



**United Nations Environment Programme
Economics and Trade Branch**

Introduction to Conceptual Framework

Session 3

Country Representatives Workshop

30 May 2006

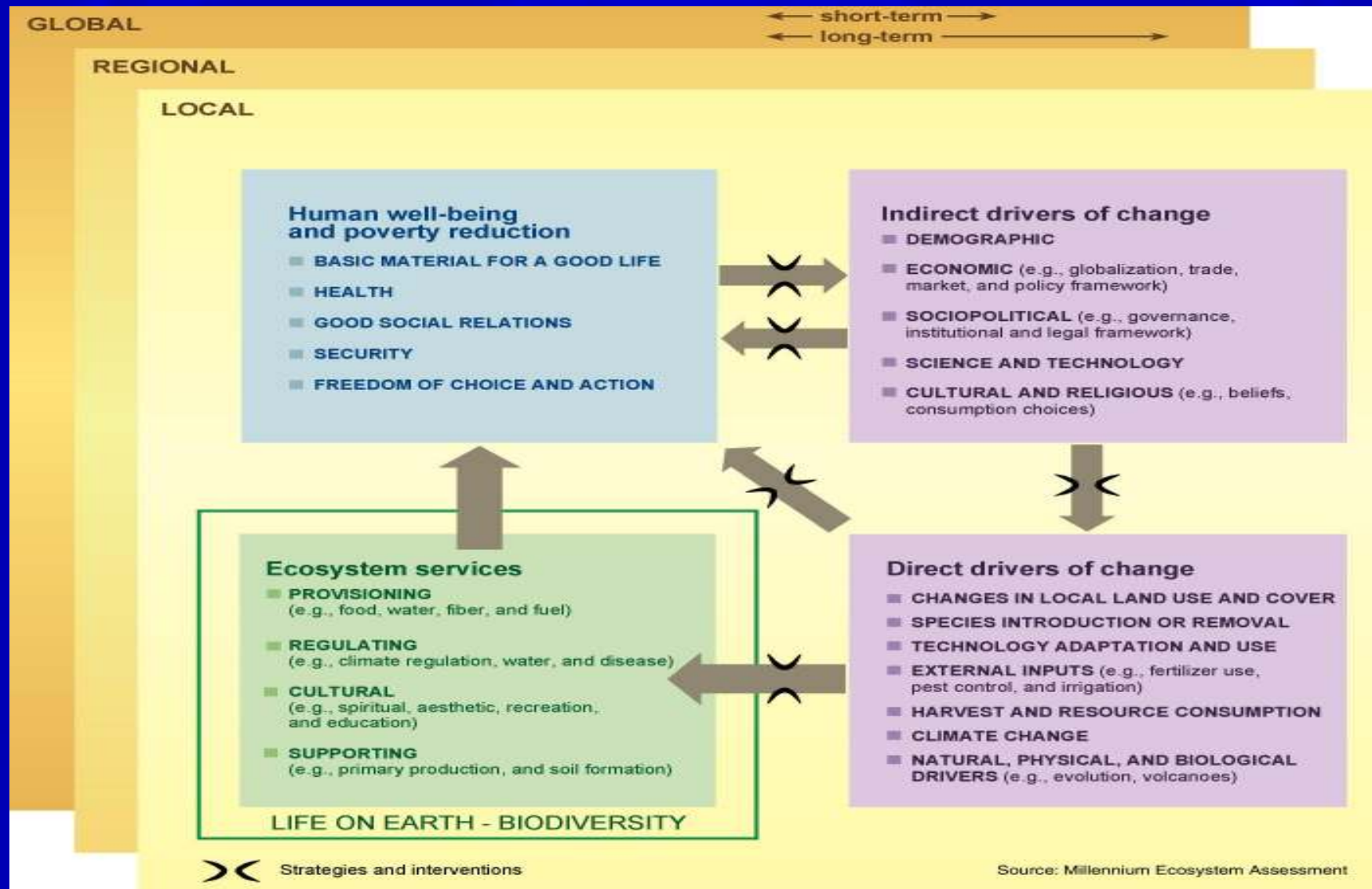
Geneva, Switzerland



What is a Conceptual Framework

- **A model of the main components of a system showing their relationships and linkages**
 - Serves to develop a common understanding of which issues are of relevance for an assessment
 - Provides the basis for different groups to provide input and to combine it in a logical manner in an overall assessment
 - Different conceptual frameworks have to be developed to meet different assessment needs. (depending on purpose and scope of the assessment)

Millennium Ecosystem Assessment



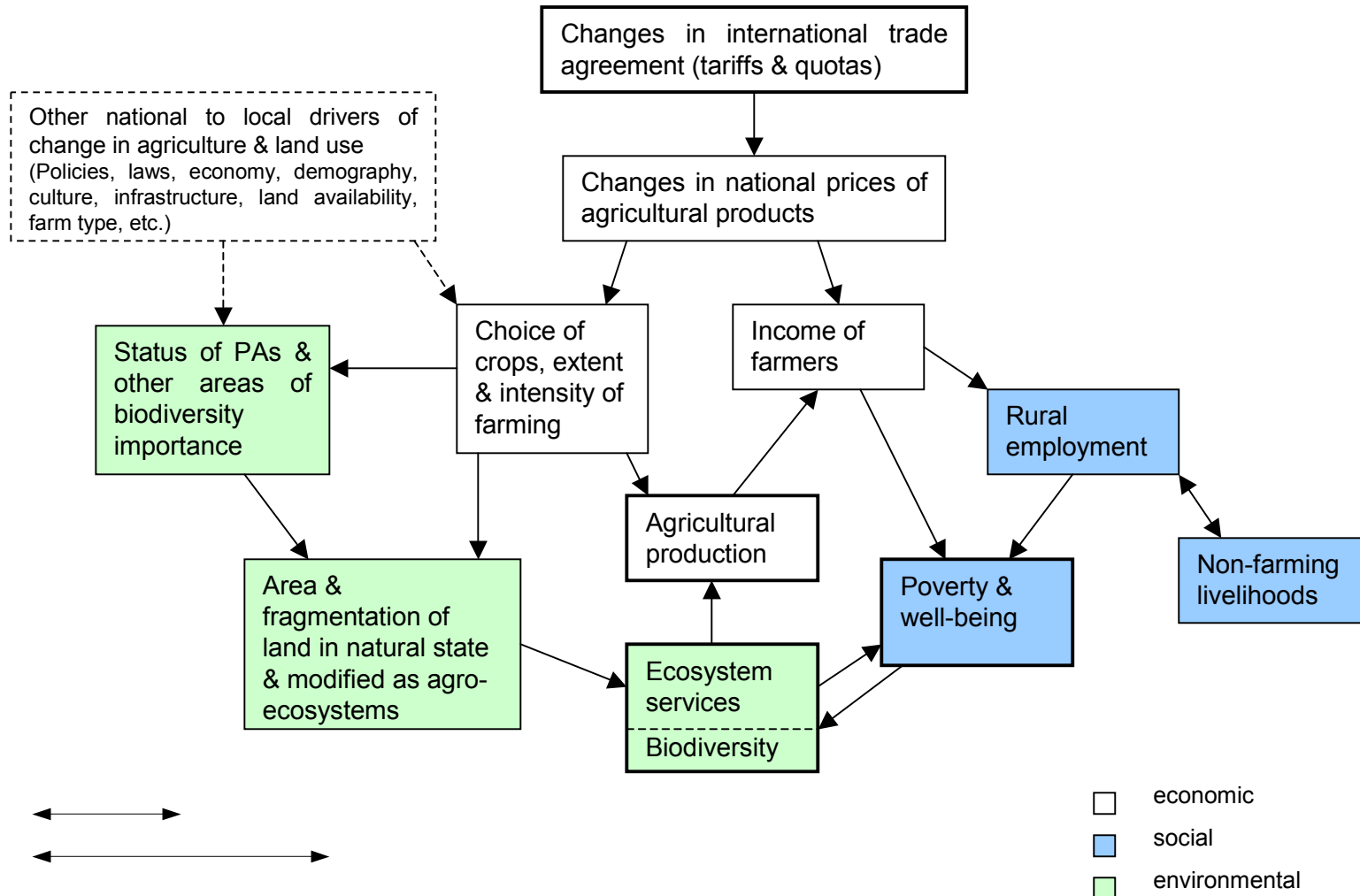


Agriculture, trade policy and biodiversity

Key Questions

- What are the linkages between trade policy, agriculture, biodiversity and livelihoods?
- How do agriculture, biodiversity and ecosystem services interact?
- What do we mean by biodiversity and ecosystem services?

Conceptual framework for assessment of trade, agriculture and biodiversity linkages (sample)





Agricultural biodiversity

CBD Decision V/5, appendix:

“a broad term that includes all components of biological diversity of relevance to food and agriculture, and all components of biological diversity that constitute the agro-ecosystem: the variety and variability of animals, plants and micro-organisms, at the genetic, species and ecosystem levels, which are necessary to sustain key functions of the agro-ecosystem, its structure and processes”

3 components:

- Cultivated or ‘planned’ biodiversity
- Associated biodiversity
- Additional biodiversity



Ecosystem Services

Provisioning services:

Food, genetic resources, biochemical, natural medicines, fresh water, fuel, fibre

Regulating services:

Pollination, water regulation and purification, erosion regulation, disease regulation, pest regulation, flood control

Cultural services:

Cultural diversity, spiritual and religious values, inspiration, aesthetic values (scenic qualities), recreation and tourism

Supporting services:

Soil formation, primary production, nutrient cycling, water cycling



Linkages between biodiversity and ecosystem services

- **Biodiversity in soil drives nutrient cycling**
 - soil biodiversity responds negatively to monoculture, pesticides use, erosion, pollution
- **Most crops rely on animal pollination services**
 - pollinator numbers declining due to habitat fragmentation, use of chemicals, introduction of exotic species
- **Some animals (insects, spiders...) are natural enemies to crop pests**



Impact of different land use states on ecosystems and biodiversity

- **Harvesting, gathering, fishing**
 - Little pressure on biodiversity, only localised changes
- **Extensive agricultural exploitation**
 - Expansion into natural ecosystems, conversion of land
- **Intensive agriculture exploitation**
 - Manipulation and conversion of ecosystems, reliance on external inputs



How trade drives changes in agriculture with impacts on biodiversity

Positive impacts:

- Policy reforms that remove impediments to intensification can help increase agricultural production while easing pressure on biodiversity in 'unconverted' land
- New opportunities for trade in organic products can promote production methods which are relatively more compatible with biodiversity



How trade drives changes in agriculture with impacts on biodiversity

Negative impacts:

- Pressure to produce more products for export leads to intensification and increased area of production
- Pressure to produce more increases natural resource-use, e.g. of surface water supplies for irrigation
- Price changes of agricultural inputs make it cheaper to use fertilizers, pesticides and other agro-chemicals which can damage biodiversity
- Pressure to grow crops for export reduces local food security and indirectly increases pressure on local biodiversity (e.g. harvesting of wild species for food)