

Section 2 : Conservation and Management of Resources for Development

Chapter 16 : Environmentally sound management of biotechnology

Biotechnology is the altering of genetic material in plants, animals and microbial systems leading to useful products. It will make a significant contribution to improving health care, food security, supplies of potable water, industrial processes for transforming raw materials, detoxification of hazardous wastes and off site conservation. Biotechnology offers new opportunities for partnerships between countries rich in biological resources and those rich in technology.

A. Increasing the availability of food, feed and renewable raw materials

To meet the growing consumption needs of the global population requires increased food supply, improved food distribution and sustainable agricultural systems. This will require new investments and training in biotechnology, especially in the developing world.

Objectives

To:-

- increase the yields of animal, plant and aquaculture species.
- reduce the need for volume increases in food and raw materials by improving the nutritional value of the source and reducing post-harvest losses.
- increase the use of integrated pest management.
- evaluate the agricultural potential of marginal lands in comparison with other potential uses.
- improve the use of forest products and forestry techniques.
- increase the efficiency of nitrogen fixation and mineral absorption by the symbiosis of higher plants with microorganisms.

B. Improving human health

Poor environmental quality, notably air, water and soil pollution from sources such as toxic chemicals and hazardous wastes has a negative effect on human health.

Objectives

To contribute to an overall health programme through the environmentally sound application of technology to:

- combat major communicable diseases
- promote good general health
- improve treatment of specific non-communicable diseases

- develop and strengthen appropriate safety procedure
- enhance capabilities to carry out basic and applied research.

C. Enhancing protection of the environment

Environmental protection is an important part of sustainable development. Biotechnology can play an important role in supporting the rehabilitation of degraded ecosystems and landscapes. This may be done through the development of new techniques for reforestation and afforestation, germ plasm conservation and cultivation of new plant varieties. Biotechnology can also contribute to the study of the effects of introduced organisms.

Objectives

To prevent and reverse environmental degradation through the appropriate use of biotechnology while supporting safety procedures.

Activities

Governments should:

- develop environmentally sound alternatives to environmentally damaging production processes
- develop processes to reduce waste generation, treat waste, make use of biodegradable materials and remove pollutants from the environment
- develop processes to recover energy and provide renewable energy sources, animal feed and raw materials from recycling organic waste and biomass
- increase the availability of planting materials, particularly indigenous and stress tolerant varieties, for use in forestry and land conservation and rehabilitation
- promote the use of integrated pest management based on the judicious use of bio-control agents and appropriate bio-fertilisers
- promote the use of biotechnologies relevant to the conservation, scientific study and sustainable use of biological resources.

D. Enhancing safety and developing international mechanisms for cooperation

Internationally agreed principles are needed on risk assessment and management of all aspects of biotechnology.

Objectives

To ensure safety in biotechnology development, application, exchange and transfer with particular reference to health and environmental considerations.

E. Establishing enabling mechanisms for the development and the environmentally sound application of biotechnology

Objectives

To:-

- promote the development and application of biotechnologies.
- ensure that indigenous people participate in the economic benefits of biotechnology.
- ensure appropriate safety mechanisms and risk assessment.