Participatory Watershed Management: an experience of Nepal

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#### **Presentation outline**

Country Background
Initiatives
Approaches and Strategies
Lessons Learned

### 1. Country Background

- Area: Nepal has a total area of 147,181 km2. Physiographic divided **Terai:**14 %, quaternary alluvial deposits **Chure** (Siwaliks):, 12%, Tertiary sandstones Middle Mountains: 30% phyllites, quartzite, limestone, and islands of granite High Mountains: 20%, gneiss, quartzite, and mica schists High Himal: 24%, gneiss, schist, limestone and Tethys sediments
  - 3



Source: NCSA, MOENT



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# Land degradation

- 28.24% of the total land is under the process of desertification
- nearly 45.5% area of the country is seriously affected by water erosion
- during rainy season almost 10 tons/ha of soil is eroded every year

#### **Causes of land degradation**

- Natural:
  - Topography-slope gradient, slope length
    - Rainfall- amount, intensity and duration, toe cutting and bank erosion by rivers
- Anthropogenic
  - deforestation
  - traditional land use practices,
  - over exploitation of grassland
  - disturbance of hill slopes for construction of infrastructures
  - haphazard quarrying of stones, rocks, minerals etc.

# 2. Initiatives

Department of Soil Conservation and Watershed Management (DSCWM): mandated for conservation and management of watersheds

Aims:

- a. Fulfill basic needs for forests and food product by improving the productivity lands through conservation and management of watershed resources and
- **b. Assist in maintaining ecological balance** by reducing pressure from natural hazards such a floods and landslides

• Institutional Level: establishment of district offices, Implementation of different regular and project level activities, formulation of strategies etc. Systemic level: Formulation and implementation of national policies, acts and regulations Forest Act (1993), Water Resources Act (1992), the National Parks and Wildlife Conservation Act (1973), Local Self-Governance Act (LSGA) (1999), and their respective regulations, Master Plan for the Forestry Sector (MPFS) (1989), People's participation Guidelines etc. • Individual level: Capacity building through training and extension

# 4. Watershed Management Approach and Strategy

#### Paradigm shift in strategy

-what the project can **do to help** the local people

-what the project can **do with people's** participation

-what the people can **do with project/programme** participation

### Paradigms shift?

- To develop need based programs
- To development Sense of ownership
- Mainstream to people in development process
- For the sustainability of program outputs
- To design an inclusive program to address the DAG also
- To develop capacity community for resource generation, co-ordination, program implementation and monitoring etc

 Selection of sub watershed: sub-watershedmanagement unit, erosion potential, prioritization

 Resource allocation: A budget-controlled decentralized planning, subsidies based on standard norms

 Formation of community organization same interest and living in the same geographical location, constitution registration  Preparation of Community development vision, plan, activities prioritization for implementation.

- Agreement: Terms and condition for program implementation
- Implementation, participatory monitoring and reporting
- District technical group-backstopping and coordination

#### Soil conservation and watershed management Programs

- Land use planning: land use development plan
- Land productivity conservation: restoration and improvement of productivity of private and community lands
- Infrastructure protection: stabilization and protection of infrastructures
- Natural hazard prevention: rehabilitation of degraded lands
- Community soil conservation and extension: extension package development, institutionalization of user/community development groups and development and transfer of conservation technologies.

## Lessons learned

- Rehabilitation measures- low-cost i.e. bioengineering technology- sustainable and affordable, need less technical input easy to adopt
- High cost vs low-cost input peoples attitude
- Benefits generation and assurance of equitable distribution
- The participatory approach suitable for collective conservation activities because :
  - it has helped engender local ownership,
  - mobilize local resources and strengthen local institutions,
  - <sup>o</sup> build rapport between agencies and local community.

- community enthusiasm to contribute to watershed management activities: involve community in program planning, implementation, monitoring and decision making process.
- Community mobilization aspects:
  - Develop confidence and trust by:
    - public auditing practice,
    - maintaining transparency,
    - well defined role
    - Well defined rules and norms
    - transparent decision-making process

Effective leadership

- Level/degree of peoples participation
  Adoption of indigenous knowledge and technology
- Link program with the livelihood of the people e.g.
   IGA, Off-farm activities, Co-operatives
- Follow the communities' crop calendar

Sustainability?

# Some of the conservation measures adopted by DSCWM.

- Agroforestry: *I*t is the integrated practicing of agriculture, forestry, and animal husbandry to produce multiple products from the farm. Such practices reduce pressure on the forests, supplies <u>diverse products</u> and serve as a source of income;
- Bamboo Plantation: Bamboos are planted degraded lands for <u>reinforcement</u> of soil, <u>supporting slopes</u>, reducing <u>velocity of run-off</u>, to <u>trap eroded soil</u>;
- **Brush layering**: Woody cuttings are planted across the slope to <u>reinforce slope</u> and to <u>prevent from development</u> <u>of reels;</u>

• Checkdam: Constructed by using gabion boxes, loose stone in gullies and landslides to reduce <u>velocity</u> of stream flow and minimize the <u>scouring</u> of the toe of the slope;

- Conservation Plantation: Planting of the trees and shrubs in private and community lands for <u>rehabilitation</u> of degraded land and to improve <u>waters sources;</u>
- Grass plantation: Seeds, rhizomes, clumps etc. are planted to protect form sheet <u>erosion</u>, increase the rate of <u>infiltration</u> and to *arrest* the eroded soil and produce <u>forage</u>;

Thank Your for Your Kind Attention

- Hedge row/bioterracing: Trees, shrubs, grasses, leguminous crops etc. are planted along the contour to reduce <u>run-off velocity</u>, conserve <u>soil moisture</u>, produce <u>biomass</u>
- Live fence: Hedges (shrub, bushes and trees) are planted along the farm to <u>protect crop</u>;
- Mulching: Soil surface is covered by grass to protect from soil moisture loss and weeds;
- **Retaining wall**: Constructed by using gabion boxes, loose stone etc. to protect from <u>toe cutting</u> of the slope, <u>river bank</u> cutting and to <u>resist the pressure</u> exerted by earth filling;
- Water harvesting: Pond are constructed not only to reduce soil erosion but also to store excess <u>run-off</u> for the use of vegetable farming during the drought period. It also helps in maintaining <u>soil moisture</u>;



Source: DSCWM, Conservation pond









#### • Source: DSCWM





Source: DSCWM













Source: DSCWM