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Bio-resources Valuation for Access and Benefit Sharing: Methodology

Prakash Nelliyat

National Biodiversity Authority

Shimla

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Methodology for Bio-resources Valuation

* Methodology development is a process

1. Discussions with Experts

***2. Literature* Collection and Review**

3. Industrial Visits and Discussions

Possible Methodologies for Valuation of Bio-resources

- Since the **existing literature** on environmental economics has not debated much on this issue, we do not have any standard reference for framing the methodology.

- However, based on the **rough insights from selected literature** and **experts opinion**, certain methodologies or approaches have been drafted.

Valuation of Bio-resources: Possible Approaches

- Value Chain Analysis
- The "Maximum Willingness to Pay" Approach (users)
- Application of the Appropriate Economic Instruments: (tax, cess, charges, royalty etc.)
- Minimum Support Price for Bio-resources
- Collectors' Willingness to Accept and Minimum Livelihood.

Value Chain Analysis: (A Broader Framework)

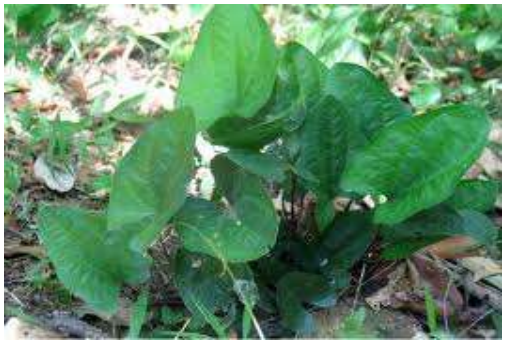
- Many value added products are derived from bio-resources.

- Value addition: through **transaction costs or and processing / manufacturing costs**

→ **Transaction costs**

→ Processing / Manufacturing Costs

- Certain bio-resources may act as basic raw-material for manufacturing final products
- Eg: *Jeevani* an immuno-modulatory product (ayurvedic medicine) is manufactured from the plant known as *Arogyapacha*



- *Arogyapacha* is an **unavoidable input**, but not an **exclusive one**
- Many other products and knowledge/skill (research and development) also attribute to such development
- **Amortised (Remunerated)** pricing technique is relevant to estimate the real price of bio-resources.

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Bio-product Value Addition

Based on actual market value

Based on notional value

Bio-resources real price estimation: basic/general steps

Steps	Tasks	Sources of Information
First	Identification of the **key bio-resources** (having economic and ABS potential) extracted from a geographical area / ecosystem	BMC, PBR, local community, indigenous group, forest department
Second	Understand the **status of the bio-resources** *(Rare Endangered and Threatening – RET, Abundant, Endemic).* For providing a **weightage in valuation process (rent)**	BMC, PBR, local community, indigenous group, village taxonomists, forest department
Third	Understand its **potential /** purpose / usage	BMC, traders, research organizations, government departments, industries
Fourth	Identify its leverage / **movements**: local → regional → state → national → international	BMC, traders, industrial association, companies, exporters, customs department
Fifth	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

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The "Maximum Willingness to Pay" Approach:

- In bio-resources based economic activities and exchange:

The provider or **community may not know the actual value**
But the **buyers** (industries and R&D companies) are **fully aware**

- Hence, the **maximum willingness to pay** for bio-resources by the user at their **collection point will reveal their 'real value**'

Pre-conditions and assumptions

- The final users of the bio-resources need to **directly procure the resources** from the community (not be through traders).
- The **community's empowerment** in bio-resources should be sensitized (active involvement in the exchange process like auction)
- Role of local institutions like **panchayats and BMCs** is significant.

- The community (as a custodian of resources) can **demand a higher price** for each bio-resource it exchanges at its collection point.
- Automatically, the **industries will come forward for negotiation**, (unavoidable input factor in their production).
- The **negotiated value** will act as the "**real value" for BR**.
- Through this method one can **confine the value of the resources at their source**, rather than targeting the final products percentage share, which is becoming more controversial.

Application of the Appropriate Economic Instruments: (tax, cess, charges, royalty etc.)

- The bio-resources which come under the purview of the ABS are predominantly the **public owned resources or state property**.
- Here, communities obtain the privilege of the users' right. Since it is a state property, **any resource-based management issues** (such as scarcity, extension and unsustainability) should **come under the purview of the Government**.
- BR have **multiple uses and diverse product manufacturing capacity and value generation** (not a uniform resource like water).
- With this consideration the government authority concerned, can **fix a 'tax' or apply any other appropriate instrument for the extraction** of the particular resources.

Criteria need to be considered, before **selecting the appropriate economic instruments and fixing the tax rate**.

- An inventory of Bio-resources with species current stocks, volume of extraction, sustainability rate, extinction level
- Anticipated changes in the resources in future

- It can also act as an **economic disincentive** in the extraction of bio-resources, and in saving the biodiversity.

- However, as the money derived through tax goes as **public revenue**, (direct application for conservation of biodiversity may be an issue).

Minimum Support Price for Bio-resources

- The authority concerned (BMC) can fix a **support price** (with the consultation of experts) for the bio-resources prevailing in their jurisdiction.

- **The availability of the resources, demand, purpose of collection, usage in industries, value generation capacity** etc., may be considered as the criteria for fixing the support prices.

Collectors' Willingness to Accept and Minimum Livelihood

- Generally, the local communities put in their **hard work and unique knowledge** in collecting the bio-resources from the wild.
- But in most cases, they are compelled to exchange the resources at **negligible prices**.
- **Market imperfection, lack of ownership rights of the resources, and the least bargaining ability** contribute to lowering of the prices.
- Hence, the communities' **willingness to accept** should be considered.
- **Further, a minimum or standard amount for rural livelihood or wage** can be considered in the bio-resources collectors' case, and that amount **fixed as the value of the bio-resources that he/she collected per day.**

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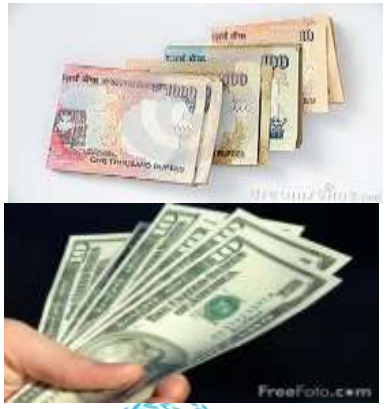
In Brief

- **It is significant to develop case specific and separate formulas for valuing bio-resources.**

- **In this context bio-resources are categorised under 6 heads.**



Methods Derived from the Expert Committee Meeting (13th July 2013)

	Category of Bio-resources	Possible Methodological Approach	Payment Detail
A A1	Bio Pharmaceuticals (modern drugs) (Population status, Rare Endangered and Threatening (RET), Abundant, Endemic)	Scarcity Rent (SR)+ Information Rent (IR): share a proportion attributable to the product. Endemic Rent (ER)	Initial payment + payment at the time of product development + payment at marketing stage. Monetary + Non- Monetary (for endemic and RET)
B	Bio-technology (Seed / Agriculture Related), Land races, Microbes,	Information Rent (IR): share a proportion attributable to the product.	Initial payment + payment at the time of product development + payment at marketing stage Monetary + Non- Monetary (for endemic and RET)
C	Crop protection products	Information Rent (IR) :share a proportion attributable to the product.	One time
D	Botanicals (AYUSH)	Based on the proportion of Net Present Value (NPV) of the profit x the contribution of input to the out put	One time
E	Nutraceuticals / Personal Products cosmetics	Based on the proportion of NPV of the profit x the contribution of input to the out put	One time
F	Academia / R&D (non-commercial scientific research)	Onetime fee + renegotiation change in intent	One time

Aspects to Consider

***Aim**: Identify the proportion of bio-resources (value) in the NPV of the product*

Population status

- *Rare Endangered and Threatening (RET) Species*
- *Abundant*
- *Endemic*

Rent

- Scarcity Rent
- Information Rent
- Endemic Rent

RENT:

- Rent for the Resources is the difference between the value (to the users) and the costs of obtaining/exploiting the resources.

Rent = Value – Cost

Scarcity Rent(S.R)

- S R is the value derived from the limited stock of resources.

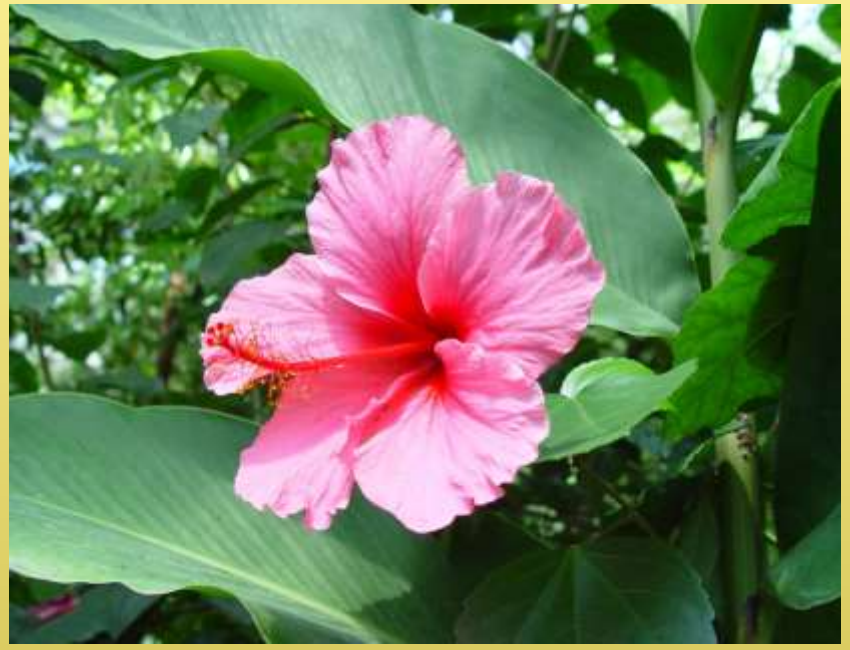
- If resources stock is not available for a company, No production !

Information Rent(IR)

- Information is a valuable economic resources.
- Any research (for bio-prospecting) starts with prior information.
- For Eg: A particular plant has medicinal value (remedy for a specific health problem).
- These kind of information is important for drug manufacturing companies.
- Discovery will be made easily (time and cost saving)
- Therefore, **the value/profit acquired through relevant prior information (high probability leads) command information rent.**
- Information are with local communities (traditional knowledge)
- It can attributes in the entire stage of product manufacturing (origin to the final stage of production)

Endemic Rent(ER)

- ER is the value derived from an endemic species, they are unique and regional Specific.



Thank You

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