Ecosystem Services and Valuation

Day 8: From Nature to Value

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Day 8 Agenda

Morning (09:30 – 13:00)

- **Session 1: Ecosystem Services Accounting**
  - Classification (CICES)
  - Physical Flow Accounts
  - "The Logic Chain"
- **Session 2: Valuation Methods**
  - Market Price
  - Avoided Cost & Replacement Cost
  - Benefit Transfer
  - *Caution:* When not to monetise.

Afternoon (14:00 – 16:00)

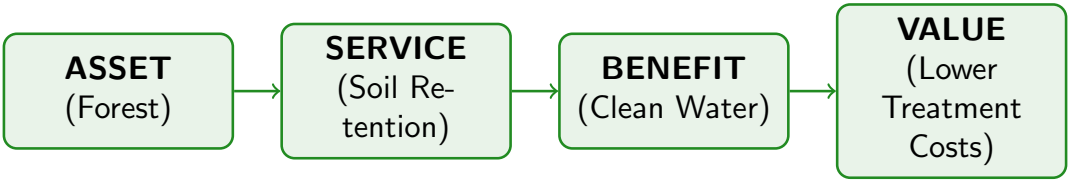
- **Session 3: Rwanda Case Exercise**
  - Selecting priority services
  - Designing a policy-safe valuation plan

Day 8 Output

Ecosystem services valuation plan (policy-safe).

The Logic Chain

How do we connect Nature to People?



We must measure the Service (Physical Flow) before we can Value it.

Classifying Services (SEEA/CICES)

1. **Provisioning**
   - Tangible goods.
   - Timber
   - Water
   - Crops
   - Genetic material
2. **Regulating**
   - Processes that control the environment.
   - Carbon sequestration
   - Flood control
   - Soil erosion control
3. **Cultural**
   - Non-material benefits.
   - Tourism
   - Recreation
   - Spiritual value

Valuation

Putting a Price on the Priceless?

Why Value? To make nature visible in Ministry of Finance decisions (Cost-Benefit Analysis).

Method 1: Market Prices (Easiest)

Used for **Provisioning Services**.

Example: Timber

$$\text{Value} = \text{Quantity} \times (\text{Market Price} - \text{Production Costs})$$

- **Called:** Resource Rent.
- **Pros:** Data is available.
- **Cons:** Doesn't capture the "Free" gifts of nature often.

Method 2: Avoided Cost

Used for **Regulating Services**.

Example: Soil Erosion Control

If the forest wasn't there, how much would we spend to dredge the river/dam?

- **Context:** Very relevant for Rwanda (Sebeya Catchment).
- **Logic:** The forest is "saving" the government money.

Method 3: Replacement Cost

Used for **Water Regulation**.

Example: Wetland Water Filtration

If the wetland is destroyed, how much does it cost to build a Water Treatment Plant to achieve the same water quality?

- **Note:** The replacement must be the *least-cost alternative*.

Coffee Break

11:00 – 11:30

Special Case: Carbon Valuation

Social Cost of Carbon (SCC) vs. Market Price

- **Market Price:** Price on carbon trading markets (e.g., \$5-10 / ton). *Too low?*
- **Social Cost:** The global damage caused by 1 ton of CO2 (e.g., \$100+ / ton).

Recommendation for Rwanda

Use a conservative market-based approach for national accounts to remain "Policy Safe" and credible.

Lunch Break

13:00 – 14:00

Session 3: Designing a Valuation Plan

Task: Pick one service and design the valuation.

1. **Service:** Sediment Retention (Soil protection).
2. **Beneficiary:** Hydro-power plant (avoided turbine damage).
3. **Method:** Avoided dredging cost.
4. **Data Needed:**
   - Sediment load with forest vs. without forest (InVEST Model).
   - Cost of dredging $1m^3$ of sediment.

Day 8 Summary

Key Takeaways

1. **Sequence:** Measure Physical Flows first. Only monetise what you can robustly measure.
2. **Methods:** Stick to "Exchange Values" (Market, Cost-based) for SEEA. Avoid "Willingness to Pay" (too subjective for National Accounts).
3. **Policy Use:** Valuation helps justify budget allocation to environment sectors by showing "Return on Investment".

Tomorrow: Using these accounts for Policy & Planning.

Murakoze Cyane!

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