ECONOMICS AND BIODIVERSITY

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Challenges

- Population growth
- Development
- Consumerism
- Increasing pressures on Ecosystem/Biodiversity
- Loss of species and ecosystem (45-250 species loss per day!).
Stopping biodiversity/ecosystem loss: major environmental policy agenda.

Current market and legal unable to provide clear answers.

Need for clear policy

Future lies in innovative approach and agenda setting.
Economics and Biodiversity

- **Economics** is a science of analysis of **use of limited and scarce resources to achieve human needs.** (bio-resources vs increasing demand).

- The basic challenge to any **economic system** is “How the scarce resources should be allocated to get maximum human satisfaction”

- **Environmental Economics** provides thoughts for creating an argument and answer to **valuing environmental goods and services for human well-being and to protect ecosystems.**
Changing Trends

- Environmental concerns overriding development concerns

- Abilities to translate potential of biodiversity and ecosystem services to real

- **Science-policy interface being revisited.**
THE ECONOMY AS AN ISOLATED SYSTEM

A)

SUPPLY

DEMAND

Goods and Services

CIRCULAR FLOW

Firms

Factors of Production

Households

SUPPLY

DEMAND
LINKING ECONOMIC AND ECOLOGICAL SYSTEM

B)

**Economic System**
- Production
- Outputs
- Firms
- Households
- Inputs
- Consumption

"Extraction"

**Natural Life-Support System**
- Air, Water, Wildlife
- Energy, Raw Materials
- Amenities
- "Environmental Assets" (sources & sinks)

"Waste"
THE ECONOMY DEPENDS ON ECOSYSTEM / BIODIVERSITY
What are we doing now?

→ Valuation
→ Damage assessment
→ Economic instruments:
  * compensation
  * subsidies
  * taxes
  * royalties
  * fines etc.

- Innovative Approach: ABS
- Overall challenge:

How to operationalize ABS principles using Economic instruments?
Globally more than 1.3 billion people depend on biodiversity and on basic ecosystem goods and services for their *livelhood* (CBD, 2012)

Biodiversity goods and ecosystem services are prospected but in an unorganized manner

Reason: There are **no defined market or economic instruments** for biodiversity and ecosystem services.
Challenges

- In Biodiversity supply, demand and price mechanism do not function properly.
- Biodiversity values are **implicit** in general rather than explicit (often not captured by markets).
- Property rights of biodiversity are not clearly defined.
- The right in biodiversity / bio-resources is not protected.
- Excluding others from using the good is not possible and hence rights based approach is difficult.
In biodiversity case market failure exists

Result: **Over-extraction** of bio-resources and **extinction**
ABS framework provides guidance for the way in which genetic resources are accessed, and the way benefits are shared between people or countries using the resources (users) and the people or countries that provide them (providers).

ABS Philosophy is: Providers of bio-resources are entitled to receive fair benefits from the users.

The negotiation between a provider and a user of resources should be (monetary / non-monetary), based on the true/actual value of the resources.
ABS can:

(i) Enable that biodiversity is managed as a public good

(ii) Correct so-called “negative externalities” that hamper biodiversity conservation

(iii) Support biodiversity-based businesses and ecosystems in a sustainable manner
ABS acts as an **economic incentive** in conservation and sustainable use of biodiversity (local community or providers of bio-resources obtain fair share of the benefits attained from its production).

**Economic valuation of biodiversity and biological resources is an important tool for well-targeted and calibrated economic incentive measures (CBD).**
Valuation of Biodiversity and Ecosystems

**Total economic**

- **Use value**
  - Indirect use value ("services")
  - Option value
  - Bequest value
  - Existence or preservation value

- **Non-use value**
  - Value of leaving use and nonuse values to offspring
  - Value from knowledge of continued existence or preservation

**Outputs/services that can be consumed directly**
- Food
- Biomass
- Recreation

- **Direct use value ("goods")**
  - Functional benefits enjoyed indirectly
    - Ecological functions
    - Flood control
  - Future direct and indirect use
    - Biodiversity
    - Conserved habitats
  - Irreversible
  - Biodiversity
  - Habitats
  - Endangered

- Decreasing "tangibility" of value to individual
- Increasing difficulty of measuring accurate values

**Fig. 1** Total Economic Value of Coastal Resources
Methods

Ecosystems

• Market prices
• Replacement costs
• Damage cost avoided
• Production function
• Hedonic price
• Travel cost and
• Contingent valuation.

Bio-resources

Value Chain and Production Function Analysis

Circular economy refers to coordinated relationships between actors who are involved directly and indirectly in a productive activity, with the aim of taking a product from supplier → manufacturer → wholesaler → retailer → consumer
Bio-product Value Addition

Based on actual market value

Based on notional value
Therefore ……

- Biodiversity conservation, management and sustainable use is critical for **stable economic development**.

- Biodiversity Economics need to studied and understood well

- Economic incentive is an option **ABS is an emerging principle**.

- Understanding the **real/true** value of bio-resources is a **pre-requisite** for benefit sharing and ABS agreements.
The market for bio-resources is **highly imperfect** or **inefficient**, hence not able to fix the **equilibrium price**.

The existing price for bio-resources at forest gate or any other collection point is **not the true VALUE**.

Valuation is an important **policy tool**: to fix benefit sharing and signing ABS agreements.

ABS is an internal financial source and incentive mechanism for preserving biodiversity.

Reliable database is a **challenge** and **accuracy** of the value is always **debatable**.

NBA is currently working on methodology for bio-resources valuation.
Thank You