REWARDING UPLAND PEOPLE FOR ENVIRONMENTAL SERVICES THEY PROVIDE (RUPES)- BAKUN EXPERIENCE

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PROJECT SITE

BAKUN RUPES PILOT SITE

- Located at western tip of the Province of Benguet, Cordillera Administrative Region
- Seven barangays
- 31,000 Ha. of rugged mountains,
- The 1st awarded a Certificate of Ancestral Domain Title (CADT) in the Philippines
- Indigenous community- KANKANA-EY BAGO tribes
- Population of 15,357; 2,346 HH; 9,074 voters (2015)
- 3rd class municipality
- 336 Kms from Manila; 86 from Baguio City

THE RUPES FRAMEWORK

What is RUPES?

http://rupes.worldagroforestry.org/

- "Rewarding the Upland Poor for Environmental Services they Provide (RUPES)"
  - Phase 1: 2005 – 2008 - Local pilot projects
- Aims to enhance the livelihoods and reduce the upland poverty while conserving the environment
- Rewards for, Use of and Shared Investment in Pro-poor Environmental Services
  - RUPES II: 2009 – 2012 - National policy-making and institutional support

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RUPES
Rewarding Upland Poor for Environmental Services

Goal:

- Provide simple and practical examples of innovative institutional arrangements and reward mechanisms
- To foster local development (poverty reduction), while preserving and restoring the environment.

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RUPES
Rewarding Upland Poor for Environmental Services

Action Research Sites per Country

- China –
  - Tibet: rangeland carbon
  - Yunming: watershed services
- Indonesia:
  - Bungo: agrobiodiversity
  - Cidanau, Kuningan, Aceh and Sumberjaya: watershed services
  - Singkarak: voluntary carbon market
- the Philippines:
  - Kalahan: voluntary carbon market
  - Bakun and Lantapan: watershed services

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RUPES
Rewarding Upland Poor for Environmental Services

Understanding RUPES

SELLERS/PROVIDERS
- ➢Upland poor communities
- ➢Take care of the environment

provide various

Environmental Services
- Water services
- Carbon sequestered
- Biodiversity
- Landscape beauty

benefit

capacity-building

policy

RUPES

mainstream RES

innovations

intermediary

Rewards (monetary, non-monetary) defined by the community

BUYERS/CONSUMERS
- ▪Hydropower Companies
- ▪Carbon-emitting countries
- ▪Tourists
- ▪Government

- ➢Sellers continue servicing
- ➢Buyers continue rewarding

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for Environmental Services

RUPES Components

- National Policy Framework
- International and national buyer and investor engagement
- Environmental service intermediaries enabled
- Innovations in effective, efficient, and pro-poor RES mechanisms
- Mainstream RES into IFAD rural development initiatives

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RUPES
Rewarding Upland Poor
for Environmental Services

Intermediaries Enabling

- Trainings on Trees in Multi-Use Landscapes in Southeast Asia (TULSEA)
  - Tools in identifying and measuring ES including policy aspects
- China – concept and process of carbon-finance projects for rangelands
- Indonesia – participatory landscape assessment and water monitoring
- Philippines – rapid carbon sequestration appraisal, rapid agrobiodiversity appraisal, watershed conservation proposal writeshop
- Vietnam – concept, elements and process of RES

National Policy Framework

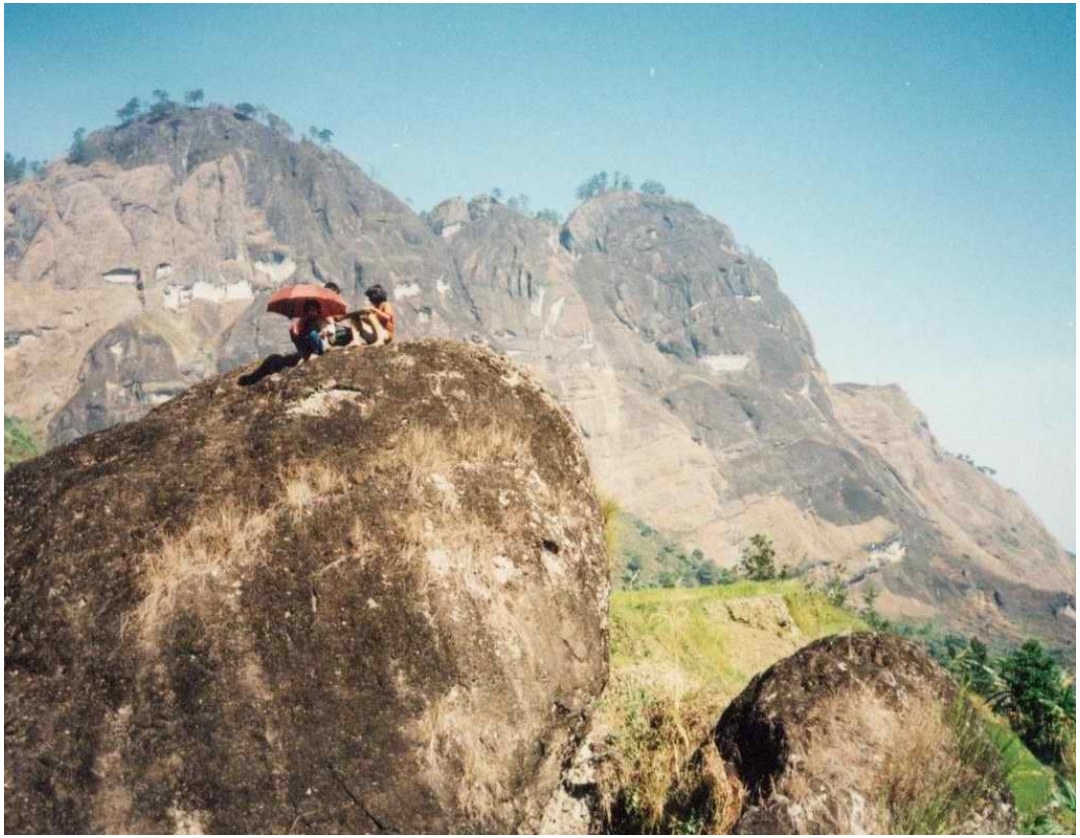
- Provided valuable information for use in policies – papers, briefs
- Top-down approach – China
- Indonesia and Philippines have national experts to promote RES
  - Indonesia - Community of Interest to Empower Environmental Services for Sustainable Development and Better Quality of Life (COMMITTEES)
    - Workshop on REDD and RES policies and regulations
    - Support Ministry of Environment in drafting ES laws
  - Philippines - Payment for Environmental Services Technical Working Group (PES-TWG)
    - 3rd National PES Conference

RES mechanisms

- The Philippines
  - Lantapan: five-year sustainable farming system that adopts RES as in incentive program
  - Bakun: Hydropower companies pay taxes to LGU
    - Total of P166.934M from statutory, negotiated and voluntary benefits from the power plants, paid in cash and in kind (as of 2006).
  - Currently developing proposals for voluntary incentives/rewards from hydropower companies
  - Kalahan:
    - Possible carbon sequestration payment (still being set up)
    - Finishing the re-survey of blocks and plots for the voluntary carbon market (VCM)

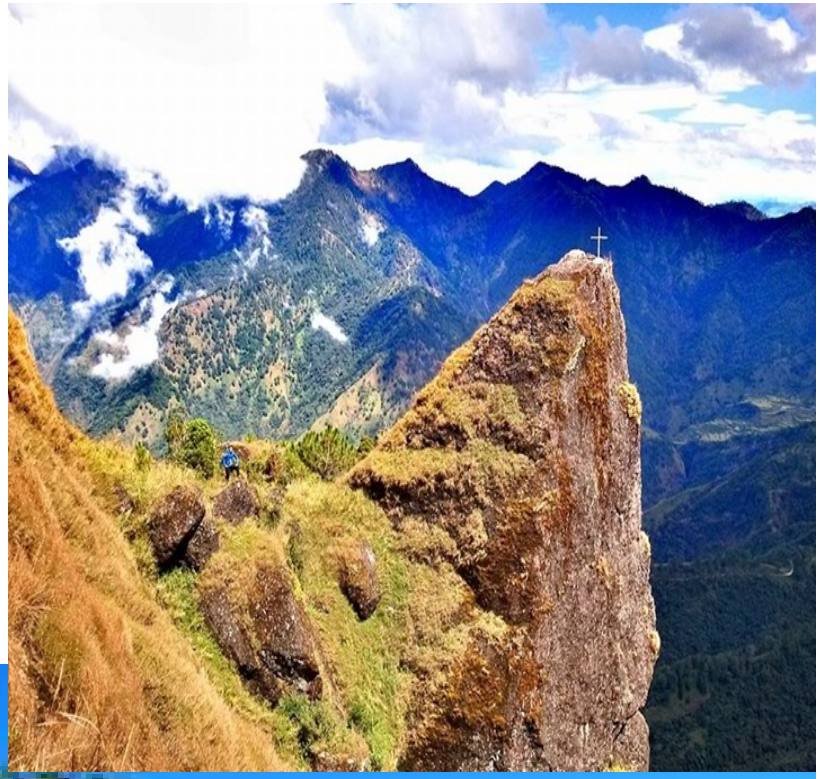
Bakun is a watershed
Total drainage area of
29 300 ha, consisting of
four big rivers and several
tributaries.

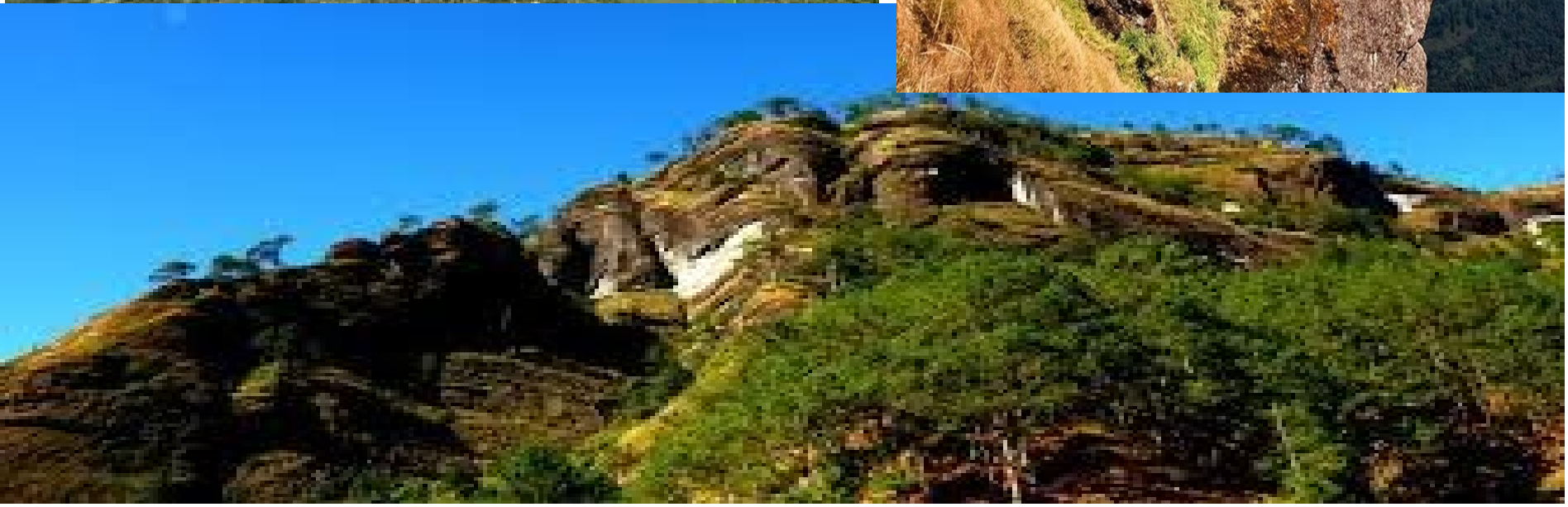
The Bakun and Gambang rivers support the hydroelectric power operations of two mini-hydro companies, Hedcor Inc and the Luzon Hydropower Corporation, which provide benefits to the municipality and LGU.



Rugged terrain- WEALTH IN RUN-OFF WATER

Mount Kabunian






Sirang Lente
Darwin F. Dalisay

Environmental services	Water for domestic, agricultural and industrial purposes
People who provide the services	The upland Kankanaey-Bago tribe
People who benefit from the services	Luzon Hydropower Corporation, Hedcor, lowland communities
People who act as intermediaries between the providers and the beneficiaries	Bakun Indigenous Tribes Organization, LGU

Four mini-hydro power plants in Bakun

- Bakun AC- watershed is Bakun, Plant at Alilem Ilocos Sur = 70 MW, 210 million KWH sold to NPC/BENECO
- FLS Plant , Poblacion, Bakun, 5.9 MW, 27 million KWH sold to NPC & Beneco
- Lon-oy Plant = 3.6 MW, 12 Million KWH sold to NPC & BENECO
- Lower Labay Plant = 2.4 MW , 14 Million KWH sold to NPC and BENECO




www.pagnapagna.com
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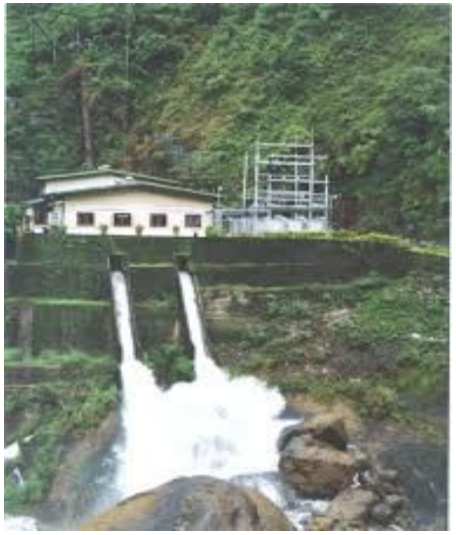
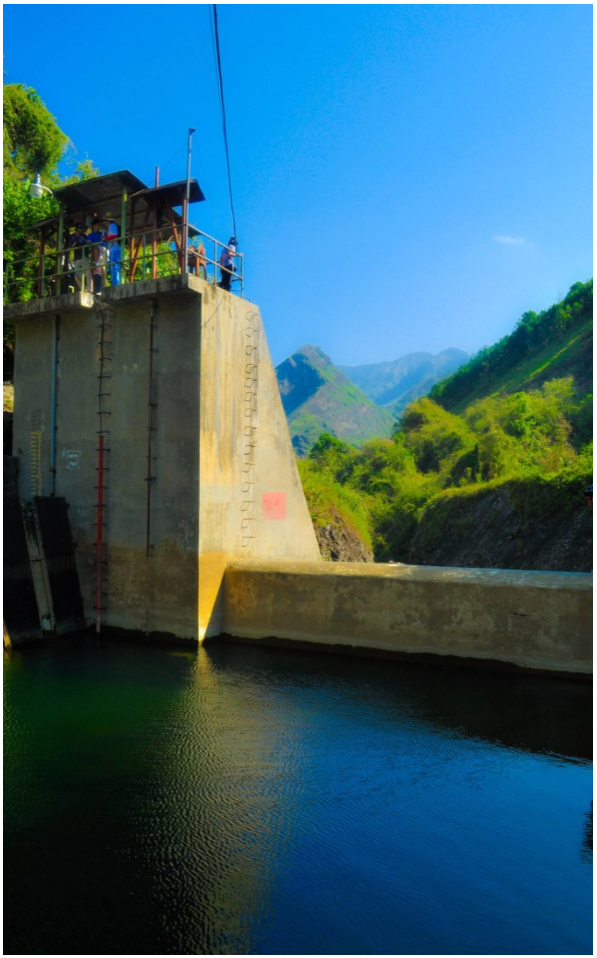



68.8MW Manolo Fortich Hydropower Project
(Photo update in October)



What is Run-off-river

- It is a design scheme for hydroelectric power generation that is least disruptive to the environment. The scheme works by redirecting river water through a weir into conveyance pipes towards a penstock and feeding it downhill to the power station.
- **How it works:**
- A portion of the water from the upper reaches of a river is diverted into a pipeline through an intake weir.
  This pipeline brings water to a forebay tank where the water flow is slowed down allowing sand and other particles to settle.
  From the forebay, clear water passes through a pressure pipe or penstock to the turbine.

- The natural force of gravity generates energy used to spin the turbine which is enclosed in a powerhouse together with the generator and control equipment.
- The spinning turbine enables the generator to produce electricity.
- From the turbine, the water is discharged down a tailrace or canal back into the river.

HEDCOR – THE BUYER OF ES

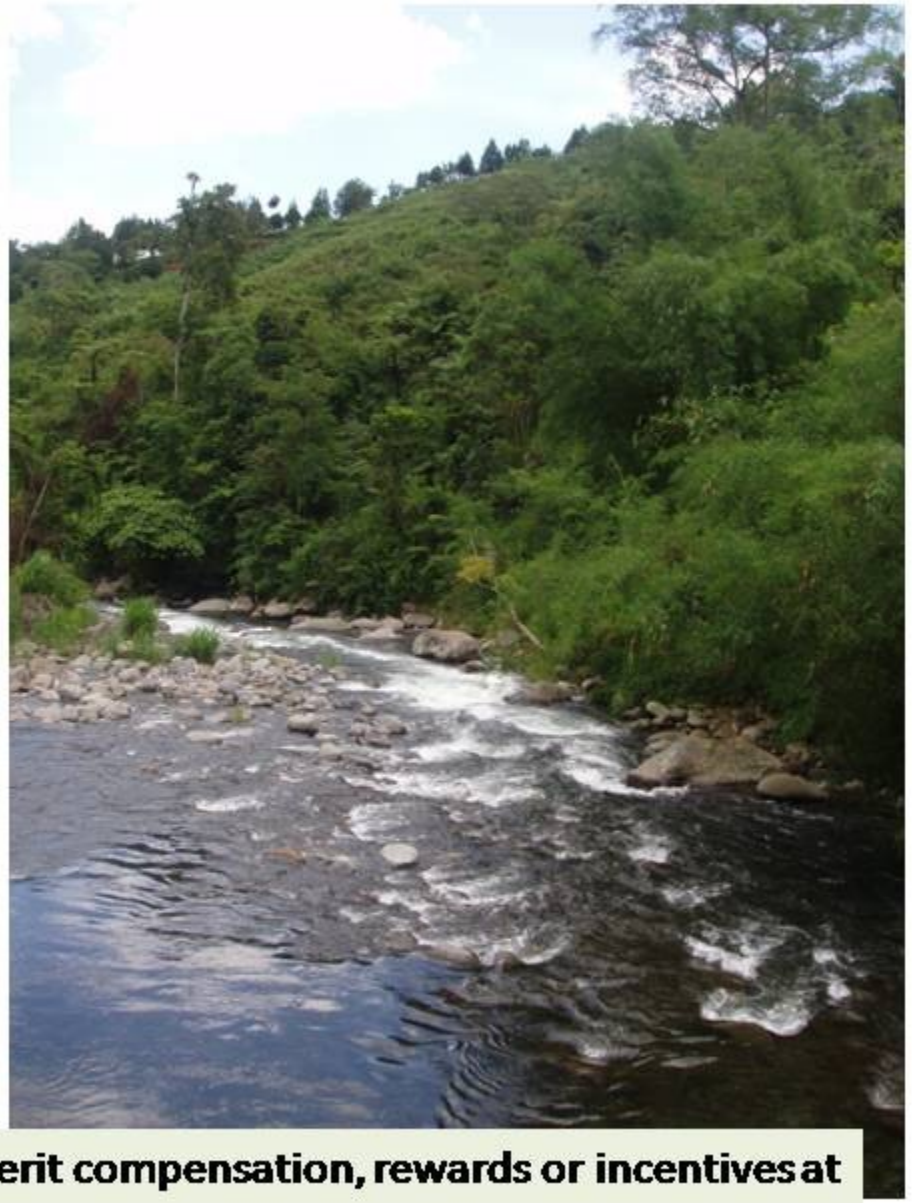
- Hedcor - mutually beneficial to partner with the communities which operate on run-of-river hydropower systems.
- Through corporate social responsibility projects on education, health, livelihood and environment,
- Remain steadfast in helping develop host communities.
- In return, the local residents help build, operate and maintain our plants.
- Partnership with the Aboitiz Foundation, Inc., the social development arm of Aboitiz Equity Ventures and the AboitizPower Corporation since 2000 brought about more social development projects to our host communities.

Rewards for environmental services (RES) – a contractual transaction between a buyer (e.g. local government, private company, tourist, city village) and a seller (e.g. farmer, farmer organization, community) for an ES (water, carbon, biodiversity and landscape/seascape beauty) or a land use/management practice likely to secure that service.

RES, upland communities and climate change

Well-functioning ecosystems provide sustainable and clean flows of water, productive soil, healthy forests, clean air, aesthetic beauty and many other services essential for human well-being.

Environmental services and the communities that provide these are threatened by climate change



Enhancing these ES functions can merit compensation, rewards or incentives at the local and international market.

The rewards

- The existing mechanisms of the hydropower companies were assessed for their efficacy regarding the twin objectives of poverty alleviation and resource sustainability.
- Since the hydropower companies were providing other benefits that could be given directly to the Bakun people, RUPES helped them to design proposals for watershed conservation programs that could reduce sedimentation.

- RUPES in Bakun also increased the awareness of the community regarding the importance of environmental services and the need to conserve them for continuous benefits. Capacity-building interventions were conducted based on an assessment of the capacities of Bakun stakeholders to implement and sustain RUPES' activities in Bakun.

- A RUPES Technical Advisory Group composed of representatives from line agencies of government and non-governmental organizations in the region was formed. From that group, a technical working group was established to formulate the Bakun Integrated Watershed Development and Management Plan. In 2008, the plan was finalized with the intention of being jointly implemented by BITO and the Bakun LGU.

- The plan’s activities would benefit the operations of the hydropower companies, thus, they needed to reward the indigenous people for their work. The rewards included incentives to villages for reducing the incidence of forest fires and rewards to upland farmers for protecting their private woodlots instead of converting them into vegetable gardens.

In order to prepare RUPES' partners, particularly the LGU and the community, a proposal-writing workshop and a negotiation skills training course were conducted to enable them to negotiate properly with the two hydropower companies in Bakun to fund conservation and rehabilitation activities.

New Paradigms and Approaches Are Needed

- The uplands are "rural lands" not "forest lands"
- Holistic development framework→ landscapes, livelihoods
- Combining agriculture and trees
- Productive and protective
- Sustainable financing and incentives

Common Types of PES

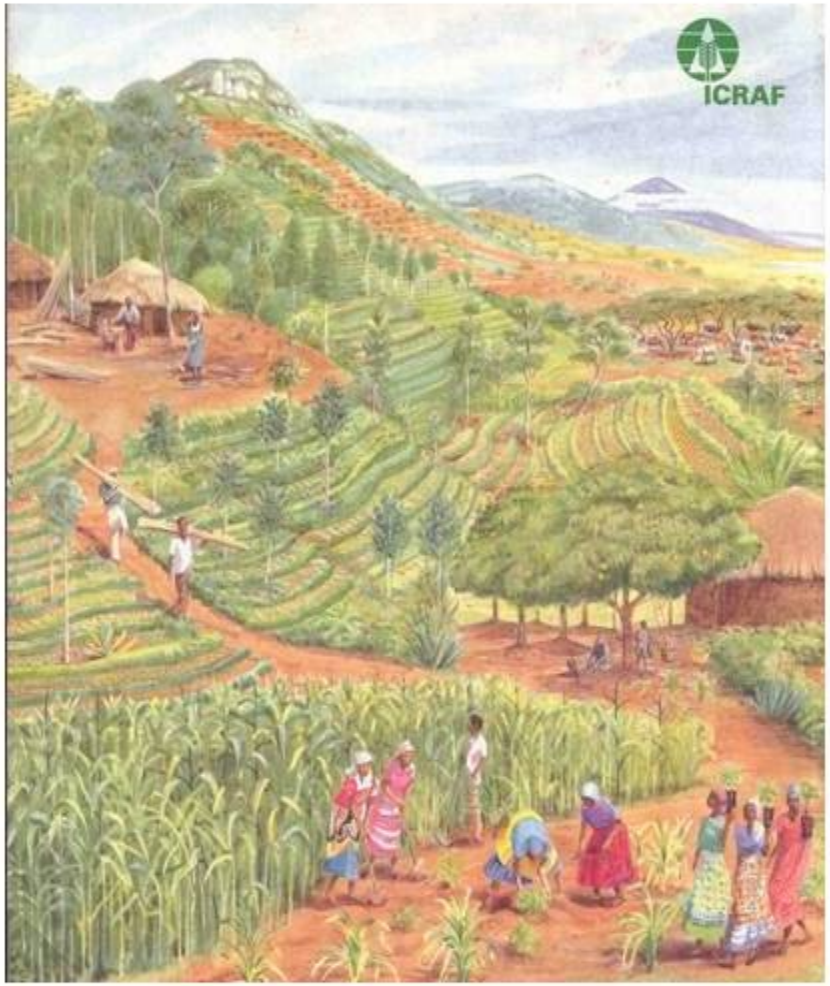
- carbon sequestration and storage,
  - Example: western electricity company pays farmers in the tropics to plant and maintain additional trees;
- biodiversity protection,
  - Example: conservation donors pay local people to set aside or naturally restore areas to create a biological corridor;
- watershed protection,
  - Example: downstream water users pay upstream farmers to adopt land uses that limit deforestation, soil erosion, flooding risks, etc.; and
- landscape beauty,
  - Example: a tourism operator pays a local community not to hunt in a forest in which tourists view wildlife.

Protection, conservation potentials identified by the Bakun Indigenous tribes Organization

(assisted in proposal preparation)

Evergreen Agriculture on Slopes (EAS)

Evergreen agriculture on slopes is a dynamic and ecologically based sustainable land management system that diversifies and increases production, while simultaneously promoting social, economic and environmental services for all land users



EAS: Good practices



1) Natural vegetative filter strips establishment

Establishment of natural vegetative filter strips along contour lines is the initial and simple low cost conservation measure allowing natural vegetation to grow at 50-cm width strips spaced at 8-10 meters apart to effectively protect the soil from erosion. NVS systems provide foundation for the establishment of cash perennials on the contour strips.

EAS: Good practices



2) Cash perennials integration and improved cropping pattern

Cash perennials such as rubber, timber and fruit trees including bananas, forage grasses and legumes established as enrichment from NVS provide farm agri-diversity and income. High root length densities of banana, creeping forage legumes and grasses provide soil binding function, and tree roots provide soil anchorage which will protect sloping lands against landslide. Crop rotation of vegetables, maize, upland rice and grain legumes reduces pest and diseases and enhances fertilizer use efficiency. Integration of upland rice complements

EAS: Good practices

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4) Vegetable agroforestry

Properly managed trees improve vegetable yields up to 40% as a result of having a desirable microclimate with low wind speed, increased relative humidity, high soil moisture and soil organic matter content. Trees also provide environmental services such as habitat for wildlife, control for soil erosion and carbon sequestration for climate change apart from providing additional nutrients to crops through N_2 fixation

EAS: Good practices

5) Livestock integration

Livestocks, such as cattle, goats, pigs, chicken and ducks, can provide additional income, food (meat and milk), draft power and manure. Animal manures can be useful for biogas for the household energy requirement as well as substrate for vermicomposting. The integration of livestock into the farm increases farm agri-diversity and risk management strategy for climate change.

EAS: Good practices

6) Rainwater harvesting

Rainwater harvesting addresses rainfall variability during climate change making water available to crops as well as to livestocks during dry spells. It increases water infiltration thus providing subsurface irrigation to perennial crops. It also provides additional income to farmers by having fish, frog and duck culture. Raising fish, frogs and ducks, while increasing farmers income, will improve nutrient loads to the pond water which will improve crop growth if used for irrigation.

EAS: Good practices

7) Organic fertilizer production

Organic fertilizer like vermicomposting is important in addressing Farmers' fertilizer requirements. The use of organic fertilizers increases soil organic matter (OM) improving soil moisture during drought thus making a suitable growing environment for crops. Its use also mitigates climate change through avoiding CO_2 emission through fertilizer substitution from the use of inorganic fertilizers, injection of carbon into the soil and potential of mass participation of smallholders to climate change mitigation.

EAS: Good practices

8) Minimum tillage, mulch and cover crops

Minimum tillage, mulch and cover crop maintain soil cover throughout the year which reduce soil erosion, increase water infiltration, reduce weed pressures and improves soil fertility. They also improve soil carbon thus help mitigate climate change. Cover crop like *Arachis pintoi* provides nitrogen and renders phosphorus available to the associated crops.

Challenges in the uplands

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- Soils are inherently acidic and poor
- Inappropriate farming practices
- Soil erosion is high
- Declining farm productivity
- Declining farm size due population pressure
- Deforestation in upper watersheds
- Poverty and malnutrition
- Social disorders
- Upper watersheds of lowland communities and cities impacting the lives and livelihoods of people living down stream

CHALLENGES IN IMPLEMENTING RUPES

Prior to PES

- Failure of most government conservation policies
- Ineffective collective action and property rights
- Failure of integrated conservation development programs (ICDPS)

Bargaining

- bargaining is difficult to achieve in the real world due to high transaction costs,
- existence of multiple parties affected by an environmental service.

Payment for Environmental Services

- direct approach to conservation
- service providers receive payments that are conditional on acceptable conservation performance
- voluntary transaction between provider and beneficiary
- principle of mutually beneficial bargaining

Challenges …. Post IFAD assistance

- Defining Host Communities, defining the seller and the buyer
- Rewards of ES – Direct payment indirect payments
  - within MOA
  - Voluntary -non-MOA
  - Statutory
- Separating payment/ rewards from corporate social responsibility

- Capability, responsiveness and readiness of Indigenous communities and the LGU
- Sustainability of initiatives
- Trickle down benefits
- Sanctions to ES offenders
- Implementation of the ADSDPP AND BIWMP