

# **ENABLING REGULATORY MECHANISMS FOR COMMERCIALIZATION OF MEDICINAL AND AROMATIC PLANTS IN SOUTH ASIA REGION**

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Assessment**

# OUTLINE

1. Introduction
2. The SAARC and MAPs sub-sector
3. Potentials of MAPs in national economies
4. Key issues in MAPs commercialization
5. Regulatory mechanisms/affairs
6. Recommendations for improvement
7. Key messages

# PART I: GENERAL INTRODUCTION

# DIVERSITY OF MAP PRODUCTS

- ◉ Diverse types of production possible; more than 8,500 MAP species
- Extracts and exudates (essential oils, resin
- & gums; tannins & dye
- Medicinal herbs
- Aromatic, nutraceutical, and dye products
- Edible plants: spices & nuts
- Animal medicinal products;
- Others (Bamboo sap or Banslochan

**BUT SAARC'S INTERNAL AND  
EXTERNAL TRADE IN MAPS IS STILL A  
FRACTION OF GLOBAL TRADE .**

# MAPS: ECONOMIC AND ECOLOGICAL IMPORTANCE FOR SAARC COUNTRIES

- High value MAP resources
- MAPs can help forest & biodiversity conservation efforts
- MAPs are valuable to improve people's livelihoods
- MAPs can reduce malnutrition
- Provide cash income to poor
- Promote traditional knowledge and practices



# SOME BROAD INDICATORS OF THE IMPORTANCE OF MAPS

<b>Contribution of MAPs in traditional medicine</b>	<b>80% of the population in developing countries (WHO, 2002)</b>
<b>% share of MAPs in household income:</b>	<b>25% in India &amp; 40% in western Nepal</b>
<b>Contribution to food security and nutrition</b>	<b>40% of calcium; 25% of iron and 40% of vitamins A and C (Clendon, 2001); Source: FAO, 2009.</b>

***DELPHINIUM HIMALAYAI*, A WELL-KNOWN AND HIGHLY  
TRADED MEDICINAL PLANT ENDEMIC TO CENTRAL AND  
WEST NEPAL**



A TRADITIONAL COLLECTOR OF *DELPHINIUM HIMALAYAI*,  
HUMLA DISTRICT, NEPAL



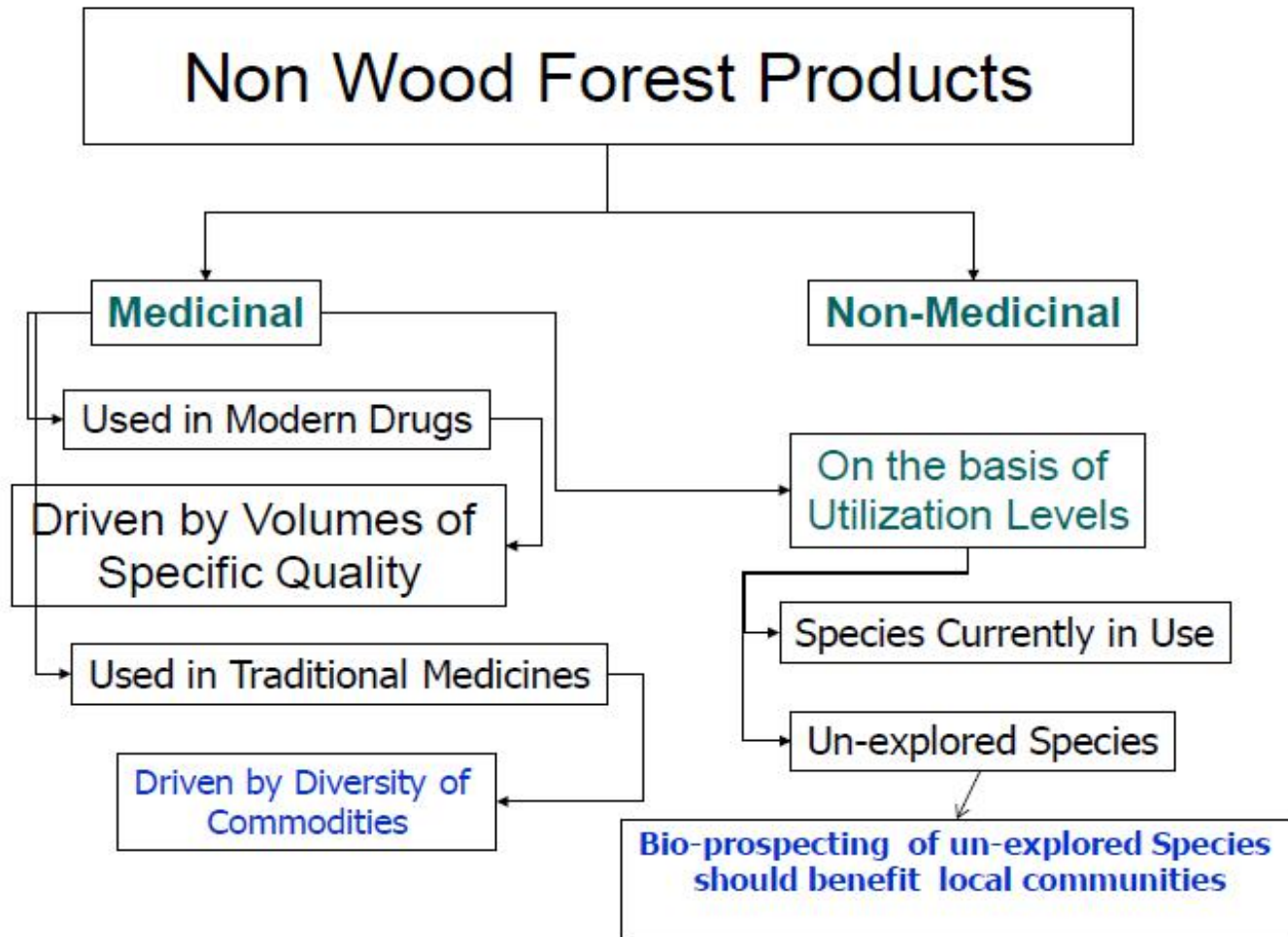


***DACTYLORHIZA HATAGIREA*, AN ENDANGERED GROUND ORCHID AND WELL-REPUTED MEDICINAL PLANT ENDEMIC TO THE HIMALAYA**



# BROAD CLASSIFICATION OF NWFPS

(source: Mr. Baba)



# MEDICINAL PLANT PRODUCTS OF HIGH COMMERCIAL VALUE



# High Value Food Products form the Himalayas



*MORCHELLA CONICA* (HIGH PRICED MOREL MUSHROOM)



Some fleshy fungi wild mushrooms from Nepal

# SPICES AND CONDIMENTS (*CINNAMOMUM TAMALA*) BARK HARVESTING, NEPAL



# GROWING ECONOMIC POTENTIALS OF MAP IN SAARC REGION

- ◉ Economically viable and environmentally sustainable MAP products available
- ◉ Multi-stakeholder and collaborative approaches widely practiced
- ◉ NTFP policies are gradually becoming business friendly
- ◉ Skilled communities are sustainably collecting and marketing NTFPs



# OPPORTUNITIES

- ◉ Emergence of market & non-market mechanisms for natural products, green marketing, eco-labelling and access & benefit sharing initiatives
- ◉ Investment & employment opportunities in herbal sector development;
- ◉ Complementary and combined health services are now accepted by both AYUSH and Allopathic systems.

# MAJOR PROBLEMS FOR SUSTAINABLE SUPPLY OF MAPS

- ◉ Unsustainable collection & harvesting
- ◉ Secretive and exploitative trade practices
- ◉ Poor and disorganized producers and processors
- ◉ Insecure resource tenure
- ◉ Low value addition at producer's and aggregators' levels
- ◉ Poor quality and unreliable supply
- ◉ Unclear policies and regulatory frameworks

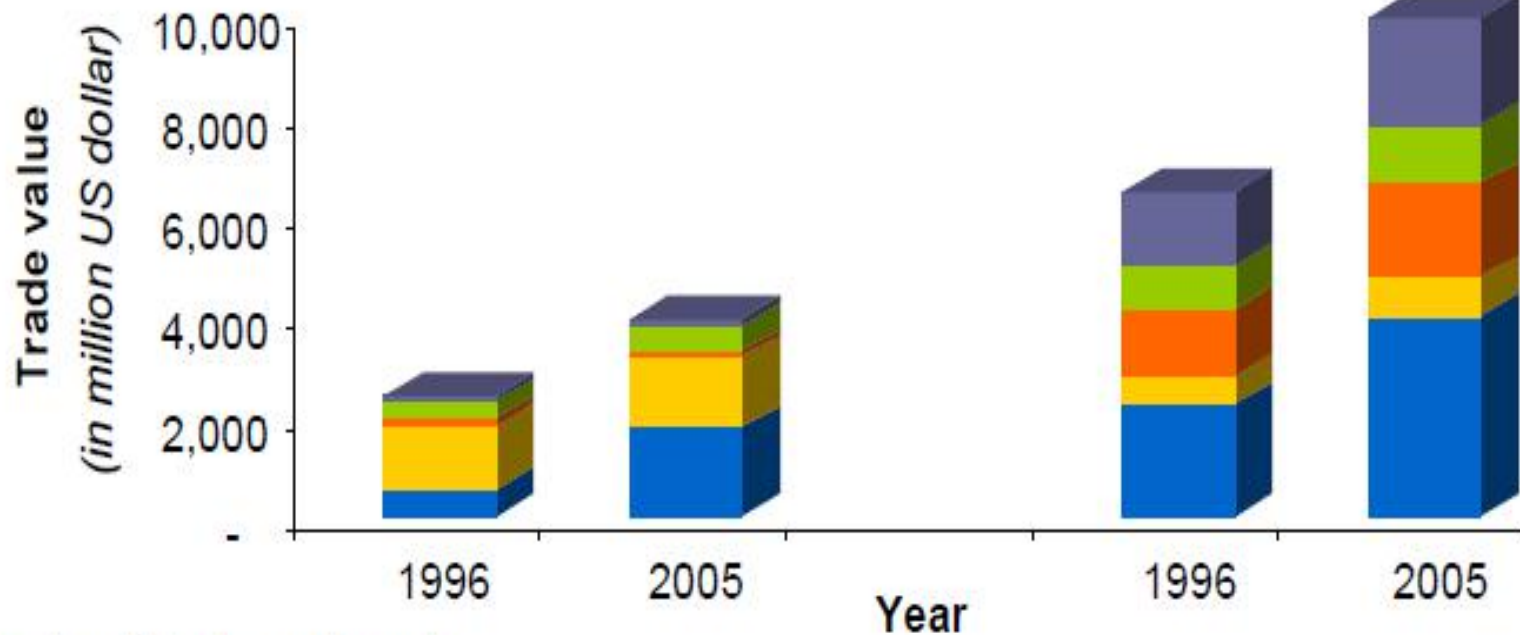


# PART II: COMMERCIAL POTENTIALS OF MAP IN THE SAARC REGION

# IMPORTANT MEDICINAL PLANTS USED FOR THE TREATMENT OF CANCER

Plant name/family	Drugs	References
<i>Cathranthus rosesus L.</i> (Apocynaceae)	Vinblastine and vincristine	Rasineni et al. (2010)
<i>Podophyllum emodi Wall.</i> (Beriberidaceae)	Podophyllotaxin	Singh et al. (2009)
<i>Taxus brevifolius</i> (Taxaceae)	Paciltaxel, taxotere	Perumal & Gopala-krishnakone (2007)
<i>Mappia foetida Miers.</i>	Comptotheцин, lrenot-eccan and topotecan	Lorence and Nessler (2004)
<i>Comptotheца acuminata</i>	Quinoline & compto-theцин alkaloids	Lorence and Nessler (2004)
<i>Juniperus communis L.</i> (Cupressaceae)	Teniposide and etoposie	Gordien et al. (2009)

# TOTAL IMPORT VALUES OF MAPS, 1996-2005



■ Food and Food supplements

■ Household construction materials, wares and artifacts

■ Miscellaneous items

■ Health-care and beauty products

■ Industrial Use (non-food)

Total global import value of NWFPs (2005): US\$ 14.0 billion

Total global import value of NWFPs (1996): US\$ 9.0 billion

Source: Based on UN Comtrade data as on 31<sup>st</sup> August 2007

# KEY INDICATORS ON COMMERCIAL IMPORTANCE OF MAP RESOURCES

- ◉ The global trade in MAPs and related products is estimated to be between 80-120 billion dollars
- ◉ MAPs are undervalued and under recognized
- ◉ Growing markets and benefits to poor community
- ◉ Increasing trade values for local and national economy
- ◉ Need for sustainable management of MAP resources
- ◉ Special significance of MAPs to conserve forests



# LIVELIHOOD IMPROVEMENT THROUGH MAPS AND NTFPS

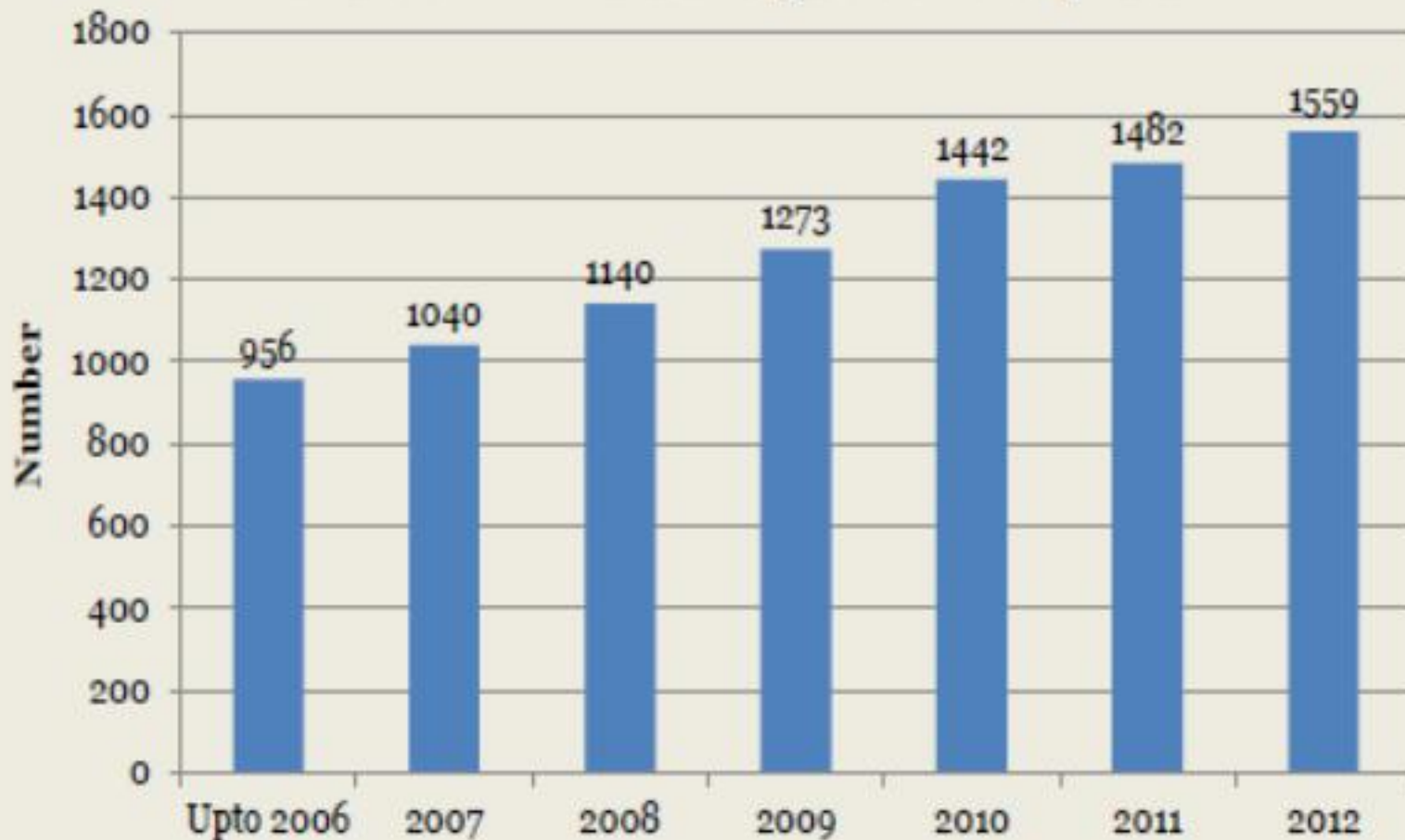
◎ MAPs and NTFPs provide:

1. generate cash income
2. provide food, medicine and nutrition
3. diversify and compliment agriculture
4. links producers to markets
5. support SFM



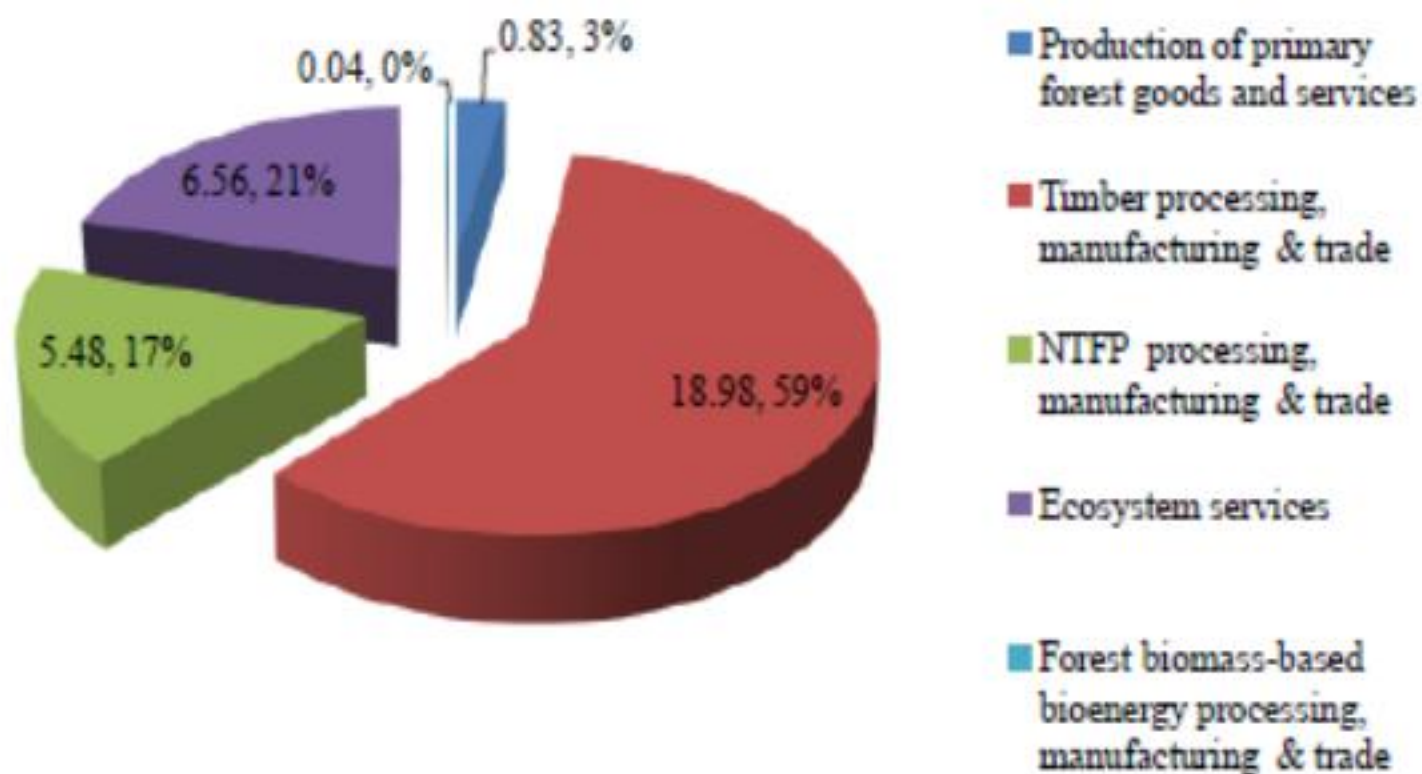
# Private Sector Participation (NTFPs)

**Number of NTFP-based registered enterprises**



## Private Sector Investment

Private Sector Investment in Forestry (NRs 31.89 billion)



## Potential Economic Growth and Employment Generation from Forest-based Industries

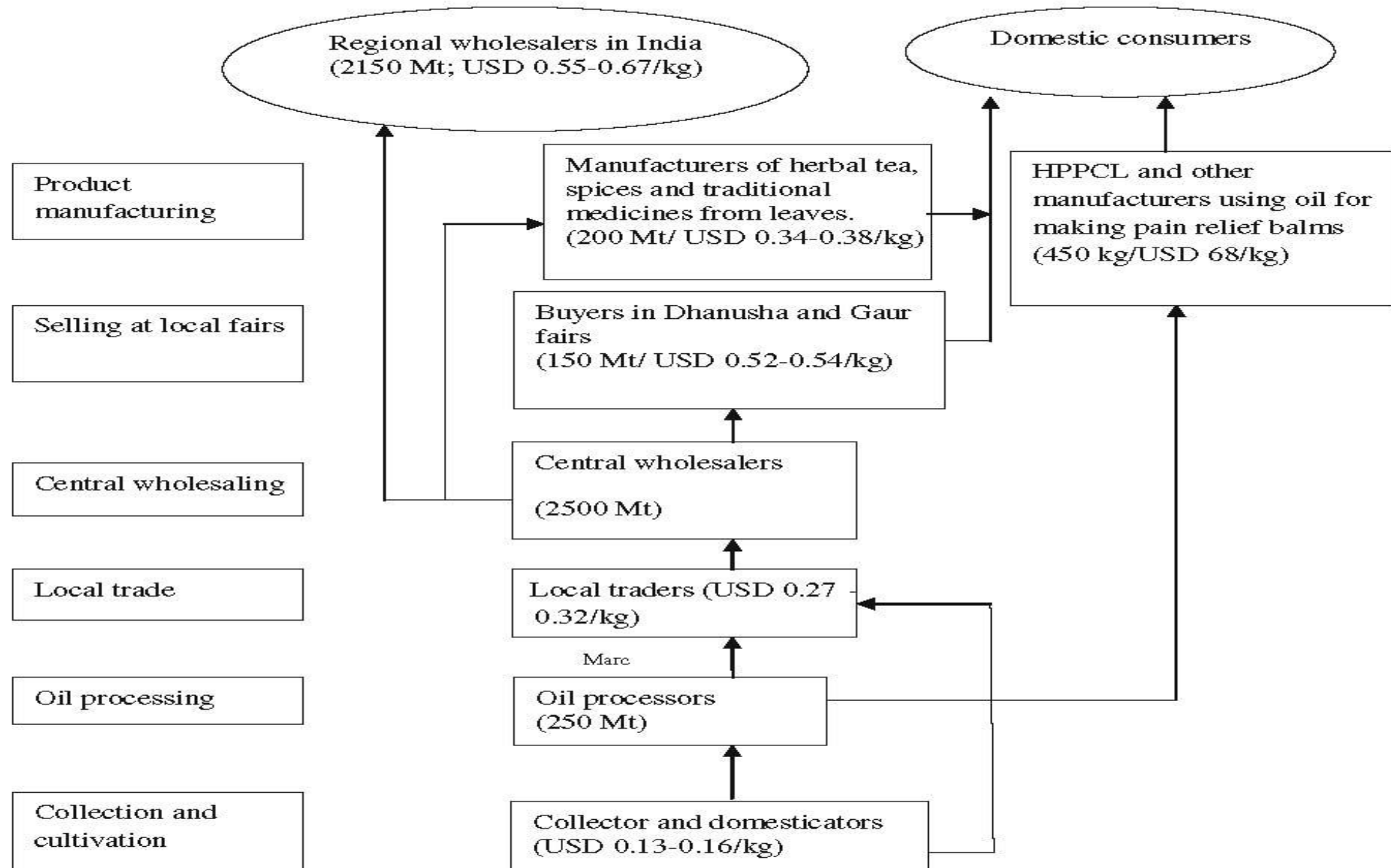
Subsector	Economic value (million NRs)		No of sustainable, full time jobs	
	Conservative	Optimistic	Conservative	Optimistic
Timber	55,127	270,697	206,725	812,090
NTFPs	11,635	58,173	87,259	290,865
Forest Carbon	4,235	13,572	37,054	118,755
Ecotourism	14,572	21,567	72,860	107,833
Forest Bioenergy	2,126	9,107	15,633	53,571
<b>Total</b>	<b>87,694</b>	<b>373,115</b>	<b>419,531</b>	<b>1,383,114</b>



## Growth Potential (NTFPs)

- World market for natural products is high and growing:
  - Global export of MAPs was US \$3 billion in 2010
  - International market for MAPs is increasing at the rate of 13-18 % per annum
  - Nepal's share in the world export for MAPs was around 0.2 percent in 2010
  - NTFP contribution to total export of Nepal increased from less than 3% in 2003 to above 9% in 2012
- About 40% of the total community forests have potential for NTFPs – More than 60% of the total forests having potential for community forests
- Emerging cultivating item - *Shiitake* mushroom

# BAY LEAF MARKET CHAIN IN AND FROM NEPAL IN 2009



# BENEFIT OF RESEARCH- BASED KNOWLEDGE IN MAPS COMMERCIALIZATION

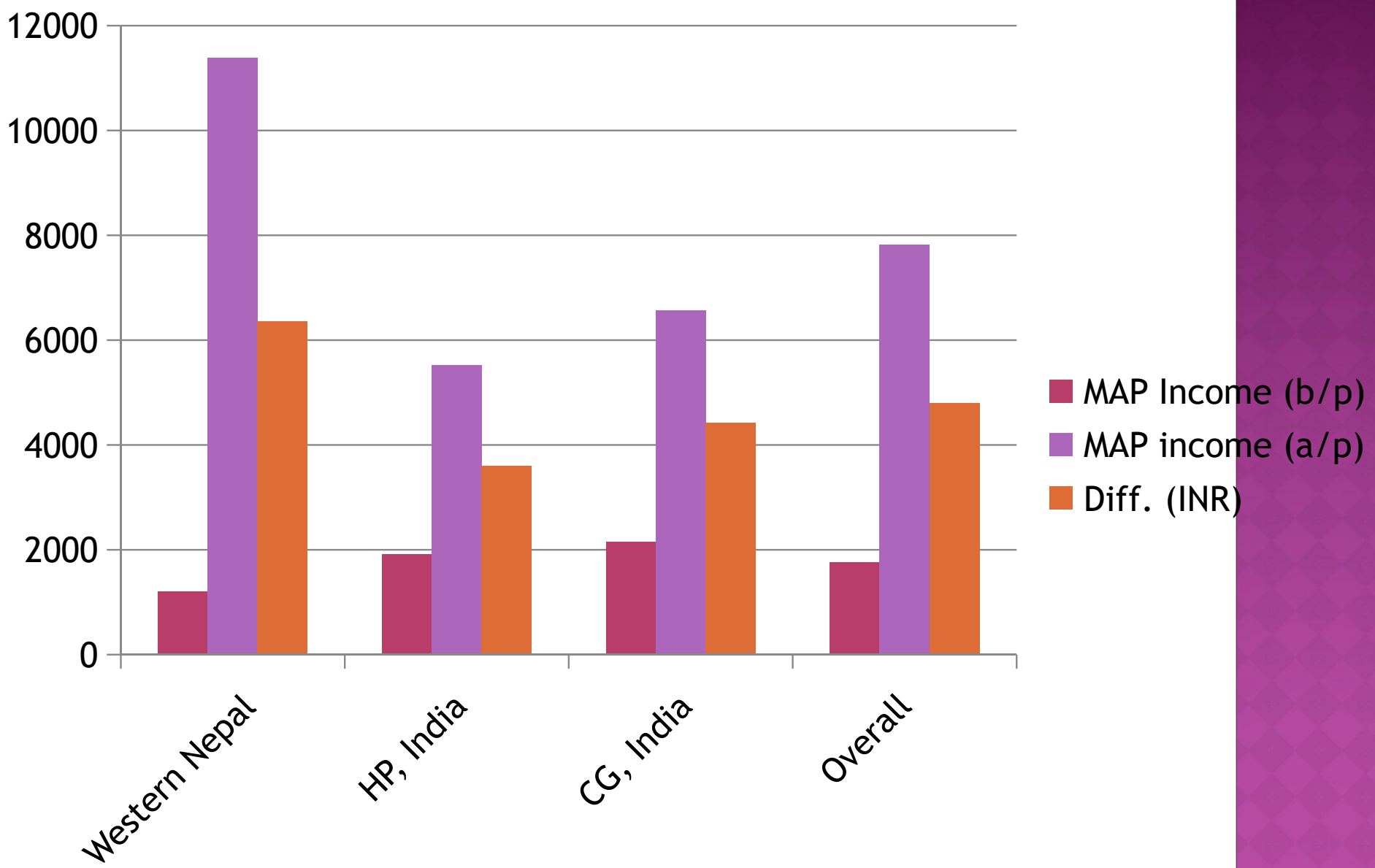
- ◉ High potential to increase commercial activities
- ◉ Multi-stakeholder dialogue and policy reforms
- ◉ Documentation of traditional knowledge & good practices
- ◉ Training in sustainable collecting and marketing of products to high-end markets
- ◉ Cluster-development approach can minimize costs



# Increase in annual household income from MAPs during the project period (2005-2009)

Project area	MAP income before project intervention in 2005 <sup>a)</sup>	MAP income after project intervention in 2009 <sup>a)</sup>	Difference in MAP income	% increase
Nepal (NPR)	1206 (4382)	11,388 (12,217)	10,182**	844
Himachal Pradesh, India (INR)	1922 (1153)	5521 (2658)	3599	187
Chhattisgarh, India (INR)	2146 (1300)	6565 (4859)	4419*	206

# INCOME DIFFERENCE FROM MEDICINAL PLANTS INTERVENTIONS



# NEPALESE WOMEN FARMERS BENEFITING FROM MEDICINAL HERB COLLECTION AND MARKETING



# PREREQUISITE FOR IMPROVING MAPS COMMERCIALIZATION

- Development and implementation of MAPs policy
- Full and effective participation collectors, aggregators and retailers
- Secured & equitable benefits to MAP producers
- Clear decision making authority to MAPs associations
- Value chain development with access to market information
- Training and skill development
- Equitable benefit sharing mechanisms



# MARKETING AND TRADING CONSTRAINTS

- ◉ MAPs have comparative but not competitive advantages
- ◉ Markets for natural products not well developed in SAARC region
- ◉ Value chain of MAP is long and opaque with a large number of intermediaries
- ◉ Major obstacles relate lack of market information and government support
- ◉ Research-based knowledge on quality and standards lacking



# A ROADSIDE VENDOR WITH RAW HERBS IN NEPAL - OPPORTUNITY FOR VALUE ADDITION



# IMPROVED MARKETING STRATEGIES AND OPTIONS

Management practice	Before	After	Impact
<b>Technology</b>	No processing and extraction technology	Processing and extraction technology introduced	Easier and more hygienic grinding and extraction process
<b>Collection and harvesting practices</b>	Reckless collection with disregard for maturity of products or destruction of plants	Selective harvest of mature and good-quality products using nondestructive methods	Less damage to MAPs and other NTFPs, good regeneration
<b>Marketing</b>	Individual	Group marketing through cooperatives and with certification	Increased cooperation, better trust and reliance, increased bargaining power, higher prices
<b>Packaging</b>	No packaging	Packaging used for some products	Better shelf life and higher prices for products using packaging
<b>Processing</b>	No or limited processing	Standard processing used	Processed projects sold in markets for higher price as a result of value addition

# IMPROVING QUALITY OF TRADITIONAL HERB-BASED PHARMACEUTICAL PRODUCTS IN AN AYURVEDIC PHARMACY, INDIA



# PART III: RECOMMENDATIONS AND CONCLUSION

# KEY RECOMMENDATIONS: RESEARCH AND DEVELOPMENT (R&D)

- Scientific research needed to develop new pharmaceutical, nutraceutical, and cosmetic products;
- Multidisciplinary research needed for in-situ and ex-situ conservation;
- Multi stakeholder dialogue for policy change
- Analyze and understand the entire supply/value chain for identifying the opportunity points for interventions
- Improved commercialization should increase the value of entire chain

# RECOMMENDATIONS ON POLICY & INSTITUTIONAL REFORMS

- Improve trade and policy instruments (SAFTA) to provide adequate incentives for conservation and sustainable commercialization of MAPs.
- Create easy financing mechanism to promote MAPs based enterprise clusters.
- Create regional market for MAPs products and traditional and complementary medicines.
- Remove trade barriers & price distortions on organic, certified and other natural products through strong enforcements of rules and regulations
- Strengthen public-private-NGO/CBO partnerships to develop successful regional MAPs based supply chains

# RECOMMENDATIONS ON REGIONAL CO-OPERATION

- ◉ Although costly, SAARC countries must invest in nature based solutions for solving social, economic, and health problems
- ◉ Innovative policies, financing and trade instruments on herbal sector
- ◉ Reduce costs of financing herbal business in poor SAARC countries by providing soft loans, tax benefits, and SEZ facilities;
- ◉ Fund SAARC level annual herbal industry fairs, trade shows and business partnerships;
- ◉ Develop SAARC level information portal for greater commercial exchange, regional trade, and business development

# CONCLUDING MESSAGES

- MAPs are undervalued, under-researched and under-priced commercial and social product
- Free SAARC level trade can open new opportunities for MAP based products and services
- Need to integrate MAPs in participatory value chain and enterprise development programs
- Need of public-private-NGO-community partnership for achieving eco and society friendly commercialization



# CONCLUDING MESSAGES

- Ensure commitment and ownership of government institutions to MAPs through a dedicated MAP policy
- Remove transport and trade barriers nationally and regionally
- Promote successful MAP business pilots in transforming SAARC economy into a greener and sustainable economy
- MAPs need more funds in doping R&D based product development and quality improvement

## ACKNOWLEDGEMENT AND CREDITS FOR THE SOURCE OF INFORMATION

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**THANK YOU FOR  
YOUR PATIENT  
HEARING AND  
Q&A**