



Lecture 2

Economic and Financial Aspects of Biodiversity.



How and Why put value on Biodiversity?

Why?

- Life on earth is based on natural/biological resources.
- Biological resources have finite limits.
- Modern technologies, development, social organization can enhance or deplete biological resources.
- Effective management can see bio resources both survive and increase while used – i.e. sustainability.



How and Why put value on Biodiversity?

Why?

- To gain attention by governments and decision-makers.
- There is inherent value in biological resources to:
 - 1) Social development
 - 2) Economic development
- There is economic justification in exploiting resources.



How and Why put value on Biodiversity?

Why?

- Because world governments have committed to do so.

The World Charter for Nature – adopted by the General Assembly of the UN, Oct. 28, 1982.

Calls for cooperative strategies to conserve, research and monitor species and ecosystems.

However, WCN has been virtually forgotten by governments and conservationists.



How and Why put value on Biodiversity?

Why?

- **To assess priority governments give to investments in conserving bio-resources, they need indication of the contribution those resources make to the national economy.**



How and Why put value on Biodiversity?

How?

- **Problems in economic analyses of biodiversity:**
 - 1) Standard models don't sufficiently assess long-term benefits.
 - 2) Assessing value of natural processes is still underdeveloped.
 - 3) Cultural, ethical, aesthetic, scientific, medical considerations usually ignored, i.e. non-monetary



How and Why put value on Biodiversity?

How?

Ehrenfeld (1988) –

“ It is certain that if we persist in this crusade to determine value where value ought to be evident, we will be left with nothing but our greed when the dust finally settles. I should make it clear that I am referring not just to the effort to put an actual price on biological diversity but also to the attempt to rephrase the price in terms of a nebulous survival value...As shown by the example of the faltering search for new drugs in the tropics, economic criteria of value are shifting, fluid, and utterly opportunistic...This is the opposite value system needed to conserve biological diversity over the course of decades and centuries.”



How and Why put value on Biodiversity?

How?

- **Problems in economic analyses of biodiversity:**
 - 4) Some scientists argue that we do not know enough about any gene, species, ecosystem to evaluate its worth ecologically or economically in the grand scheme.
 - 5) While public may recognize intangible values of biodiversity, development tends to stress material benefits.



How and Why put value on Biodiversity?

How?

- **Many methods to assess value because:**

methods used for one resource or objective may be inappropriate for other resources or objectives.

purposes for measuring benefits may be different between resources.

i.e. Value of coral reef for local fishers may be different from value for tourism. Need to be measured appropriately



How and Why put value on Biodiversity?

How?

Two main approaches:

1. Direct Values

- A). “Consumptive Use Value”
- B). “Productive Use Value”

2. Indirect Values

- A). “Non-consumptive Use Value”
- B). “Option Value”
- C). “Existence Value”



1. Direct Values -

A). “Consumptive Use Value”

Non-market value placed on bio-resource. Products are consumed directly, without being passed on in the market place.

i.e. about 85% of CDN’s participate in “outdoors” activities – benefit of > \$800 m annually.

i.e. Amazon rain forest – 4 Indian groups use 49 - 79% of trees

i.e. Botswana - >50 spp wild animals provide about 40% of annual diet. 3 million kg of springhare alone.



1. Direct Values -

A). “Consumptive Use Value”

CUV seldom appears in national income accounts, but could easily be included in measures such as GDP.

How to value CUV?

Estimate cost if resource was sold at market value, rather than being consumed.

i.e. 1988 study, Sarawak, Malaysia – wild pigs harvested by hunters had market value of \$100 m/yr.



1. Direct Values -

A). “Consumptive Use Value”

With such high CUV’s on resources may lead to :

1. overexploitation of wildlife in developing countries.
2. loss of traditional controls on hunting.
3. Loss of wildlife populations at productive levels.

BUT, benefits to:

1. communities closest to resource if harvested sustainably (proper management).



1. Direct Values -

A). “Productive Use Value”

Value assigned to products commercially harvested for market sales. Estimates of value usually made at production end, rather than retail end (after much cost and value added).

i.e. estimated production value of cascara (laxative from tree bark) in US - \$1m/yr. Retail value –
> \$75 m/yr.



1. Direct Values -

A). “Productive Use Value”

Therefore PUV :

1. is often only value of biological resources reflected in national income accounts.
2. may have major impact on national economy.



2. Indirect Values -

A). “Non-consumptive Use Value”

B) “Option Value”

C) “Existence Value”

Find internet sources that describe these and provide an example or two.



<http://csf.colorado.edu/ISEE/>

**[http://gcrio.gcrio.org/CONSEQUENCE
S/vol3no1/biodiversity.html](http://gcrio.gcrio.org/CONSEQUENCES/vol3no1/biodiversity.html)**