Managing Himalayan Biodiversity: A case of Assessment and Monitoring of High Altitude Medicinal and Aromatic Plants (MAPs) in Nepal

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Outline

- General information
- Improtance of MAPs
- History of forest resource monotoring in Nepal
- Currently used methods and approaches
- Issues and challanges in monitoring of MAPs
- Improving assessment technique of MAPs
- Conclusions

Nepal: In General

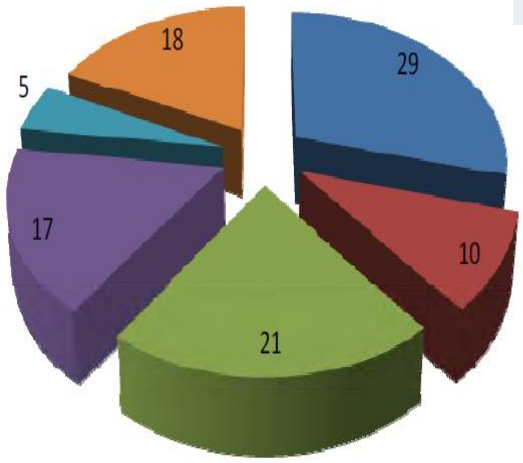
Population: 29 Million

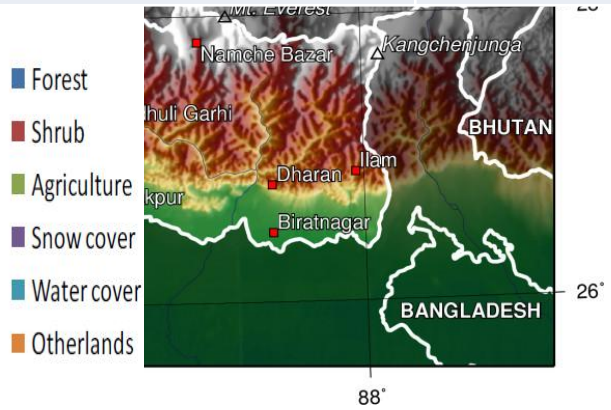
Elevation: 50 M- 8848 M

Area : 14 Million ha

Physiograpic Zone	Surface area (%)
High Himal	23
High mountain	20
Middle hills	30
Terai and Siwalik	27

Land use (%)





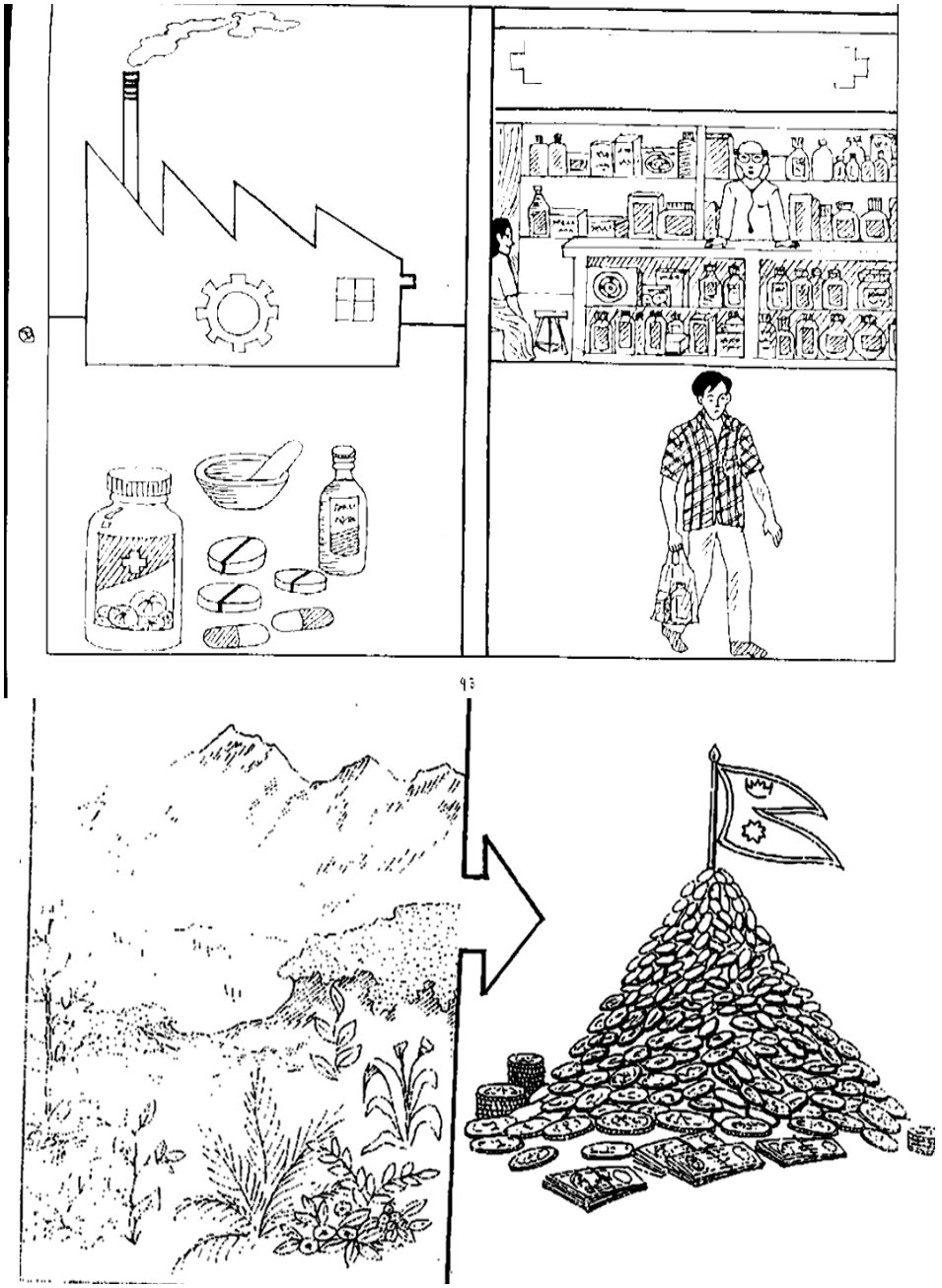
Source: LRMP (1986)

Importance of MAPs

- Livelihood/Subsistence
- Ethnobotinical use

Importance of MAPs

- Commercial value
  (Medicine, National revenue etc.)



NFI in Nepal: History

NFI (1963-1967): Technical collaboration with USAID

Objective: To determine the status of commercial forest

Materials and methods:

- Remote Sensing data: APs of 1954 and 1963
- Field Methods: Systematic approach

LRMP 1978/79

- Conducted with financial support from Canadian Government

Objective: Land use and land Cover mapping

Materials and methods

-Satellite images and APs as Remote Sensing data
- NFI data of 1960s

Contd...

NFI (1986-1997): Carried out in a technical collaboration with Finnish Goverment.

Objective:

- To generate forest statistics, mainly for accessible forest
- Mapping forest cover changes

Materials and methods:

- Landsat TM Images (1990&1991)
- APs (1989-1996)
- Topografic maps

Contd...

FRA Nepal-Project (2010-2014): Bilteteral cooperation between Government of Nepal and Finland

Objectives: The main objective of this project is to provide improved forestry data for national forestry policy development

Materials and methods:

– Very high resolution satellite images : Rapid Eye
– LiDAR

But, All Inventory projects has less considered NTFPs (MAPs) as intergal part of National Forest Inventory

Currently used methods and approach

Preliminary mapping

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Boundary survey and blocking

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Sampling and measurement

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Estimation of sustainable harvest levels

Issues and challenges in assessment of MAPs

- Complicated terrian and hetrogenity
- Difficult to generalize: specific situation for specific MAPs
- Technical knowledge and skill of facilitating body
- MAPs are seasonal and part used (flower, seed, fruits, rhizomes, whole plant)

Improving assessment technique of MAPs

- Adaptive sampling which purports to be efficient and unbiased for rare populations like *cordyceps synensis* (Seber &Thomson,1994)
- Unlike timber, MAPs are distributed unevenly
- Indigenous knowledge with local communities

Conclusions

- The complicate geographic setting of Nepal demand for well adapted sampling and plotdesign to assess MAPs in alpine region of the country

- A range of techniques and methods have been evolving but a site and product specific approach that takes care of both ecological and social factors still needs to be developed.

Thank you for your attention !!!