



सत्यमेव जयते

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 systems 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.**

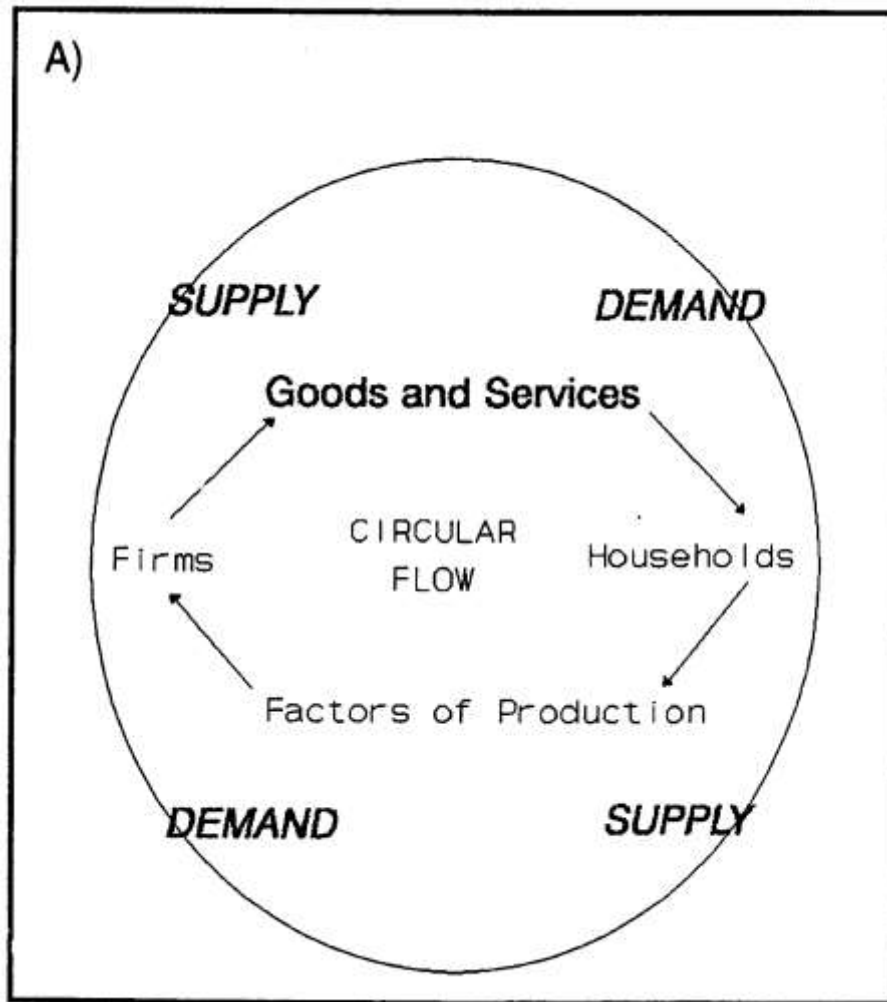


Changing Trends

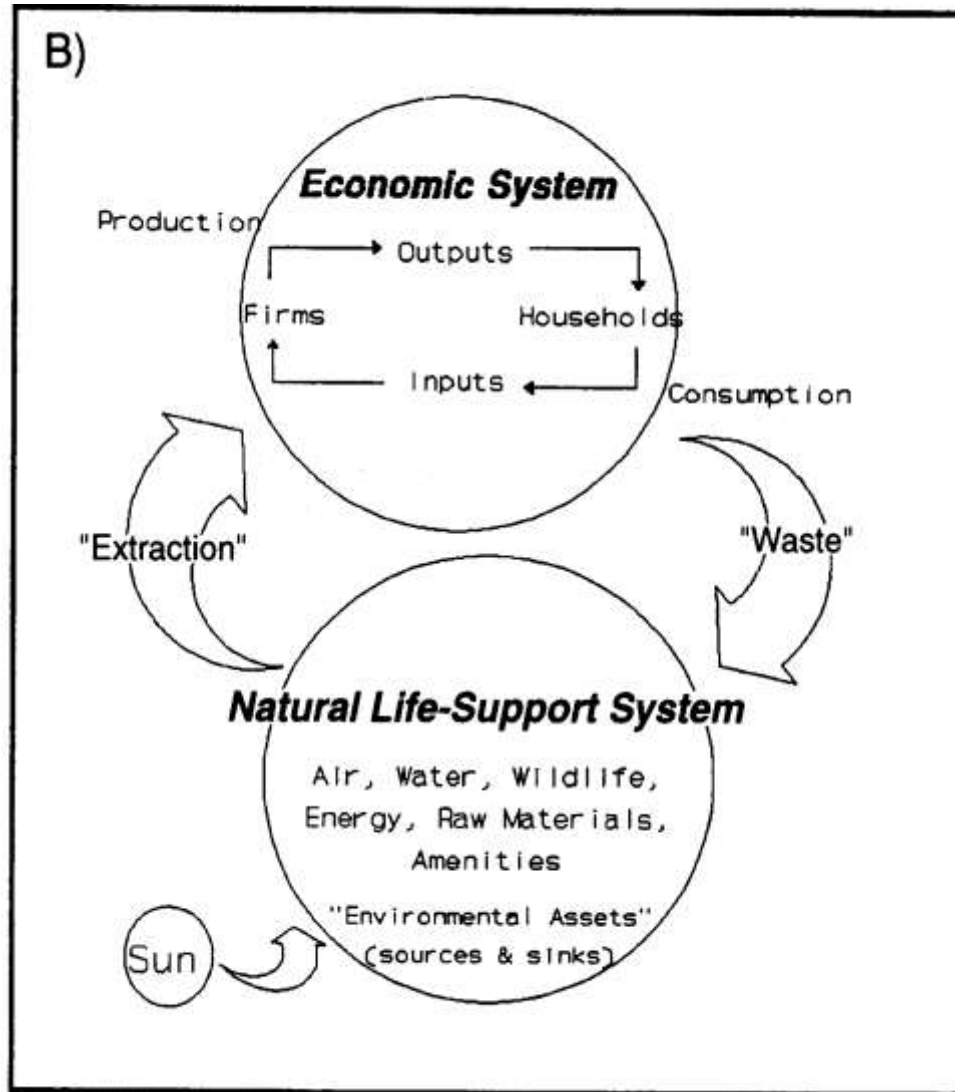
- Environmental concerns overriding development concerns
- Abilities to translate potential of biodiversity and ecosystem services to real
- **Science-policy interface being revisited.**



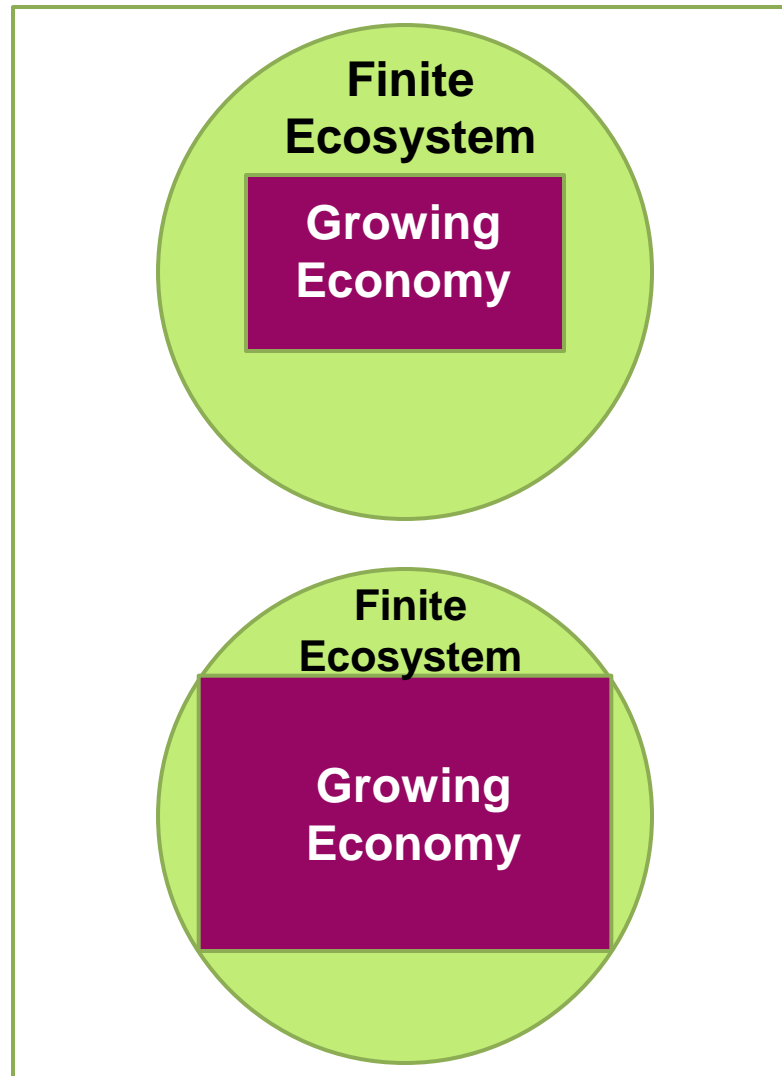
THE ECONOMY AS AN ISOLATED SYSTEM



LINKING ECONOMIC AND ECOLOGICAL SYSTEM



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?



Biodiversity: Economic Significance Vs Market Failure

- Globally more than 1.3 billion people depend on biodiversity and on basic ecosystem goods and services for their **livelihood** (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**



Linkages Between Biodiversity and Bio-resources

Biodiversity

Bio-resources

Forests
Water body
Paddy fields
Garden

Medicinal plants
Honey
Timber
Fish
Fruits
Grains
Seeds



Types of Genetic or Bio-resources

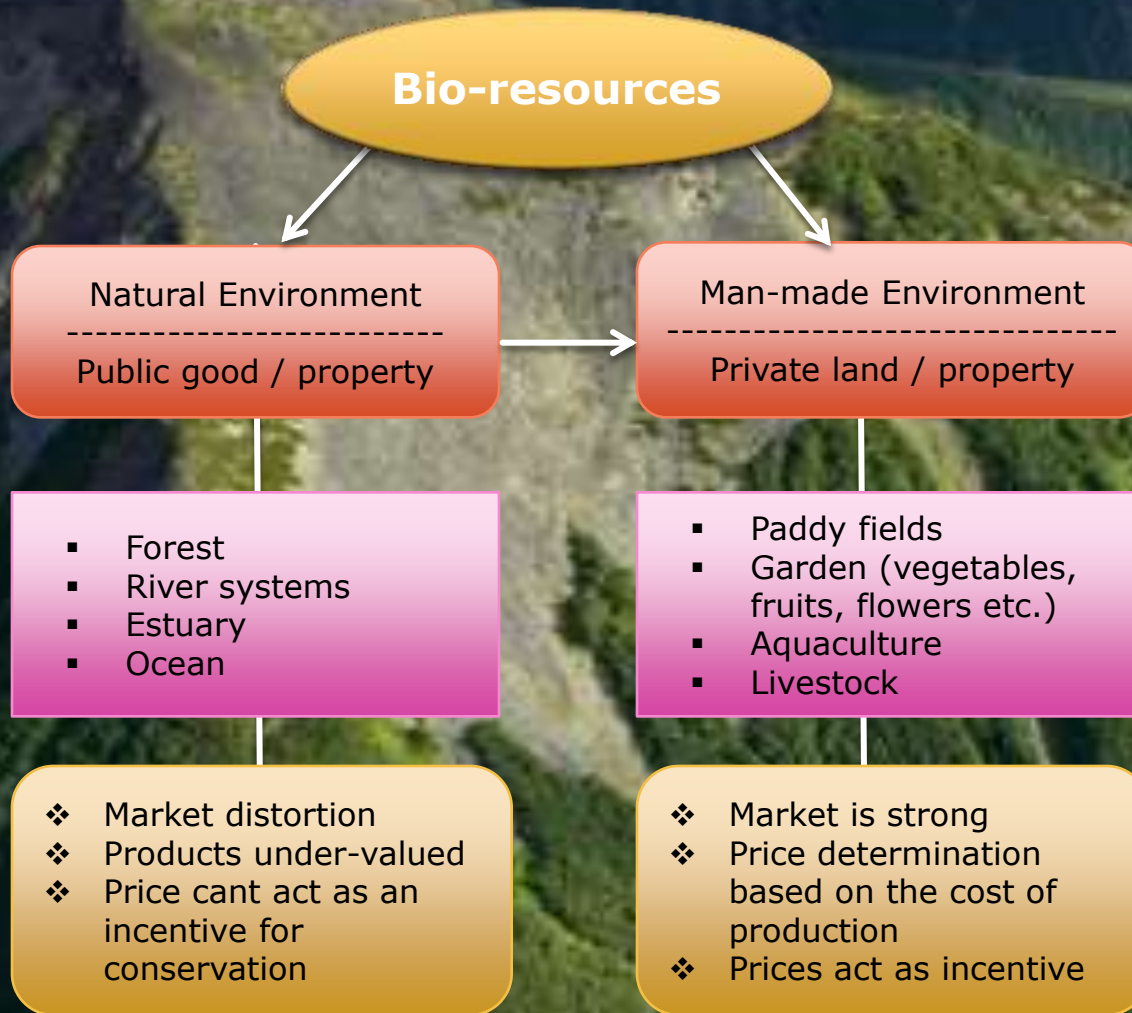
Genetic or Bio-resources

IN – SITU
Eco-system and
Natural Habitation

EX – SITU
Botanical Garden,
Commercial /
University Collection



Bio-resources: Property Rights



ABS an Emerging Option for Biodiversity Management and Innovative Financing

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 attain 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

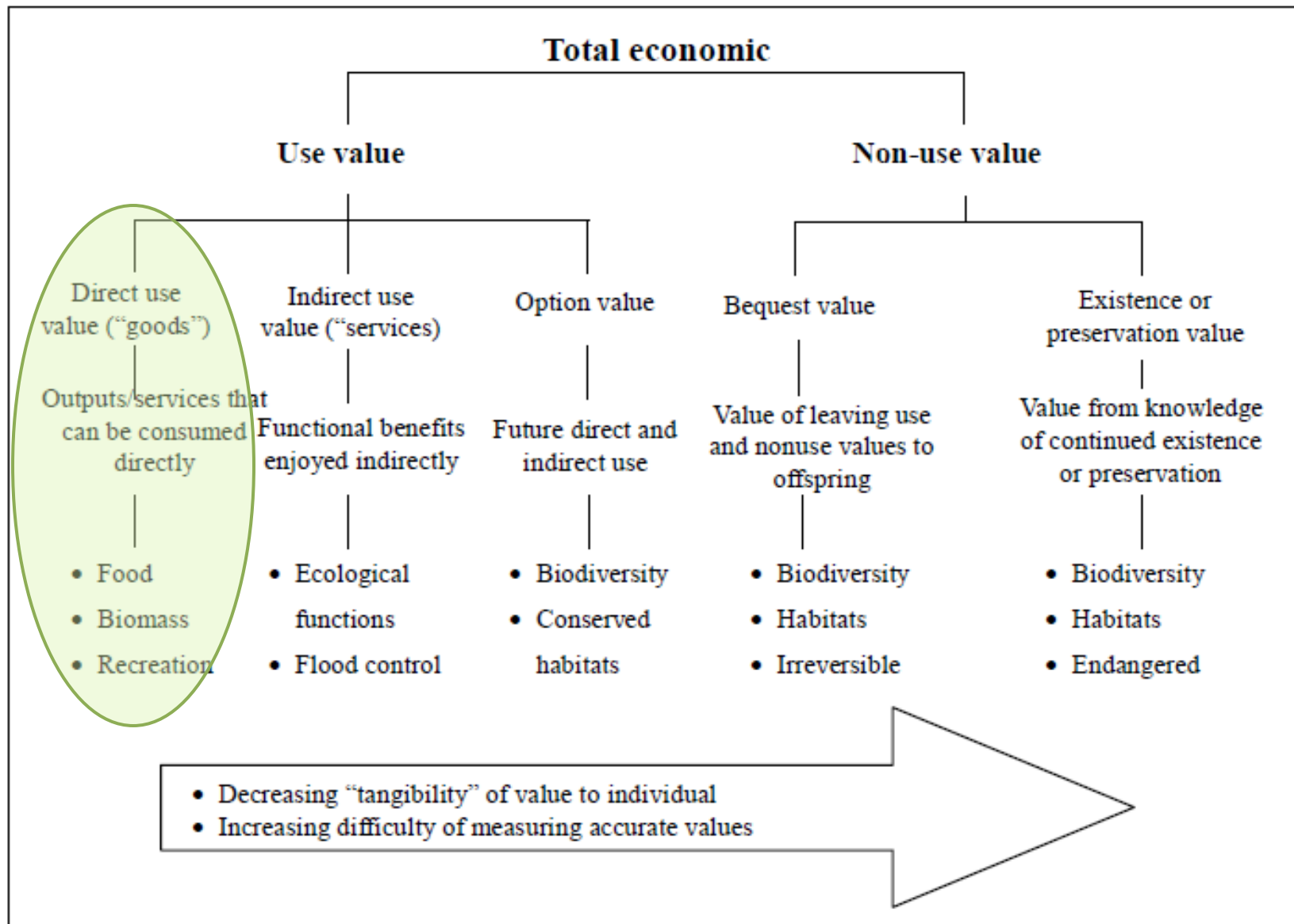


Fig. 1 Total Economic Value of Coastal Resources

Methods

Ecosystems

- Market prices
- Replacement costs
- Damage cost avoided
- Production function
- Hedonic price
- Travel cost and
- Contingent valuation
- Participatory env. valuation
- Benefits transfer



Bio-resources

Value Chain and Production Function Analysis

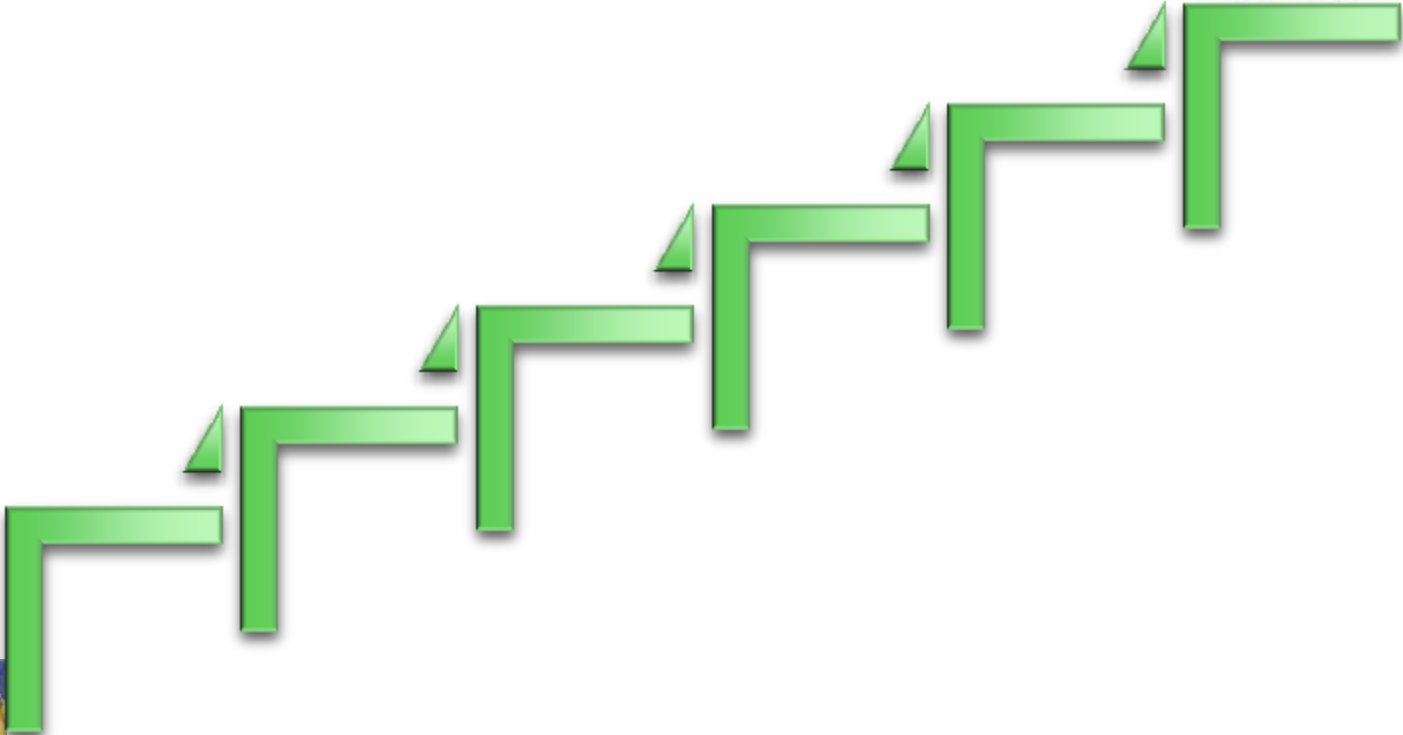
- Value chain refers to coordinated relationships between actors who are involved directly and indirectly in a **productive activity**, with the aim of taking a product from **supplier** → manufacturer → wholesaler → retailer → consumer



Based on actual market value



Bio-product Value Addition



Based on notional value

Bio-resources real price estimation: **basic/general** steps

Steps	Tasks	Sources of Information
First	Identification of the key bio-products (having economic and ABS potential) extracted from a geographical area / ecosystem	BMC, PBR, local community, indigenous group, forest department
Second	Understand its potential / purpose / usage	BMC, traders, research organizations, government departments, industries
Third	Identify its leverage / movements: local → regional → state → national → international	BMC, traders, industrial association, companies, exporters, customs department
Fourth	Prioritize the promising uses based on value addition (ranking)	Industries, traders, research organizations.



Bio-resources real price estimation: **specific** steps

Steps	Tasks	Sources of Information
First	Select any manufacturing or bio-resources processing company	Appropriate industry
Second	Estimate the transaction cost of bio-resources: from forest gate to company gate. (Price at company gate – price at forest gate)	Forest dwellers, traders, industries
Third	Identify the major production steps	Company management and production manager
Fourth	Identify the different factors of production involved in each stage and its cost / remuneration (Factor cost method)	Company management, production manager and labourers
Fifth	Identify the abnormal benefit claimers and rates (differences between company rate with general market rate)	Company management, production manager, labourers, industrial/govt. departments.
Sixth	Fix the optimum benefit and share the surplus to local communities who preserve the bio-resources (Royalty; institutional mechanism for distribution)	Company management, production manager, labourers, industrial/govt. departments and BMC



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**.



Photo set1: Various animal species



Photos from biskitz4chez 2004, and A.M. Okeyo, ILRI.



- 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

