

The challenges faced by emerging and developing countries regarding eco-innovation and on policies to remedy these challenges.

The case of MEAs

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# Outline of presentation

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# Introduction

- The three MEAs (UNEP-CBD, UNFCCC and UNCCD) are subscribed by almost all countries of the world
- Eco-innovation is addressed by these three conventions. Each of them has devoted specific articles for technology transfer (UNEP-CBD Articles 16-19 UNFCCC Articles 3 and 4 and UNCCD Article 18) to promote access to and transfer of technology in order to implement the other articles and work programmes of the conventions. The understanding is that these technologies can be diffused to provide the basis for the promotion of eco-innovations at national and local levels

# Which sectors/areas need eco-innovation?

- There are several sectors/areas in place in national development agenda
- However three of these economic sectors/areas are relevant for emphasis because of the roles technology diffusion in eco-innovation can play for sustainable development. These appear to be most vulnerable to changing environmental conditions but at the same time are considered as containing many of the key sources of human well being whose sustainability the MEAs are keen to maintain
- These sectors/areas are
  - natural ecological zones such as the coastal zones (many of which are dry and sub-humid)
  - general water resources and
  - agriculture

# Technologies needed

## Coastal zones

- Coastal zones are the interface of land, sea and air which feature the most dynamic natural environments on Earth.
- They contain a variety of coastal ecological systems including mangroves, lagoons, estuaries, which produce a large number of goods and services that are valuable to society.
- This diversity has over the years attracted many people and major investments to these zones, even to places that are susceptible to hazards, such as storm surges and coastal erosion. Many coastal locations therefore currently exhibit a huge population growth and gross domestic product (GDP) higher than their national averages, as well as substantial urbanization.
- The sum total of the environmental cost to this zone is very huge and it demands the application of appropriate technology in eco-innovation that will stem the vulnerability

# Technologies needed

## General water resources

- One thing that countries need are indicators which can serve a critical monitoring and communication function for adaptation strategies, helping to identify trends in water stress (volume reduction and quality) and livelihood impacts.
- Indicators span a range of complexity, from the very simple (ratio of withdrawals to volume available) to the complex (water poverty index).
- These indicators reflect the degree to which water scarcity impacts a population.
- They cover five main areas: resource balance (inflows versus outflows); access to safe water, sanitation and the proportion of arable land to water availability; capacity which can be described as functions of economic (GDP), health (childhood mortality), education and the inequality of income distribution; use per capita in domestic, industrial and agricultural sectors; and environmental criteria, such as water quality measures, fertilizer consumed per unit area, management and regulatory capacity measures, and biodiversity measures.
- There are appropriate technologies with eco-innovation content available to provide solutions to all of these indicators which must be found and used

# Technologies needed

## Agriculture

- Agriculture impacts on natural vegetations but its effects are generally overlooked when its output, in terms of yield, contribute substantially to all the aspects of human well being including human health.
- Over the decades the agriculture sector has suffered many set backs especially in situations of adverse effects of climate events such as drought, flood and salinity and in pest infestations and disease burdens.
- It is for such situations that a number of technologies, both hard and soft, have been developed and adopted world wide.
- Commonly adopted technologies are irrigation, high yielding crop varieties, diversification of crops, and drought and salt tolerant varieties.
- New researches in biotechnology, though not fully embraced by many countries, enabling gene transfers across species to create novel organisms, Genetically Modified Organisms (GMOs), for disease resistance and other desired attributes have also emerged as possible sources for food security. Early warning systems and seasonal forecasts are also very effectively used in some parts of the world. Additionally different types of infrastructure, such as embankments in coastal and floodplain areas, awareness-raising, and the enhancement of capacity to cope with adverse effects which are effective are also available and can be employed.

# What mechanisms to set in place

- Many communities and individuals at the local level in emerging and developing countries have developed local knowledge and expertise about some technologies which they use when ever they encounter unusual situations of drought, salination, flooding, crop failure etc.
- The need to integrate these with modern technology cannot be over emphasized because of the advantages associated with recognition of traditional knowledge.
- There are many of such indigenous technologies waiting to be documented, studied and made available for integration and use, taking into consideration all aspects of intellectual property rights

# What mechanisms to set in place

- In all the MEAs, the implementation of the programmes of work makes reference to a mix of access to and transfer of technologies as the means to achieve the objectives of these conventions, recognizing the contributions that also come from local sources and the need for IPR recognition.
- They have all engaged themselves in identifying strategies that will enable the implementation of their work programmes.
- Though their approaches differ, the goals of these conventions are clear and converge towards the use of proven technologies to solve the myriads of environmental and other challenges faced by the world's vulnerable populations distributed mostly in emerging and developing countries

# What mechanisms to set in place

- A recent UNCCD publication “Promotion of traditional knowledge and Technology against Degradation and Desertification” aims to contribute to an understanding of traditional knowledge and technology and how its application can minimize land degradation and desertification in arid and semi-arid zones and dry sub-humid zones.
- It, inter alia, presents technical synopses of important and widely applied traditional technologies in dry-land ecosystems many of which are relevant to the conservation and sustainable use of biodiversity, addressing: control of wind and water erosion, water conservation, improvement of soil fertility, plant protection, forestry, social structures, as well as architecture and energy efficiency

# What mechanisms to set in place

- Another recent technical paper prepared for the UNFCCC “Application of environmentally sound technologies for adaptation to climate change” provides an overview of the current knowledge and understanding of adaptation to climate change; a framework for assessing technologies for adaptation to climate change; the process of technology development and transfer as relevant to adaptation to climate change; many of which are also relevant for the conservation and sustainable use of biodiversity

# What mechanisms to set in place

- The UNEP-CBD 8th Conference of the Parties decided to establish an Ad Hoc Technical Expert Group on Technology Transfer and Scientific and Technological Cooperation. This decision was with a view to collect, analyze and identify ongoing tools, mechanisms, systems and initiatives to promote the implementation of Articles 16 to 19 as well as to propose strategies for practical implementation of the programme of work on technology transfer and scientific and technical cooperation.
- The 9th Conference of the Parties considered the report of the Expert Group and took note of the strategy for practical implementation of the programme of work as annexed to its decision IX/14, as a preliminary basis for concrete activities by Parties and international organizations.

# What mechanisms to set in place

- The strategy conceptualizes and defines technology transfer and scientific and technological cooperation, and suggests concrete activities on enabling environments for technology transfer and cooperation, both on the receiving and the providing end.
- It also suggests a number of facilitating mechanisms, highlights the role of champions and the possible establishment of a Biodiversity Technology Initiative, and identifies funding needs and possible funding mechanisms

# What mechanisms to set in place

- Considering that biodiversity is under massive and increasing pressure as a result of global changes such as population growth, poverty alleviation, reduction of available arable land and water, environmental stress, climate change, and the need for renewable resources, there is a greater need than ever before to employ the full range of technologies, ranging from traditional to modern technologies and make these as widely available as possible in order to address the challenges associated with the implementation of the three objectives of the Convention.

# What mechanisms to set in place

- A lot of scientific and technological cooperation, including the transfer of technologies, is already being undertaken, though, on a smaller scale.
- The present strategy is therefore aimed at increasing the visibility of such cooperation, and to enhance the efficiency and effectiveness of technology transfer and scientific and technological cooperation under the Convention

# Challenges/ barriers which limit the flow of eco-innovations

- High cost of new technology and lack of access to finance
- Lack of awareness and access to technical information
- Inadequate or restrictive government policies and regulations
- Lack of institutions to promote and implement new technologies
- Lack of skilled human resources

# What kinds of policies can be suggested

- Examine the prevalence of these challenges in the society and adopt cost effective strategies to overcome them. The most important and more beneficial approach, in addition to provision of access to finance, would be to re-examine national policies, especially as they relate to the following:
  - Access to knowledge in technology issues and international markets
  - The links between these and the development of indigenous innovation capabilities
  - The ability at the local level to adapt to eco-innovations developed abroad

# Roles expected from developed country Parties and OECD

- The roles of developed country Parties are already established in the articles relating to access to and transfer of technology of the three conventions.
- OECD can/may re-examine its concept of aid provisions to emerging and developing countries and their effectiveness as far as the management of the current global environmental challenges are concerned

THANK YOU