated approach. There is no single set of recommendations for improved sustainable management of biodiversity, soil and water resources for increased food production applicable for the diverse agricultural environments and economic conditions. Therefore, it is important to identify most appropriate and costs effective technologies considering local agro-ecological and socio-economic conditions.

In this regard, let me share with you some of our experience in the implementation of the Royal Development Project to conserve natural resources and increase agricultural production. At present, Thailand's forest cover has dwindled to only 25 per cent,





dry season crops and to promote fisheries. After the successful establishment of the "Demonstration Center" at Wat Mongkhol Chai Pattana, farmers in all parts of the country have adopted this technique and have shown promising results. In all these works, His Majesty has promoted environmentally friendly techniques and efficient management of locally available resources for increasing agricultural productivity and food security. It is also important to note that several government departments, national and international agencies are working together in the implementation of these activities.

estimated at about 80 million rai, of the country's total land area. As you know, forests are among the most important repositories of terrestrial biological diversity. Forests provide a wide array of goods and services. Forest trees and shrubs play a vital role in the daily life of rural communities as source of timber, fuel wood, fodder, essential oils, pharmaceuticals and contributors to soil and water conservation. Alarmed over the rate of deforestation, His Majesty the King initiated a forest rehabilitation programme in 1960 and currently a number of successful agro-forestry and reforestation projects integrating trees for fruits, timber and fuel wood is in progress providing a range of benefits to the rural communities in many provinces such as Chiang Rai, Prachuap Khiri Khan, Kanchanaburti, Songkhla and Pattani.



The importance of conservation and management of biodiversity for food security in a sustainable manner, considering the increasing population, degrading natural resources such as land and water, cannot be overlooked. The main task ahead is to translate into quantifiable results the political commitment and recognition of the importance of biodiversity for food security. The main factors resulting in degradation of biodiversity need to be identified and conservation practices appropriate for local conditions should be implemented. This will require the involvement of all sectors at both national and international levels. The government should integrate biodiversity considerations into social and economic development policies and programmes.

I join you all in congratulating FAO on this auspicious day for its achievements and offer Thailand's good wishes and full-hearted support to the World Food Day theme. I am confident that FAO will continue to receive similar support from other Asia-Pacific countries in realizing the collective mission of conserving biodiversity for ensuring food security for all our citizens.

The origin of His Majesty's "New Theory" is another good example for conservation and management of biodiversity and other available natural resources for enhancing food security. The main purpose of this theory is to support small landholders to increase farm income and food production through appropriate division and utilization of land to grow a range of crops such as rice and horticultural crops, and establishment of farm ponds for rain water harvesting for



Thank you.

Message of the FAO Director-General

Biodiversity for food security, the theme of this year's World Food Day, reflects our planet's richness and the key to ending hunger that this great diversity represents.

However, the world's biodiversity is under threat and this could severely compromise global food security. FAO estimates that about three-quarters of the genetic diversity of agricultural crops have been lost over the last century. As a consequence, the food supply becomes more vulnerable, there are less opportunities for growth and innovation in agriculture and less capacity for agriculture to adapt to environmental changes, such as global warming, or to the appearance of new pests and diseases.

As they have done throughout history, small-scale farmers and herders are protecting and increasing the world's stock of genetic resources. By so doing, they are making an especially important contribution to food security.

Many rural families in developing countries cannot find a sufficient variety of nutritious food in their local markets or are simply too poor to purchase them. Because of this, they must make the best use of indigenous plant varieties and animal breeds. In this regard, the fundamental role played by women farmers must be emphasized. In

Biodiversity for food security

much of the developing world, the conservation and use of plant genetic resources have always been and remain the responsibility of women.

In the past, the contributions made by farmers in the developing world towards the preservation of agricultural biodiversity have not been properly appreciated. Today, however, their rights have been recognized and incorporated into the Treaty on Plant Genetic Resources for Food and Agriculture, which entered into force in June this year. The Treaty is a binding international instrument that:

- secures the conservation and sustainable utilization of the world's agricultural genetic diversity;
- guarantees that farmers and breeders have access to the genetic materials they need; and
- ensures that farmers receive a fair and equitable share of the benefits derived from their work.

Furthermore, a Global Crop Diversity Trust is being established to strengthen the capacity of developing countries to preserve agricultural biodiversity and maintain comprehensive gene banks. Increasingly, consumers are also demanding more diverse produce, thus recognizing the value of biodiversity.

Even though livestock is making an increasingly significant contribution to food security and rural development, animal genetic diversity is also rapidly eroding. Of the 6 300 known animal breeds, 1 350 are endangered or already extinct.

Forests are among the world's most important repositories of biological diversity but their cover is decreasing at an alarming rate. Forests provide food for families and livestock, energy in the form of fuel wood and various products such as essential oils, gums, resins and latex, and medicines and pharmaceuticals, which contribute to the diversification of the local economy.

Biodiversity in the world's oceans, lakes and rivers also plays a vital role in food security and rural livelihoods. However, it is being threatened by over-fishing, environmentally damaging fishing practices, the introduction of alien species and habitat destruction.

Preserving biodiversity also means protecting different types of ecosystems, including those where are living insects, bacteria, microbes, fungi and other organisms, as well as bees and birds which interact in complex ways with the soil and plants. In addition, in most fields, over 90 percent of pests are killed by beneficial species thus contributing to reduce the use of chemical pesticides.

Today we are celebrating our planet's tremendous wealth of biodiversity and the promise it holds for eliminating world hunger. For this to happen requires the commitment of everyone and, as in nature, our strength lies in our diversity.

