Payments for Ecosystem Services

Bhaskar Singh Karky (PhD)
Resource Economist
ICIMOD

International Centre for Integrated Mountain Development

Kathmandu, Nepal

ICIMOD

FOR MOUNTAINS AND PEOPLE

Setting the context

ICIMOD

FOR MOUNTAINS AND PEOPLE

- Environmental degradation is continuing globally
- Deforestation, habitat loss, species extinction, increase in air and water pollution,
- Unplanned development, land slides, unsustainable extraction of ground water, etc.
- From economic perspective, market failures is a driver for environmental degradation

Drivers of Deforestation

ICIMOD

Source: REDD Cell, MOFSC

Drivers of Forest Degradation

ICIMOD

Source: REDD Cell, MOFSC

Policy failures

ICIMOD

Source: REDD Cell, MOFSC

Market failure characteristics

ICIMOD

FOR MOUNTAINS AND PEOPLE

- Open access resource
  - Private cost of using more or polluting more is less than social cost incurred by entire community. E.g .fishing in sea,
- Externalities prevail
  - Cost that is not incurred by users or polluters but paid by the society. E.g. emitting CO2
- Failure of provision
  - Not possible to exclude other from using the services. E.g . Street lamps

All these characters pertain to the Environment Sector. And because of this trait, environment degradation continues.

Policy instruments for environment management

ICIMOD

FOR MOUNTAINS AND PEOPLE

- Regulatory instruments
  - Command & control through bans, restrictions, etc. imposed by government
  - Either comply or be punished
- Market instruments
  - Incentive based approach or marked based rely on tradable permits schemes, tax rebates, carbon credits, fines, etc. directed by market.
  - Is flexible and cost effective
  - This instruments tries to correct market failures
- Combination of both
  - The middle path, uses both instruments e.g. taxes

Development of market mechanisms

ICIMOD

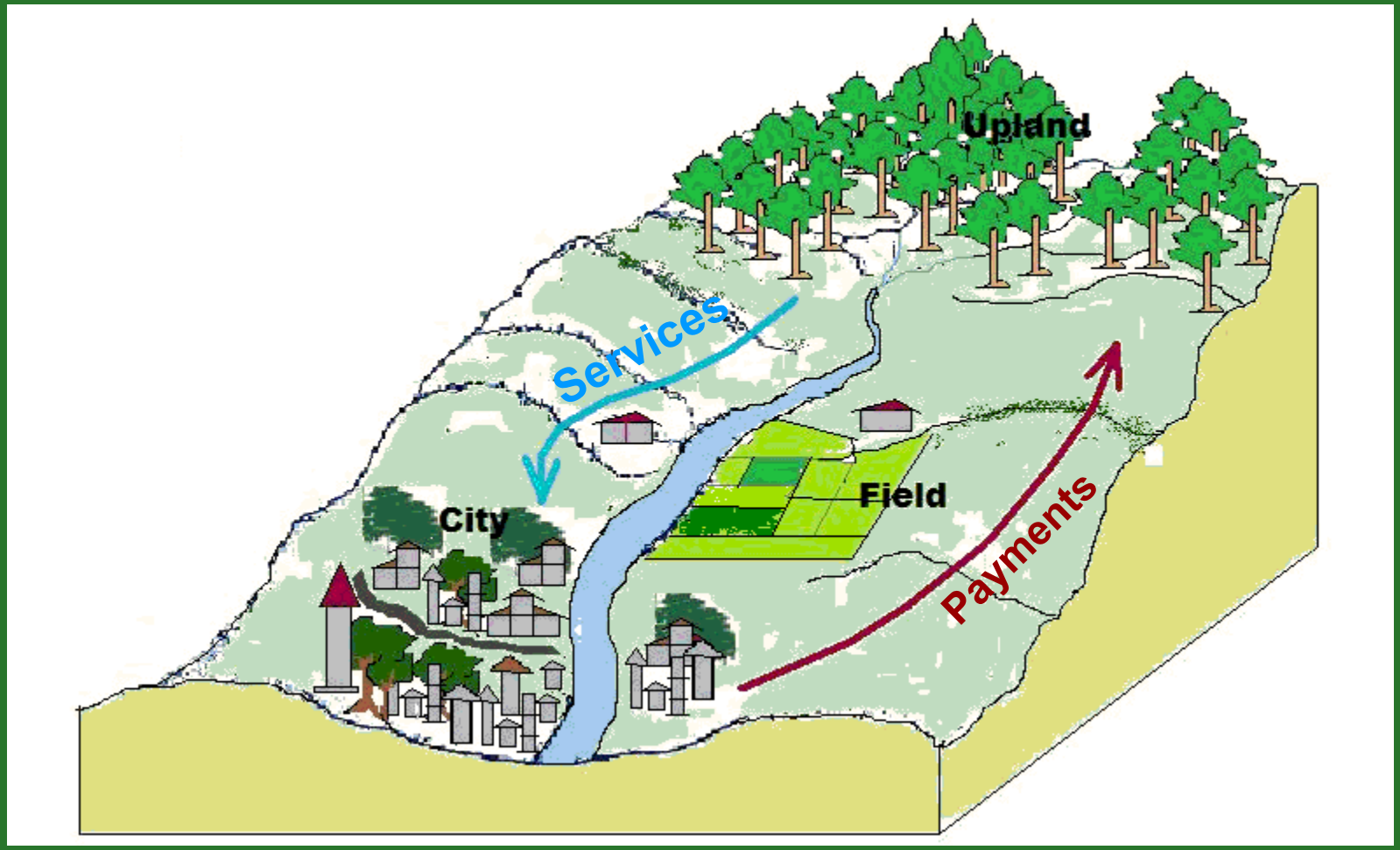
FOR MOUNTAINS AND PEOPLE

- Environment protection costs incurred in the private sector should not be offset by government subsidies.
- Polluter Pays Principle (PPP) i.e. polluters to pay for the damage.
- User-Pays-Principle (UPP) as an analogue of the PPP, in which governments would determine the social cost and calculate the fee for natural resource users accordingly.
- Market mechanisms are also enables a government to transfer costs for environmental protection to the private actor that pollute or use the environment resources.

Payment for Environmental Services

ICIMOD

FOR MOUNTAINS AND PEOPLE



Narrow Definition Payment for Environmental Services

ICIMOD

FOR MOUNTAINS AND PEOPLE

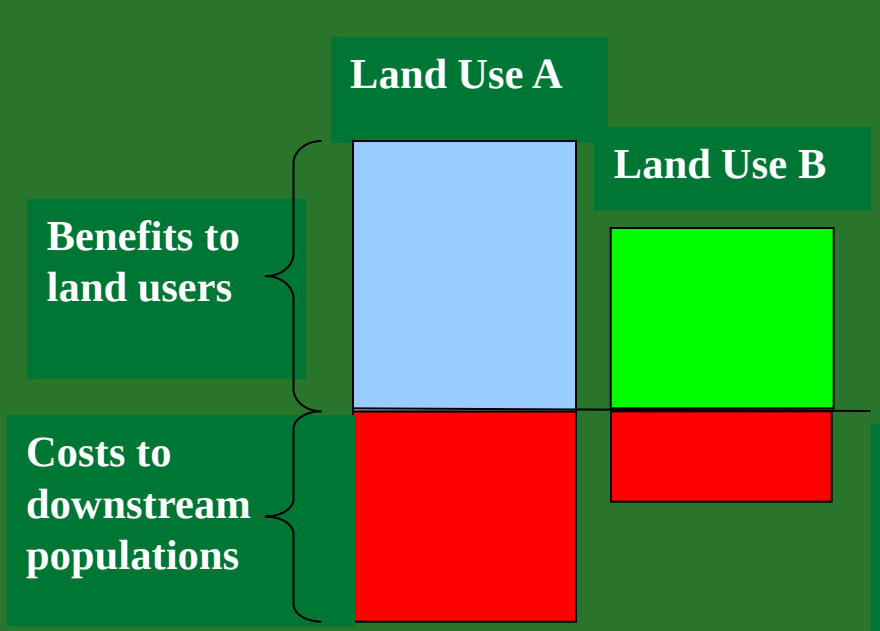
A PES scheme is

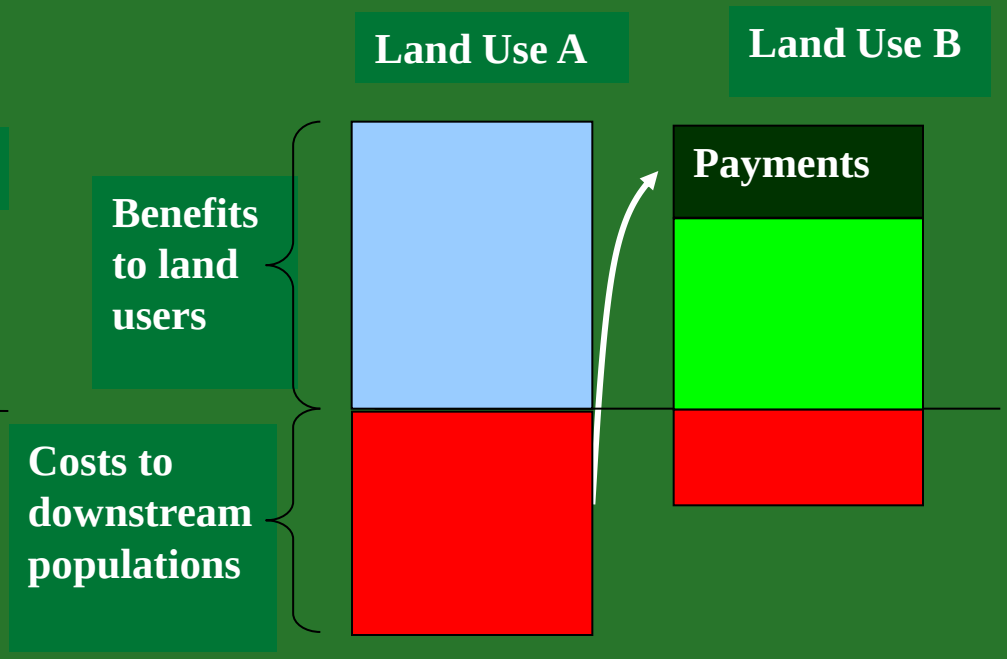
- a voluntary transaction in which
- a well defined environmental service (ES),
- is bought by at least one ES buyer - ‘user pays’
- from a minimum of one ES provider - ‘provider gets’
- if and only if the provider continues to supply that service (conditionality)

(http://web.worldbank.org, CIFOR)

Definition: Payment for Environmental Services

ICIMOD
FOR MOUNTAINS AND PEOPLE





- Land Use A more attractive to Land Users
- Land Use B better for societies as whole (including downstream population)

Source: http://www.worldbank.org

- Payment makes Land Use B more attractive to Land User A
- Land users are better off (payment and local benefits of B> local benefits of A)
- Downstream populations are better off (payment to Land User < cost would bear if A)

Case 1: Shivapuri NP (159 sq km)

ICIMOD

FOR MOUNTAINS AND PEOPLE

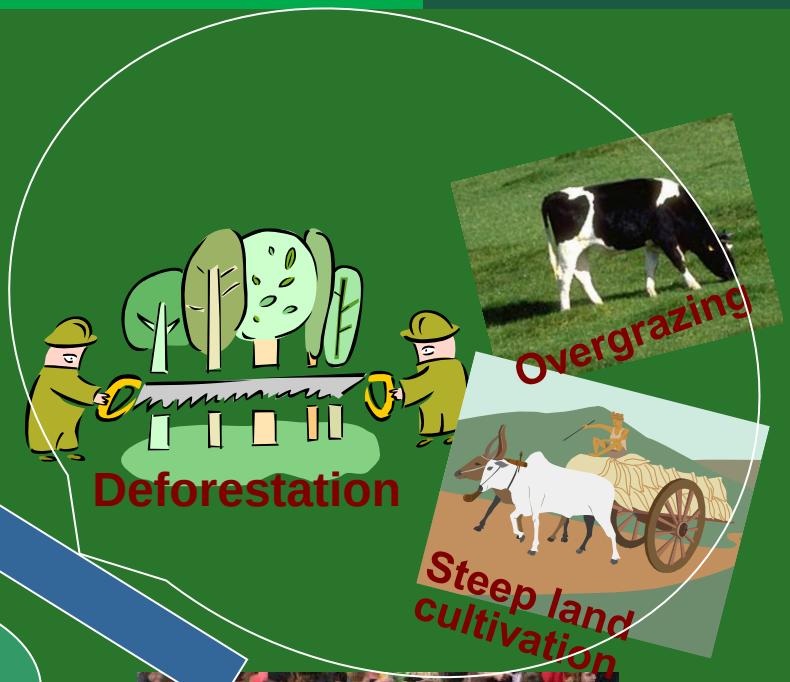
- **Measures for protection of the watershed**
  - Formation of Shivapuri Watershed Area Development Board in 1976
  - Declaration of the Shivapuri Protected Watershed Area in 1982
  - Declaration of Shivapuri Watershed and Wildlife Reserve in 1984
  - Declaration of the National Park in 2002
- **After protection of the watershed**

- About 30 million liters of water tapped daily
- Water supply from Shivapuri watershed - over 40% of drinking water to Kathmandu valley

Sundarijal catchment in Shivapuri National Park

ICIMOD

FOR MOUNTAINS AND PEOPLE



Watershed degradation

Example of degradation

Quality + Quantity
Drinking water

Scope for PES in Shivapuri

ICIMOD

FOR MOUNTAINS AND PEOPLE

- The study estimated the value of the water of Sundarijal catchment at USD 870 per ha per year. (159*870=138,330)
- The cost for living in the park (crop and livestock depredation) USD 498 per household per year.
- The cost of guarding & managing park USD 55 per ha annum.
- There is scope for PES as an alternative financing instrument for Park management

Case 2: Dhulikhel case study

ICIMOD

FOR MOUNTAINS AND PEOPLE

- Dhulikhel: prosperous small town near Kathmandu,
- Drinking water supply by 10 km pipeline,
- Drinking water scheme project by German co-operation 25 years ago, payments to landowners+school,
- Village provided water for free, protected forest
- Village has demanded yearly payment from Dhulihkel for 10 years,
- Stakeholders did negotiations, and PES operational

Steps of PES implementation in Dhulikhel

ICIMOD

FOR MOUNTAINS AND PEOPLE

1. Creating a mechanism for valuing an ES service,
2. Identifying provision of additional amounts of ES and creating a demand for it,
3. Negotiations
4. Creating an appropriate agreement and institutional framework,
5. Implementing and monitoring the agreement.

Pro-poor PES

ICIMOD

FOR MOUNTAINS AND PEOPLE

- PES is not primarily a poverty reduction tool
- PES affect poverty – who benefits?
- Payments to landowners
- Non-monetary benefits to communities (rewards) such as road access
- Payments can ensure property rights
- High obstacles (transactions costs) for poor

Success Factors for PES

ICIMOD

FOR MOUNTAINS AND PEOPLE

1. Identfying and Valueing ES - Getting the science right
2. Clear benefits by additionality of service
3. Existence of supply
4. Existence of demand
5. Implementing - creating and sustaining a market
6. Adapting to the context – pre-negotiation process
7. Supporting the negotiation process

Take home message

ICIMOD

FOR MOUNTAINS AND PEOPLE

- PES implementation is by far few, hi start up cost, markets cannot cover
- Review the development of supportive policies for implementing PES mechanism
- Pilot PES schemes
- Public awareness for greater support of PES (WTP)
- Clarification of the roles and responsibilities of multiple stakeholders

Thank you

ICIMOD

FOR MOUNTAINS AND PEOPLE