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PROMOTING EXPORTS OF MEDICINAL AND AROMATIC PLANTS (MAPs) AND ESSENTIAL OILS FROM NEPAL



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Acronyms and Abbreviations

CITES	Convention on International Trade of Endangered Species
CoO	Certificate of Origin
DPR	Department of Plant Resources
EIA	Environmental Impact Assessment
ESA	European Spice Association
EU	European Union
FGD	Focus Group Discussion
GAP	Good Agricultural Practices
GIZ	German International Cooperation
GMP	Good Manufacturing Practices
HNDP	Herbs and NTFP Development Policy
HS	Harmonized Commodity Description System
IEE	Initial Environmental Examination
IF	Integrated Framework
IPR	Intellectual Property Rights
ITC	International Trade Centre
JABAN	Jadibuti Association of Nepal
LDC	Least-developed Country
MAI	Market Attractiveness Index
MAPs	Medicinal and Aromatic Plants
MPFS	Master Plan for Forestry Sector
NTB	Non-tariff Barrier
NTFP	Non-timber Forest Product
NTIS	Nepal Trade Integration Strategy
PQA	Plant Quarantine Act
SPS	Sanitary and Phyto-sanitary
TBT	Technical Barriers to Trade
TEPC	Trade and Export Promotion Centre
TRIPS	Agreement on Trade-related Aspects of Intellectual Property Rights
WTO	World Trade Organization

Table of Content

ACKNOWLEDGEMENT	i
ACRONYMS AND ABBREVIATIONS	ii
Chapter 1: INTRODUCTION	1–2
1.1 Background	1
1.2 Objective of the study	2
1.3 Methodology	2
1.4 Limitations	2
Chapter 2: LITERATURE REVIEW	3–12
2.1 Laws, regulations, plans and policies on MAPs and essential oils	3
2.2 Studies on MAPs and essential oils	5
Chapter 3: INTERNATIONAL TRADE OF MAPs AND ESSENTIAL OILS	12–20
3.1 International trade of MAPs	12
3.2 International trade of essential oils	16
Chapter 4: PROBLEMS AND CHALLENGES: EMPIRICAL FINDINGS	21–32
4.1 Collection and cultivation	21
4.2 Processing/manufacturing	23
4.3 Exports	24
4.4 Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA)	30
4.5 Research and development	30
4.6 Others	30
Chapter 5: RECOMMENDATIONS	31–32
REFERENCES	33–34
ANNEX 1: LIST OF PEOPLE INTERVIEWED	35
ANNEX 2: LIST OF PARTICIPANTS OF THE FOCUS GROUP DISCUSSION	36

Chapter 1

INTRODUCTION

1.1 Background

Until the mid-1980s, Nepal pursued an inward-looking and state-led development strategy. It initiated an outward-looking economic policy from the mid-1980s, and more vigorously from the early 1990s after the restoration of multi-party democracy in the country. Trade liberalization was one of the various reforms undertaken as part of the overall reform programme initiated after the change.

Unilateral trade liberalization that Nepal undertook as part of its broader reform programme continued during the 1990s and early 2000s. In 2004, Nepal became member of the World Trade Organization (WTO). It has made a number of commitments during its accession to the WTO. While it has fulfilled some of those commitments, it has yet to fulfill a number of others.

Various agreements of the WTO have a number of special and differential provisions for its least-developed country (LDC) members such as Nepal. However, Nepal, including a large number of other LDCs, has not yet been able to realize tangible benefits from WTO membership. While some of the ambiguities inherent in the WTO itself have held back LDCs from benefiting from their WTO membership, various adverse domestic conditions are also to blame for their lackluster performance.

In the case of Nepal, years after its WTO membership were marred by conflict and political instability. There have been no improvements in infrastructures, labour productivity and other factors required to enhance Nepal's supply capacities. The country lacks capital, and enough efforts have not been made to attract it from abroad. Also, trade has not been mainstreamed adequately in the country's overall development strategy.

That is not to say, however, that efforts were not made at all. One of the efforts made to mainstream trade in Nepal's development was conducting the *Nepal Trade and Competitiveness Study*, also called the *Diagnostic Trade Integration Strategy*, in 2003 as part of the Integrated Framework (IF) for Trade Related Technical Assistance. The Study was conducted by the World Bank on behalf of the IF Working Group consisting of six agencies namely the International Monetary Fund, International Trade Centre (ITC), United Nations Conference on Trade and Development, United Nations Development Programme, World Trade Organization (WTO) and the World Bank, two donor representatives, an observer of the Development Assistance Committee of the Organization for Economic Cooperation and Development and two LDC representatives.

The Study was intended to aid policy makers, researchers, civil society stakeholders and Nepal's development partners to identify policy and technical assistance requirements for making the Nepali economy more competitive and enabling it to get greater benefits from world trade. But the recommendations provided by the Study were not implemented due to several reasons.

Since 2006, Nepal has entered into a new era. Along with the end of about a decade-long conflict and the country on course to put in place a new constitution, there are high hopes that economic issues will soon gain greater traction and trade would be mainstreamed in the national development agenda. With such high hopes and as a follow-up to the *Nepal Trade and Competitiveness Study*, Ministry of Commerce and Supplies, Government of Nepal, has put in place the *Nepal Trade Integration Strategy (NTIS) 2010*.

Based on an assessment of export performance and some extensive discussions with the Nepali business community and government officials, *NTIS 2010* has chosen 19 goods and services having export potential. Medicinal and aromatic plants (MAPs) and essential oils is one of them. Although MAPs and essential oils are classified separately under the Harmonized Commodity Description System (HS) placing them respectively in Chapter 12 and Chapter 33, they have been clustered as a single product in *NTIS 2010*. As appropriate, this study treats the two products separately at times, and as a single group otherwise.

1.2 Objective of the study

This study is carried out against the background that MAPs and essential oils is identified as one of the 19 goods and services identified by *NTIS 2010* as having export potential. The objective of this study is to provide recommendations that would form the basis of preparing action plans to enhance exports of MAPs and essential oils from Nepal.

1.3 Methodology

Prevailing laws, regulations, plans and policies related to MAPs and essential oils were reviewed to analyze the government's efforts for the development of the sector. Then, few studies conducted in the past regarding the sector were reviewed. Next, international trade in MAPs and essential oils and Nepal's participation in such trade was analyzed based on data from different sources.

On the basis of the reviews and analyses, questions were prepared to interact with stakeholders to get on-the-ground information about the problems that they have been facing in the sector. Interactions were held through in-depth interviews with some stakeholders (Annex 1), participation in an interaction programme organized by the Trade and Export Promotion Centre (TEPC) in Nepalgunj, and a focus group discussion (FGD) at Jadibuti Association of Nepal (JABAN) in Nepalgunj (Annex 2).

1.4 Limitations

The study is not exhaustive in terms of reviewing every study available. It has also not been able to cover a wide range of stakeholders. Most importantly, it has not been able to analyze the problems at the product level beyond the 6-digit Harmonized Commodity Description System (HS) since MAPs and essential oils sector has a very broad coverage and data beyond the 6-digit HS code is unavailable.

Chapter 2

LITERATURE REVIEW

There are limited studies on Nepali MAPs and essential oils, mainly from an international trade perspective. Most of the studies are mainly related to the types of MAPs and essential oils found in Nepal, prospects of commercially exploiting them, value chain analysis, etc. This chapter reviews some of those studies. However, it is important to review government laws, regulations, plans and policies related to MAPs and essential oils to have a clearer understanding of the importance that the government has placed to this sector. Therefore, the review begins with such laws, regulations, plans and policies.

2.1 Laws, regulations, plans and policies on MAPs and essential oils

The National Forestry Plan, 1976 had various policy objectives related to the forestry sector, one of which was to derive maximum economic gains from forestry products by promoting the export of medicinal herbs. In the Seventh Five-year Plan (1985–1990), policies related to forestry were adopted from the National Forestry Plan, 1976 (Forest Policy 2000). Realizing the need for a long term plan for the forestry sector, the Master Plan for Forestry Sector (MPFS) was put in place in 1989.

MPFS is said to be the major document that laid emphasis on developing non-timber forest products (NTFPs), including MAPs, and also guided the formulation of forest policies and incorporation of forestry-related issues in the country's periodic five-year plans in subsequent years (Poudel; Forest Policy 2000). It was put in place to provide a 25-year policy and planning framework for the forestry sector. One of the six primary forestry development programmes covered by MPFS was MAPs (Forest Policy 2000).

Guided by MPFS, and accordingly as incorporated in the Plan document, of the various forestry-related programmes carried out during the plan period of the Eighth Five-year Plan (1992–1997), herbs development programme was one of them. Similarly, one of the forestry-related targets set out by the Ninth Five-year Plan (1997–2002) was to support the management, marketing, industrial development, processing and export of herbs and forest products. It also envisaged providing training and other related support to stakeholders for sustainable collection of medicinal plants. The Plan also sought to make provisions to provide market information from the government level in order to encourage the cultivation of NTFPs and fragrant oils. Besides, it included in the plan document that research and development, technical assistance, market management assistance, training, publicity and extension programme would be carried out in respect of herbs from which fragrant oils could be extracted. It also envisaged the establishment of “Non-timber forest products conservation and indigenous knowledge fund” for the sustainable development of herbs and fragrant oils, and other NTFPs.

In 2000, the Forestry Sector Policy was put in place. One of the long-term objectives of the Policy is to contribute to the growth of local and national economies and thereby improve the quality of life of people by managing land and forest resources, developing forest-based industries, and by creating opportunities for income generation and employment. Accordingly, one of the strategies that it has set out is to identify, produce and process herbs and other NTFPs.

The Tenth Five-year Plan (2002–2007), which is also the Poverty Reduction Strategy Paper of Nepal, also included policies for the development and promotion of MAPs and essential oils with a broader sectoral objective of providing appropriate contribution of the forestry sector in poverty alleviation. It was included in the Plan document that “By giving special

emphasis to herb production, processing and market management as the main source of employment increment in high hills and hills, export promotion and income generation, National Herbs Development Program will be enhanced with the participation of the industry, commerce, agriculture, forest and health related units and nongovernmental organizations and private sector". Hence, one of the main programmes identified for the forestry sector by the Tenth Plan was "Herbs and non-timber forest management programme" which comprised of two programmes: (i) Plant resource conservation management (Gene Bank), and (ii) Development and extension of medicinal and aromatic plants processing technology, targets set for both of which were achieved during the plan period.

Similarly, the Three-year Interim Plan (2007–2010) included the programme of promoting herbs and non-wood forest product industry and marketing, giving priority to employ *Adibasi Janajatis* in such businesses, as one of the major programmes for improving economic conditions of the people. It identified medicinal herbs as one of the top priority commodities to promote in high hills. It also laid emphasis on the formation of herbs processing cooperatives in the hills and high hills of the country. One of the strategies of the Interim Plan was to arrange the system of market mapping for value addition of herbs. It also included in the Plan document special programmes targeted to collect data about medicinal herbs and intellectual property rights. One of the major programmes of the Interim Plan was to support the Herbs Production and Processing Company Limited to buy two machines as part of the herbs and aromatic oil processing programme.

The Three-year Plan Approach Paper (2010–2013) has also included some programmes for the development of MAPs. One of its working policies is to encourage programmes for production and processing of MAPs through public-community-private partnership and to prepare policy to develop special zones for production and management of different species of MAPs.

In the context of Nepal's membership in the WTO in 2004, there is need to identify and promote sectors in which the country has relative comparative advantage. Being a biodiversity rich country, one such sector is MAPs. With that in view and also because the existing Forest Act and Rules did not have clear-cut provisions for the conservation and utilization of herbs and NTFPs, the need of a separate policy on herbs and NTFPs was realized in 2004. With this realization, and with the objective of bringing about socio-economic transformation of Nepal and Nepali people through the production and commercialization of herbs and NTFPs, the Herbs and NTFP Development Policy (HNDP) was introduced in 2004.

The long term vision of HNDP is the conservation of herbs and NTFPs so as to contribute to the national economy, and hence introduce Nepal as a huge depository of herbs and NTFPs at the international level by 2020. Its objectives, among others, are to encourage the commercial cultivation of valuable herbs and NTFPs; help in adding value to herbs and NTFPs through processing; help in accessing capital, developing infrastructure, acquiring technical knowledge and skills, and market management to make herbs and NTFPs commercially competitive. To that end, some of the policies that the HNDP has highlighted are:

- Encouraging both wild collection and cultivation of herbs.
- Establishing "Herbs Zones".
- Establishing network of producers, collectors and traders for market management.
- Gradually developing infrastructure for processing of herbs and NTFPs.
- Simplifying certification and taxation processes related to herbs and NTFPs produced by the private sector through cultivation.
- Initiating the process of forest certification and organic certification.

- Conducting research to identify medicinal aromatic oil in plants; and in cases where such identification has already been done, help in their isolation and commercialization.
- Providing concessions to individuals or groups who would want to produce, process and sell herbs through cultivation.
- Developing a mechanism to provide international market information to producers, collectors, processors and exporters; and also establishing herbs information centres at national and regional levels.
- Establishing a fully-equipped laboratory at the national level, and gradually establishing such laboratories at regional levels, in order to maintain quality and standards of herbs and NTFPs and promote their international trade.

Similarly, Trade Policy 2009 has identified herbs as one of the products having high export potential and has mentioned that herbs development programme would be implemented for its commercialization and export enhancement. To that end, the programmes that Trade Policy 2009 has envisaged to undertake, including for essential oils, include:

- Making available testing and certification services by developing fully equipped testing laboratories in herbs production and processing, and making efforts to acquire international recognition in testing technology.
- Making available capital, technology and trainings for production, grading, storage and collection of high value herbs and essential oils required for the development of their commercial farming.
- Encouraging value addition in the production of herbs-based processed and semi-processed exportable products.
- Conducting market research and promotional programmes to encourage exports of herbs and herbal products.
- Encouraging production through cooperatives by according priority to identified pocket areas for herbs production.

2.2 Studies on MAPs and essential oils

2.2.1 Export Potential Assessment in Nepal

In 2006, ITC, in collaboration with TEPC, Government of Nepal, undertook a Technical Cooperation Project “Advisory services on export development of priority sectors of Nepal”. As a part of the project, research was carried out to identify products having good export potential, which culminated in putting in place the *Export Potential Assessment in Nepal* in September 2007.

To begin with the research, TEPC, ITC’s market analysis team and local consultants selected 14 product groups, representing about 11 percent of Nepal’s total exports at that time. One of the product groups thus selected was MAPs and essential oils. After that, each of the 14 product groups was assessed in terms of its export potential as well as socio-economic impact. The following first three dimensions were used to determine the export potential and the employment dimension to determine the socio-economic impact:

- *Current export performance of Nepal* (Index 1): Estimated by quantitative indicators such as the world market share, and the relative trade balance.
- *World markets* (Index 2): Estimated by indicators such as growth of world imports and Nepal’s access to international markets. Additionally, evaluation of the international environment was taken into account by a qualitative indicator–world market prospect, which was evaluated by the team of consultants based on their analysis of the favourable or unfavourable evolution of world markets for Nepal in the short- and medium-term.

- *Domestic supply conditions* (Index 3): Evaluated through a survey of companies about various supply issues such as the quality of products and the efficiency of supporting industries. In addition to the survey, supply conditions were also taken into account by the competitiveness prospect, which was evaluated qualitatively by the team of consultants based on their analysis of the possible evolution of the domestic supply conditions in the short- and medium-term.
- *Current employment impact* (Index 4): Evaluated by the full-time employment equivalent indicator, which is based on the number of people directly employed in each sector.

The study concluded that MAPs and essential oils had medium export potential, but high socio-economic impact. Similarly, the enterprise survey conducted as part of the research found that the sector's domestic supply conditions were medium. Accordingly, the study made the following recommendations in order to enhance the sector's overall export potential:

- Establish reliable laboratory support facilities.
- Obtain Hazard Analysis and Critical Control Point certification.
- Develop cultivation of MAPs and essential oils.
- Train collectors in post-harvest techniques (drying and storage) to minimize wastage and unnecessary losses.
- Develop semi-finished and finished products.
- Extend further marketing support.

2.2.2 Nepal Trade Integration Strategy 2010

NTIS 2010 has been developed to chart a possible course for the development of Nepal's export sector over the next three to five years, together with possible capacity development actions and selected short- to medium-term priorities that are supportive of 'inclusive growth'. As stated in the earlier chapter, MAPs and essential oils is one of 19 goods and services chosen by *NTIS 2010* as having export potential.

Using the same methodology that was used by ITC for the *Export Potential Assessment in Nepal*, *NTIS 2010* has also ranked MAPs and essential oils as high in terms of its socio-economic impact, and medium in terms of export potential. Additionally, in view of acute power shortage and adequate water unavailability at present, *NTIS 2010* has also looked at water and electricity intensity of the chosen 19 goods and services. Such intensity, in the case of MAPs and essential oils, is found to be low.

Overall, *NTIS 2010* has identified the following strengths, weaknesses, opportunities and threats related to the MAPs and essential oils sector:

Strengths	Weaknesses
<ul style="list-style-type: none"> • Availability of collectors and intermediary workers in wild herbs and organized human resources for production of essential oils. • Biodiversity in Nepal offers possibility to explore new and high-value products. • Proactive policy, directives and regulations. • Production extension prospects through contract farming system and purchase assurance to farmers. • Cultivation and processing centres in more than 15 districts. • Organic certification from internationally recognized organizations of different countries having accreditation such as ECOCERT, NASAA, IFEAT, EFFEO etc. 	<ul style="list-style-type: none"> • Labour problems, in particular high wages compared to productivity. • High collection charges. • Weak knowledge of scientific agronomical practices and post-harvest technologies within the sector. • Inability to target attractive markets due to lack of exposure and lack of knowledge of international marketing practices. • High cost of suitable packaging materials. • Lack of technical and policy support for processing and exporting of herbal products and essential oils.
Opportunities	Threats
<ul style="list-style-type: none"> • Increasing environment and nature conscious buyers. • Growing preference for organic and herbal-based products over synthetic products. • Gradual shifting from crude export to processing of herbal products and essential oils. • Strong government and donors. 	<ul style="list-style-type: none"> • Competition from India and China. • Low-price markets for chemical/synthetic substitute. • High technical entry barriers with stringent rules for processed materials. • Question of sustainability of some raw materials.

Accordingly, it has suggested the following actions to be taken to promote the exports of MAPs and essential oils:

On product and technology

- Support technology such as fractional distillation and steam processes for oil extraction to reduce material wastage and to lower the production costs.
- Encourage private sector investment in farming, processing, and production of forestry and herbal products for better use of resources.
- Facilitate internationally recognized product certification.
- Coordinate efforts of national and international non-governmental organizations in supporting production development and technological improvement. Emphasize a market-oriented approach.
- Initiate research and development efforts towards processed products such as perfumes, food flavouring elements, and fragrances.

On market access

- Promote use of better packaging materials such as certified aluminum containers.

On institutional and human resource development

- Establish specialized institutions in the mid-western region of Nepal to support economically deprived people from mountainous regions through development of herbs and aromatic plants and plant products.

On business environment

- Set up a national laboratory through public-private partnership that issues internationally recognized product certificates. Such a laboratory should be supplemented by a branch in Nepalgunj.
- Review, simplify, and improve current procedures for collection, royalties, restrictions, environmental impact assessment, initial environmental examination, processing, customs tariffs on inputs, and exporting of herbs and herb products.
- Implement a policy and institutional system for issuing an internationally recognized organic certificate developed by MoAC.
- Introduce a policy to intensify the use of raw herbs in production of essential oils and herbal products.
- Introduce collective patent rights to cover species of Nepali origin like Timur and others.
- Remove all district development taxes imposed on movement of herbs within Nepal.
- Strengthen bilateral negotiations with India and request the Government of India to (a) incorporate selected herbs in the list of importable items of Department of Plant Quarantine and (b) issue open transit movement permit from one state to another for herbs from Nepal.

2.2.3 Trade potentiality and ecological analysis of NTFPs in Himalayan Kingdom of Nepal

This study was conducted with three specific objectives: (i) Screening out top 10 NTFPs by reviewing existing policy and the criteria for commercial promotion (ii) Compiling information on sustainable harvesting, and commercial and marketing aspects (iii) Recommending appropriate measures for sustainable supply of the identified NTFPs and their market promotion.

The study took the list of top 30 species identified by the national level Herbs and NTFP Coordination Committee (HNCC) as its basis and also reviewed the criteria developed by various agencies for the selection of top species. Then, it used 17 criteria, both quantitative and qualitative (Table 1.1), and provided ranking scores to the 30 species in the HNCC list and four additional species, namely Bel, Chamomile, Lemongrass and Mentha (Table 2.1).

Table 1.1: 17 criteria used for the prioritization of species	
Quantitative	Qualitative
<ul style="list-style-type: none">• Market price• Past annual export quantity records of Department of Forestry (DoF)• Average annual export as per Indian Trade Centre (ITC), Tanakpur• Annual industrial demand in Kathmandu• Royalty of the species as percentage of market price	<ul style="list-style-type: none">• Ease of cultivation (propagation, domestication, tissue culture),• Parts used in trade• Bulkiness in transportation• Range of distribution (horizontal and vertical)• Threat category/conservation status• Legal framework for protection (CITES, GoN)• Availability of local processing (existing) techniques• Regeneration/rotation periods• Ethno-botanic importance• Potentiality of further processing for value addition• Social acceptance for promotion• Possibilities of quality improvement

Source: Poudel, 2007.

Table 1.2: List of prioritized species with scoring and ranking by ecological zones					
Rank	Score	Species	Prioritized species by climatic zones		
			Terai	Mid-hill	Himal
1.	73	<i>Phyllanthus emblica</i> (Amala)	Amala	Timur	Sugandhawal
2.	68	<i>Zanthoxylum armatum</i> (Timur)	Chamomile	Tejpat	Padamchal
3.	67	<i>Cinnamomum tamala</i> (Tejpat)	Pipala	Chiraito	Jatamansi
4.	63	<i>Chammomila matricaria</i>	Mentha	Ritha	Bisjara
5.	63	<i>Piper longum</i> (Pipla)	Bel	Lauthsalla	Guchhichyau
6.	60	<i>Mentha arvensis</i> (Mentha)	Lemongrass	Pakhanbed	Atis
7.	60	<i>Swertia chirayita</i> (Chiraito)	S.kokila	Dhasingare	Kutki
8.	59	<i>Aegle marmelos</i> (Bel)	Neem	Bhyakur	Yarsagumba
9.	59	<i>Sapindus mukorossi</i> (Ritha)	Kurilo	Majitho	Panchaule
10.	58	<i>Cymbopogon flexuosus</i> (Lemongrass)	Bojho	Okhar	Laghupatra
11.	57	<i>Cinnamomum glaucescens</i> (S.Kokila)	Sayapatri	Jhyau	
12.	56	<i>Azadirachta indica</i> (Neem)	Sarpagandha		
13.	55	<i>Asparagus racemosus</i> (Kurilo)	Gurjo		
14.	54	<i>Taxus baccata</i> (Lauth Salla)			
15.	54	<i>Valeriana jatamansi</i> (Sugandhawal)			
16.	51	<i>Rheum australe</i> (Padamchal)			
17.	50	<i>Acorus calamus</i> (Bojho)			
18.	50	<i>Nardostachys grandiflora</i> (Jatamansi)			
19.	48	<i>Tagetes minuta</i> (Sayapatri)			
20.	46	<i>Bergenia ciliata</i> (Pakhanbed)			
21.	46	<i>Gaultheria fragrantissima</i> (Dhasingre)			
22.	46	<i>Rauvolfia serpentina</i> (Sarpagandha)			
23.	45	<i>Dioscorea deltoidea</i> (Bhyakur)			
24.	45	<i>Rubia majith</i> (Majitho)			
25.	45	<i>Tinospora sinensis</i> (Gurjo)			
26.	42	<i>Aconitum spicatum</i> (Bisjara)			
27.	42	<i>Morchella conica</i> (Gucchi chyau)			
28.	41	<i>Juglans regia</i> (Okhar)			
29.	40	<i>Aconitum heterophyllum</i> (Atis)			
30.	40	<i>Neopicrorhiza scrophulariiflora</i> (Kutki)			
31.	39	<i>Cordyceps sinensis</i> (Yarsagumba)			
32.	38	<i>Dactylorhiza hatagirea</i> (Panchaunle)			
33.	36	<i>Parmellia species</i> (Jhyau)			
34.	32	<i>Podophyllum hexandrum</i> (Laghupatra)			

Source: Poudel, 2007.

The study concludes that NTFPs, more specifically MAPs, can contribute immensely to revenue collection as well as improving the socio-economic status of the Nepali people mainly living in rural areas. However, a number of problems at the level of production, harvest, marketing, processing, and value addition need to be properly addressed to realize the benefits.

2.2.4 Market linkage of herbs and semi-processed and processed NTFPs products

This study has sought to identify major herbs and NTFPs that Nepal trades in the domestic and international markets, and major traders and exporters of Nepal involved in the process. It has also elaborated the procedure of collection and trading of herbs and NTFPs. Of greater importance is the procedure it has mentioned regarding exporting such products to India and third countries, both via land and air. It has overviewed the Indian and European Union (EU) markets in particular; the EU market has been studied combining herbs with spices.

The study has noted the requirement of standards in the EU market. It has mentioned that the actual quality standards required in the EU market are set primarily by the importers and major end users against the background of health and safety requirements demanded by EU Food and Drugs Act. Accordingly, the main quality factors considered by traders in selecting spices and herbs include appearance, flavour, aroma, colour, volatile oil content and cleanliness. The European Spice Association (ESA), which represents 12 major national spice associations in Europe, has developed an “ESA Contract” which indicates minimum quality standards for imported herbs and spices, such as the maximum permissible contents of extraneous matter, maximum content of ash and heavy metals, packaging and labeling requirements, etc., and methods of arbitration and enforcement procedures.

2.2.5 Essential oils sector study in Nepal: A detailed study of Anthopogon, Juniper and Wintergreen essential oils

Unlike the studies discussed earlier, the focus of this study is essential oils, particularly, Anthopogon, Juniper and Wintergreen oils. The study was conducted with the objectives of assessing the supply situation of selected essential oils, suggesting activities for their proper marketing, and providing recommendations to the “Capacity Building for Bio Trade” project undertaken by the German International Cooperation (GIZ) for the promotion of essential oils.

The study has discussed the supply chain of selected essential oils, ranging from their collection (including their habitat and distribution); production/distillation (including types of materials used for their distillation); sale to traders; warehousing, quality control and packaging by traders; and retailing in the domestic market and/or exporting abroad. Regarding quality and standards of selected essential oils, the study has listed the documents required to be submitted during exports, and the Nepali institutions issuing those documents. It has also provided general requirements and quality test requirements of importers.

On barriers to smooth supply of selected essential oils, the study has identified existing as well as potential barriers. Some of the existing barriers include distribution of raw materials in remote areas, lack of trained human resource, lack of data on market price, unavailability of packaging materials, etc. Similarly, some of the potential barriers include unsustainable supply of raw materials, declaration of new conservation areas by the government, etc. Accordingly, the study has made some useful recommendations to improve the quality of selected essential oils and ensure their sustainable supply.

Chapter 3

INTERNATIONAL TRADE OF MAPs AND ESSENTIAL OILS

Consumers all over the world are increasingly resorting to herbal remedies for different types of health-related problems. They are also inclined towards the use of medicinal plants based food supplements, cosmetics, dyeing and colouring agents, etc. over synthetic ones. Similarly, worldwide application of essential oils for various purposes has also been on an increasing trend. As a result, international trade of MAPs and essential oils is growing every year. The sections below discuss international trade of these products separately in detail.

3.1 International trade of MAPs

MAPs are covered in chapter 12 (Chapter 12: Oil Seeds and Oleaginous Fruits; Miscellaneous Grains, Seeds and Fruit; Industrial or Medicinal Plants; Straw and Fodder) of the HS Code list. The 4-digit HS code 1211 is related to MAPs, which is further classified in 6-digit HS code as under:

1211 -- Plants and parts of plants (including seeds and fruits), of a kind used primarily in perfumery, in pharmacy or for insecticidal, fungicidal or similar purposes, fresh or dried, whether or not cut, crushed or powdered.
121110 -- Liquorice roots
121120 -- Ginseng roots
121130 -- Coca leaf
121140 -- Poppy straw
121190 -- Other

Source: *World Integrated Trade Solution (WITS)*.

As Table 3.1 illustrates, world imports of medicinal plants not included elsewhere (121190) is substantially higher than that of all the others. Nepal almost does not export MAPs other than that covered by HS code 121190. *NTIS 2010* has also encouraged the exports of this sub-group of MAPs from Nepal.

Table 3.1: World imports at 6-digit HS code (in 1,000 US\$)									
HS Code	Product	2002	2003	2004	2005	2006	2007	2008	2009
121110	Liquorice roots	25,666	27,145	34,074	31,956	29,431	4,042	2,537	281
121120	Ginseng roots	221,803	203,555	244,910	195,910	208,733	241,226	223,499	218,024
121130	Coca leaf	1,043	1,265	1,116	884	862	1,088	833	931
121140	Poppy straw	1,517	2,445	4,441	7,167	7,598	677	750	1,630
121190	Others	807,255	939,241	1,056,439	1,136,728	1,244,079	1,509,932	1,714,091	1,605,357

Source: *UN Comtrade, accessed through WITS*.

In 2009, world exports of MAPs (121190) totaled US\$1.5 billion and China featured as the largest exporter to the world. The top 10 exporters of MAPs in 2009, and Nepal's ranking are listed in Table 3.2. Although Nepal's export value compared to that of the top 10 exporters is not substantial, it still featured as the 25th largest exporter of MAPs to the world in 2009.

Table 3.2: Top 10 exporters of medicinal plants (121190) to the world in 2009		
Rank by value	Country	Export value (in 1000 US\$)
1	China	432,474
2	Germany	113,237
3	India	106,272
4	United States	78,000
5	Poland	65,564
6	Egypt	51,295
7	Hong Kong	50,438
8	France	45,689
9	Mexico	40,453
10	Belgium	37,601
25	Nepal	9,794

Source: UN Comtrade, accessed through Trade Map.

3.1.1 Nepal's participation in international trade of MAPs

Direct data on exports of MAPs from Nepal to the world in 2008 is not available. Mirror data available from Trade Map shows that Nepal exported about US\$3 million worth of MAPs (121190) to the world in 2008. But direct data on exports in 2009 and 2010 are available. According to TEPC, in 2009, exports were about US\$9.8 million, which fell to about US\$6 million in 2010¹. As shown in Table 3.3, there have been significant changes also in terms of top 10 export destinations. Most strikingly, Singapore, which did not feature in the top 10 export destinations in 2008, became the largest export destination for Nepal in 2009 and third largest in 2010. But in volume terms, India has always been the largest importer of MAPs exported from Nepal. In 2009, exports of MAPs from Nepal to India and Singapore were 4,950,679 kg and 206 kg respectively and in 2010 the figures were 6,641,877 kg and 117 kg respectively.

Table 3.3: Top 10 export destinations of Nepal					
Country	Export value, 2008 (in 1000 US\$)*	Country	Export value, 2009 (in 1000 US\$)**	Country	Export value, 2010 (in 1000 US\$)**
Hong Kong	1,875	Singapore	2,656	India	3,124
India	1,025	Hong Kong	2,616	Hong Kong	1,345
China	22	India	2,317	Singapore	1,097
Germany	22	China	1,484	Germany	90
United States	13	United States	595	China	70
Pakistan	11	UK	106	Japan	52
Czech Republic	9	Senegal	32	Pakistan	23
UAE	5	Bangladesh	23	Bangladesh	23
Australia	4	Pakistan	18	France	18
Switzerland	3	Canada	4	Finland	15

Source: *Mirror data (UN Comtrade, accessed through Trade Map); **Direct data (TEPC).

¹ The actual export figures are Nepali Rupees (NRs) 758,306,812 in 2009 and NRs. 440,462,666 in 2010. These have been converted to US\$ using the average annual exchange rate of US\$1=76.88 for 2009, and US\$1=74.54 for 2010.

Three South Asian countries featuring in the list of top 10 export destinations for Nepal in 2009 and 2010 indicates that there is scope to expand regional trade in MAPs in South Asia.

Regarding imports of MAPs (121190) by Nepal, total import was worth about US\$528,000 in 2009 and about US\$1 million in 2010 (Table 3.4). Therefore, Nepal has a positive trade balance in MAPs. However, declining exports vis-a-vis increasing imports in 2010 compared to that in 2009 warrants caution.

Table 3.4: Import of MAPs (121190) by Nepal			
Imports (2009)		Imports (2010)	
Country	Import value (US\$)	Country	Import value (US\$)
India	379,328	India	896,814
China	146,278	Germany	59,898
Hong Kong	1,963	China	53,005
Thailand	87	Bangladesh	380
Total	527,656		1,010,098

Source: TEPC.

3.1.2 Potential export markets of Nepal's MAPs

Nepal's major export destinations of MAPs based on export values are not consistent. There have been changes in major export destinations, some remarkably, pointing to the fact that available export values alone do not provide sufficient basis to identify Nepal's top export destinations of MAPs.

NTIS 2010 has used the Market Attractiveness Index (MAI) (see Box 3.1 for discussion of the MAI) to identify Nepal's top 10 potential export markets of MAPs. Ranking of attractive markets based on individual indicators as well as weighted indicators are provided in Tables 3.5 and 3.6 respectively.

Box 3.1: Market Attractiveness Index (MAI)
<p>The MAI is based on 3 indicators:</p> <ul style="list-style-type: none"> • the size of the import market, measured by imports for the particular goods or services • the dynamism of the market, measured by growth rates, specifically the difference between growth rate for a particular market and world average • the market access conditions (openness), measured by the <i>ad valorem</i> equivalent tariff applied to imports from Nepal and the difference between the tariffs applied to Nepal and to its five largest competitors in the particular market. <p>For goods exports, <i>NTIS 2010</i> has ranked attractive markets based on individual indicators as well as by giving weights to the indicators as follows:</p> <ul style="list-style-type: none"> • 30 percent weight for size of the import market • 50 percent weight for dynamism of the market • 20 percent weight for openness <p>Source: MoCS, 2010a.</p>

Table 3.5: Top 10 attractive markets for MAPs (121190) based on individual indicators

Rank	Top 10 by size	Top 10 by dynamism (growth)	Top 10 by openness
1	USA	Russia	India
2	Germany	Viet Nam	Russia
3	Japan	Singapore	Kazakhstan
4	France	USA	Belarus
5	Singapore	France	Belgium
6	Viet Nam	South Korea	USA
7	Italy	Italy	Italy
8	Hong Kong	Belgium	UK
9	South Korea	Germany	Sweden
10	Canada	Switzerland	Czech Republic

Source: MoCS, 2010a.

Table 3.6: Top 10 attractive markets for MAPs (121190) based on weighted indicators

Rank	Country	Exports from Nepal, 2008 (US\$)	World market share (%)	Growth rate, 2004-2008 (%)	Tariff for Nepal (%)	Tariff advantage (%)	Main competitors
1	USA	13,000	14.4	15.1	0	1	India, China, Mexico
2	France	0	5.2	14.7	0	0	Morocco, China, Italy
3	Germany	22,000	9.3	10.5	0	0	Poland, Chile, Egypt
4	Viet Nam	0	3.7	27.8	5	0	China, India, Hong Kong
5	Singapore	1,000	4.0	20.0	0	0	Indonesia, China, Hong Kong
6	Japan	0	7.2	8.2	0	0	China, Thailand, India
7	Italy	0	3.7	13.1	0	1	USA, France, Germany
8	Russia	0	1.8	41.5	0	3	Germany, Egypt, Nigeria
9	Belgium	0	2.8	15.6	0	1	Israel, France, Morocco
10	South Korea	1,000*	3.2	14.6	8	0	China, USA, Hong Kong

Source: MoCS, 2010a; *UN Comtrade, accessed through WITS.

Note: Although *NTIS 2010*, based on Trade Map, has shown that Nepal did not export MAPs to South Korea in 2008, WITS shows that Nepal exported around US\$1,000 worth of MAPs to South Korea in 2008. Both are mirror data, however.

Of the top 10 attractive markets identified on the basis of weighted indicators, only four imported some MAPs from Nepal in 2008. The others either did not import at all, or their imports were insignificant. But the data for 2009 shows that while Singapore significantly increased its import from Nepal, new export destinations have also been added to the list. Therefore, there is scope to explore the possibilities of enhancing exports of Nepal's MAPs to the markets identified by *NTIS 2010* on the basis of MAI. More importantly, since there is extreme heterogeneity in this product group, it is important to find out whether the types of MAPs in which Nepal has export potential are the ones demanded by these identified countries.

3.2 International trade of essential oils

Essential oils are covered in chapter 33 (Chapter 33: Essential oils & resinoids; perfumery, cosmetic/toilet) of the HS Code list. The 4-digit HS code 3301 is related to essential oils, which is further classified into 6-digit HS code as under:

3301 -- Essential oils (terpeneless or not), including concretes and absolutes; resinoids; extracted oleoresins; concentrates of essential oils in fats, in fixed oils, in waxes or the like, obtained by enfleurage or maceration; terpenic by-products of the deterpenation of essential oils; aqueous distillates and aqueous solutions of essential oils
330111 -- of bergamot
330112 -- of orange
330113 -- of lemon
330114 -- of lime
330119 -- Other
330121 -- of geranium
330122 -- of jasmin
330123 -- of lavender or of lavandin
330124 -- of peppermint (<i>Mentha piperita</i>)
330125 -- of other mints
330126 -- of vetiver
330129 -- Other
330130 -- Resinoids
330190 -- Other

Source: WITS.

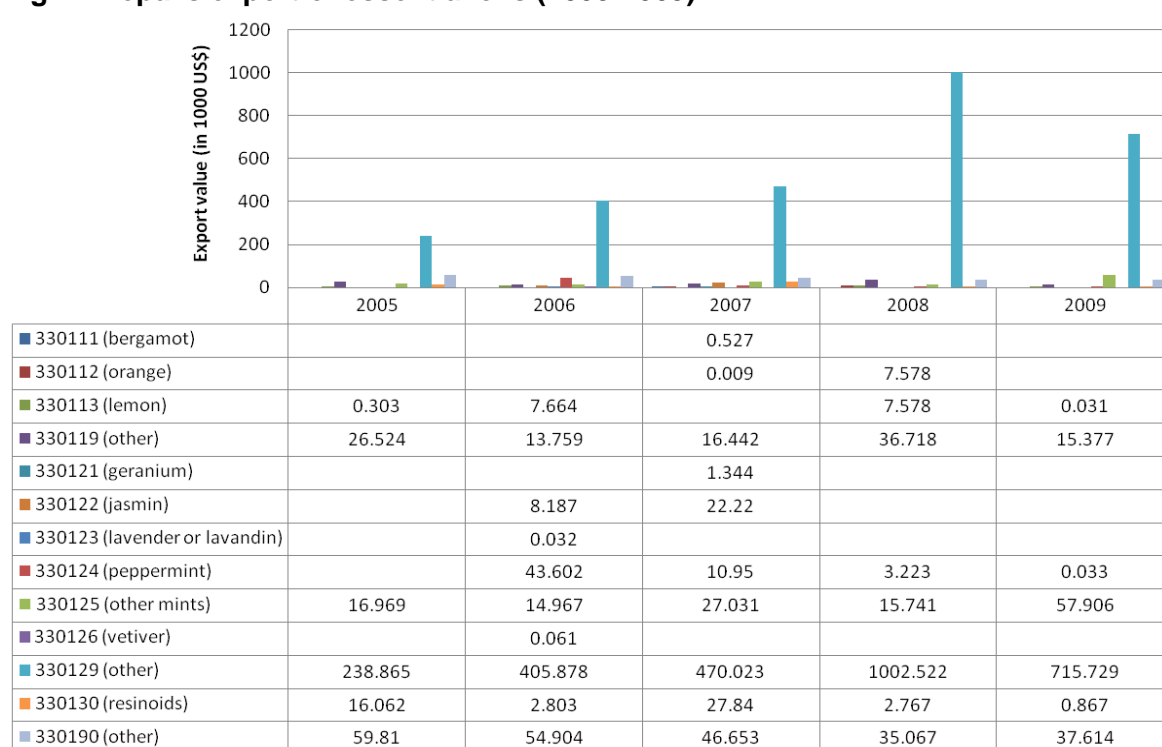
Of all these sub-groups of essential oils, international trade of essential oils classified under HS code 330129 is the highest (Table 3.7). Nepal also exports this sub-group of essential oils substantially higher than all the others (Fig. 1). *NTIS 2010* has mainly included this group of essential oils in its list of 19 goods and services in which Nepal has export potential.

Table 3.7: World imports at 6-digit HS code (in 1,000 US\$)

HS Code	Essential oil	2002	2003	2004	2005	2006	2007	2008	2009
330111	of bergamot	17,730	20,553	26,029	26,913	45,131	4,230	5,981	431
330112	of orange	118,828	165,398	157,181	157,050	164,292	184,471	191,429	173,623
330113	of lemon	33,367	124,546	139,287	187,125	223,650	272,861	317,859	331,945
330114	of lime	38,138	52,727	51,320	56,690	62,267	1,204	477	1,280
330119	Other	68,812	76,304	107,423	156,931	110,170	214,546	232,794	189,985
330121	of geranium	14,060	16,675	16,617	13,270	16,838	2,161	966	493
330122	of jasmin	10,211	10,741	9,627	10,008	11,537	639	1,139	2,753
330123	of lavender or of lavandin	35,063	41,582	47,567	47,936	48,859	4,465	1,279	1,664
330124	of peppermint	169,297	166,146	129,232	123,514	144,388	167,725	190,824	162,882
330125	of other mints	97,757	100,450	117,848	129,914	159,885	171,328	197,608	173,725
330126	of vetiver	6,856	11,727	14,314	15,024	20,470	548	1,167	958
330129	Other	539,304	578,068	642,223	679,630	733,481	998,227	1,203,434	940,241
330130	Resinoids	38,046	42,816	43,682	44,260	43,769	45,761	47,714	38,624
330190	Other	192,904	231,973	286,840	321,849	360,001	424,761	458,259	401,886

Source: UN Comtrade, accessed through WITS.

Fig. 1: Nepal's export of essential oils (2005-2009)



Source: Based on UN Comtrade, accessed through WITS (mirror data).

Although Nepal mainly exports essential oils classified under HS code 330129, that export figure too is very small; it is nowhere comparable to the export figures of the top ten exporters in the world (Table 3.8). While the global export of essential oils (330129) in 2009 was about US\$846 million, Nepal exported only worth US\$208,000 and was ranked 64th among 159 countries.

Table 3.8: Top 10 exporters of essential oils (330129) to the world in 2009		
Rank by value	Country	Export value (in 1000 US\$)
1	France	190,274
2	China	96,168
3	United States	69,734
4	Spain	42,024
5	Switzerland	34,538
6	Germany	34,136
7	UK	32,868
8	Singapore	30,822
9	India	25,001
10	Indonesia	22,826
64	Nepal	208

Source: UN Comtrade, accessed through Trade Map.

3.2.1 Nepal's participation in international trade of essential oils

As in the case of MAPs, direct data on exports of essential oils by Nepal in 2008 is not available. Mirror data shows that Nepal exported about US\$1 million worth of essential oils (330129) to the world in 2008. But direct data on exports, available for 2009 and 2010 from TEPC, show that export of essential oils (330129) from Nepal to the world was US\$209,031 in 2009, which decreased to US\$124,503 in 2010 (Table 3.9). In view of such low export values in 2009 and 2010 compared to that of 2008, one should treat these data with caution.

Comparing export data of 2009 with that of 2010, significant changes can be observed in exports to Belgium, France and Hungary. While exports to Belgium decreased significantly from 2009 to 2010, exports to France increased significantly. In the case of Hungary, where Nepal had exported about US\$37,000 worth of essential oils in 2009, there was no export in 2010.

Table 3.9: Export destinations of Nepal for essential oils (330129), 2008-2010					
Country	Export value, 2008 (US\$)*	Country	Export value, 2009 (US\$)**	Country	Export value, 2010 (US\$)**
Belgium	214,000	Belgium	78,336	India	53,259
Germany	193,000	India	74,626	France	45,716
Hungary	127,000	Hungary	36,642	Australia	13,405
France	125,000	Australia	15,881	USA	2,735
India	94,000	USA	2,027	New Zealand	2,535
USA	85,000	France	943	Canada	2,019
UK	74,000	Malaysia	321	Belgium	1,585
Australia	44,000	Italy	256	UK	1,584
Chinese Taipei	12,000			Italy	1,382
Canada	11,000			Iran	282
Sweden	6,000				
Philippines	6,000				
Czech Republic	3,000				
UAE	2,000				
Japan	2,000				
Switzerland	2,000				
Austria	1,000				
Total	1,001,000		209,031		124,503

Source: *Mirror data (UN Comtrade, accessed through Trade Map); **Direct data (TEPC).

On the import front, Nepal imported US\$754,364 worth of essential oils (330129) in 2009 and US\$94,273 in 2010 (Table 3.10), which means Nepal had a negative trade balance in essential oils (330129) in 2009, but a positive trade balance of about US\$30,000 in 2010.

Table 3.10: Import of essential oils (330129) by Nepal			
Imports (2009)		Imports (2010)	
Country	Import value (US\$)	Country	Import value (US\$)
Indonesia	479,811	India	86,518
Singapore	123,852	Indonesia	7,755
India	116,041		
United Arab Emirates	34,659		
Total	754,364		94,273

Source: TEPC.

3.2.2 Potential export markets of Nepal's essential oils

As in the case of MAPs, *NTIS 2010* has identified potential export markets for essential oils (330129) from Nepal based on the MAI in terms of individual indicators as well as weighted indicators used to construct the MAI discussed above (Tables 3.11 and 3.12).

Table 3.11: Top 10 attractive markets for essential oils (330129) based on individual indicators			
Rank	Top 10 by size	Top 10 by dynamism (growth)	Top 10 by openness
1	USA	China	India
2	France	India	Russia
3	Switzerland	Singapore	South Korea
4	Germany	Switzerland	Kazakhstan
5	UK	Mexico	Belarus
6	Singapore	France	Japan
7	Japan	Germany	Latvia
8	Mexico	USA	Portugal
9	China	UK	UK
10	India	Japan	Czech Republic

Source: MoCS, 2010a.

Table 3.12: Top 10 attractive markets for essential oils (330129) based on weighted indicators							
Rank	Country	Exports from Nepal, 2008 (US\$)	World market share (%)	Growth rate, 2004-2008 (%)	Tariff for Nepal (%)	Tariff advantage (%)	Main competitors
1	Singapore	0	4.8	27.9	0	0	Indonesia, China, France
2	Switzerland	2,000	9.1	25	0	0	France, Indonesia, Germany
3	India	94,000	2.8	36.6	0	18	Indonesia, China, Singapore
4	France	125,000	15.9	18.4	0	0	Indonesia, Switzerland, China
5	Germany	193,000	8.6	18	0	0	France, Indonesia, China
6	USA	85,000	18.6	15.6	0	1	France, Indonesia, China
7	UK	74,000	7.6	14.6	0	1	France, USA, South Africa
8	Japan	2,000	4	13.2	0	1	France, UK, India
9	China	0	2.8	39.7	19	-2	USA, Myanmar, France
10	Mexico	0	3	22.6	6	-2	Indonesia, Switzerland, China

Source: MoCS, 2010a.

Unlike in the case of MAPs, in 2008, Nepal exported some amount of essential oils (330129) to most of the attractive markets identified by *NTIS 2010*. However, in 2009 and 2010, there was still no export in some of the identified attractive markets such as Singapore, China and Mexico where Nepal had not exported essential oils (330129) in 2008 also. Even worryingly, there has been significant reduction in the number of export destinations in 2009 and 2010. But again, since the data for 2008 is mirror data, and that for 2009 and 2010 is direct data, some caution is required in making such a comparison.

Chapter 4

PROBLEMS AND CHALLENGES: EMPIRICAL FINDINGS

The earlier chapter discussed international trade of MAPs and essential oils, and Nepal's share in international trade of these products in broad terms. Based on in-depth interviews and interaction with stakeholders, this chapter discusses various problems and challenges in the MAPs and essential oils sectors in Nepal.

4.1 Collection and cultivation

About 90–95 percent of MAPs in Nepal is collected from the wild. Cultivation of MAPs is carried out in a very small scale. There are a number of problems and challenges in the cultivation of MAPs because of which collection from the wild is preferred over cultivation, although there are problems and challenges in wild collection too.

4.1.1 *Sustainability*

Supply of MAPs and essential oils from Nepal is not enough and sustainable. For example, demand of lemongrass is high in the international market. But Nepal's production of lemongrass is not even 10 tons a year, whereas India's production of lemongrass per year is about 15,000 tons. It is true that cultivation ensures more sustainable supply of MAPs than collection from the wild. But in the case of Nepal, there are a number of problems in cultivation of MAPs. For example, there is lack of market information, unavailability of quality seeds, etc. (Box 4.1) due to which cultivation of MAPs is not carried out on a large scale. When farmers are not fully aware of the markets where they could sell their products, they prefer to cultivate traditional crops such as rice and wheat, of which they have market and other information and are confident to sell their products. MAPs also have longer gestation periods and so farmers have to wait for longer years to realize income from its cultivation. Therefore without any alternate source of income, farmers are reluctant to switch to cultivation of MAPs from traditional crops.

Stakeholders point out that law has also discouraged cultivation of MAPs. Unlike the case of other agricultural products that farmers can harvest and sell with ease without the requirement to get consent from anyone, the process is cumbersome in the case of MAPs. To harvest and sell MAPs, farmers have to get release letters and fulfill other various formalities. This discourages them from engaging in cultivation of MAPs.

Box 4.1: Farmers left in the lurch

In western Nepal, some agencies promoted the cultivation of chamomile few years back. The price of chamomile oil in the international market at that time was high, which attracted farmers in its cultivation. For a few years, everything went fine. Starting from NRs. 16,000 per kg of oil, it gradually went up and reached a peak of NRs. 35,000 per kg. In line with the increase in price, production also increased as more farmers shifted to chamomile cultivation. For instance, total production of chamomile oil in 2009 was about 300 kg, which increased to about 650 kg in 2010. But now, demand for chamomile oil in markets where Nepal had been exporting has saturated, and farmers do not have information about new markets. Nor are they or the traders in a position to find new markets on their own. As a result, huge quantity of chamomile oil has remained as stock with farmers. They have no other source of income, and are now repenting on their decision to shift to chamomile cultivation.

Source: As told during the FGD by members of Jadibuti Association of Nepal (JABAN).

But collection of MAPs from forests is also not done in a sustainable manner due to lack of proper awareness and training. Poverty has also been a huge contributing factor to unsustainable collection of MAPs since local level collectors' priority would be to fulfill their immediate needs rather than think of the future. There are also no common guidelines prepared for the collection of MAPs.

4.1.2 Information and inputs

Nepali farmers do not possess enough and proper information about cultivation techniques of MAPs. Nor are they provided such information before they engage in cultivation (Box 4.2). The loss that farmers had to incur due to lack of such information discourages them in MAPs cultivation.

Box 4.2: Loss due to lack of information

Some time back, an importer reached an agreement with a trader in Nepalgunj to supply certain quantity of *Tulasi* (*Ocimum tenuiflorum*) to the former. Accordingly, the trader encouraged farmers to cultivate *Tulasi* and promised to buy back the harvest. Farmers cultivated *Tulasi* in traditional way in their fields under open sky. When the product was ready for exports, the importer declined to buy it stating that the quality did not match with what he was looking for and had agreed to. It turned out that the cultivation had to be done in a green house facility and not under open sky. But farmers neither had that knowledge, nor did they get that information beforehand. The trader had no choice but to pay to the farmers. He sold the product to other buyers in small quantities, but still a huge stock is left with him.

Source: As told during the FGD by members of JABAN.

Since Nepal's exports of MAPs and essential oils are based almost entirely on wild collection rather than cultivation, there are not much problems and challenges regarding inputs. However, in cases where cultivation of MAPs was initiated, there were problems in accessing quality inputs, mainly seeds (Box 4.3).

Box 4.3: Faulty seeds

To encourage cultivation and mass production of *Satawar* (*Asparagus racemosus*), its seeds were distributed in many parts of the terai, mainly in Dang, by different agencies. Farmers were encouraged to cultivate it and in due course its cultivation covered about 1,300 hectares (ha.) of land. Officials of JABAN visited one of the sites to look at the cultivation done in such a large scale. They even gave a written commitment, although not binding, that they would buy the *Satawar* after harvest at the prevailing market price. But later it turned out that the seeds that were distributed initially were not of the same variety that was commonly traded and which had immense value. They were hybrid seeds and the *Satawar* that those seeds yielded were larger in size than the common ones and were less useful. While the price of the common smaller sized *Satawar* was about NRs. 500 per kg, the price of the hybrid one was almost ten times less. That was a huge setback to the farmers.

Source: As told during the FGD by members of JABAN.

Cultivation of MAPs that was initiated, and some of which exist even today, are mostly of some common varieties in the sense that many other countries also cultivate these varieties in a much larger scale. In fact, some of the varieties such as chamomile were introduced to Nepal by bringing seeds from other countries initially. Even today, the sources of seeds for such MAPs are foreign countries. Farmers do not get proper advice regarding the quality and appropriateness of such seeds due to which the efforts they put in cultivating MAPs, sometimes, turn out to be futile. On the other hand, adequate efforts have not been made to domesticate wild varieties of MAPs in which Nepal has comparative advantage and which is possible so that such varieties could be cultivated and sustainable supply could be ensured. Because of inadequate experience with cultivation, there are no other major issues regarding other inputs such as fertilizer, irrigation, etc.

4.2 Processing/manufacturing

As stated in previous chapters, most of the MAPs are exported from Nepal in raw form. Processing/manufacturing takes place to a very limited extent since there are problems and challenges in undertaking processing/manufacturing activities. Negligence is also a major problem in undertaking processing activities (Box 4.4).

Box 4.4: Low yield due to negligence

With encouragement from the Government of Nepal, 260 farmers of Bara district have cultivated Chamomile in about 244 ha. of land. This year, due to untimely processing of Chamomile by Tamagadi Herbs Processing Centre (THPC), farmers of Sapahi VDC, Bara incurred loss of more than NRs. 15 million. According to a farmer Bharat Bhandari from Sapahi-3, the processing facility belongs to the government, and the staff employed in it did not operate the machine on time. As a result, Chamomile flowers dried and did not yield oil. According to Bhandari, Chamomile cultivated in 1 bigha (0.6773 ha.) of land yielded only 1.5 litres of oil this year whereas it used to yield four litres in previous years.

Usually, after the seeds of chamomile are sown, it is first cut in three months. Thereafter, it is cut every three weeks and raw oil of Chamomile is extracted. But this time, due to delay in operating the machine, farmers could not cut Chamomile on time; those who did, could not extract oil. According to the manager of THPC, due to late disbursement of funds for the Centre, the machine could not be operated on time.

Source: Himal Khabarpatrika, 15-30 March 2011.

Moreover, it is easier to export MAPs to India, the major export destination for Nepal, in raw forms than in processed forms due to stringent rules and also higher duties and charges for exports of processed products in India. Also, in case of medicinal plants, there is not any specific general processing technology; and whatever technology exists is also difficult to use without proper knowledge and skills. Another challenge regarding processing is that Nepal's supply capacity is extremely limited compared to that of India. Therefore, Nepal does not enjoy economies of scale due to which it has not been able to import modern technologies to ensure the quality of its products. Relying on old and traditional technologies causes deterioration in quality of products. Hence, stakeholders prefer to export MAPs to India in raw form, where processing and further value addition is done in a large scale through the use of modern technologies and skilled human resources.

That is not to say, however, that there are not any processing facilities set up in the country. According to JABAN, in 1999, there was only one distillation unit established by the private sector in Banke and Bardiya districts; today there are about 77 processing facilities. A high-tech modern processing facility has also been established in the region. There are processing facilities set up in other parts of the country also. But these facilities have either not been brought into proper use and/or the quality of products obtained through processing in some of these facilities have been inferior. There is also lack of skilled human resources to run modern processing plants.

4.3 Exports

There are a number of problems in the exports of MAPs and essential oils. Some of the major problems are highlighted and discussed below.

4.3.1 *Tariff and non-tariff barriers*

Except in a few countries, MAPs and essential oils exported by Nepal do not face import tariffs (Table 4.1). China is a major market that levied import tariffs on both MAPs (121190) and essential oils (330129) with tariffs levied on the latter being much higher than that levied on the former. However, China has completely eliminated the import tariff on MAPs as well as essential oils exported from Nepal since May 2010 after it decided to provide duty-free access to 95 percent of the products originated in Nepal and exported to China.

Table 4.1: Importing markets of MAPs (121190) and essential oils (330129) exported by Nepal and tariff faced by Nepal, 2009

MAPs (121190)		Essential oils (330129)	
Importer	Tariff (%)	Importer	Tariff (%)
Singapore	0	Belgium	0
Hong Kong	0	India	0
India	0	Hungary	0
China	5.8	Australia	0
USA	0	USA	0
UK	0	France	0
Senegal	5	Brazil	10.8
Bangladesh	12	China	18.8
Pakistan	5	Germany	0
Canada	0	Italy	0
Japan	0	Japan	0
Finland	0	Mexico	4.4
Germany	0	Netherlands	0
Spain	0	Spain	0
Belgium	0	Switzerland	0
France	0	UK	0
Italy	0	Indonesia	5
Republic of Korea	8	Singapore	0
Malaysia	0	UAE	5
Taiwan	0.4		
Netherlands	0		
Viet Nam	5.4		

Source: Trade Map.

Even if import tariff is zero, some countries could impose other duties and charges. For example, as per the Customs Tariff Act and the Central Excise Tariff Act of India, it imposes an additional duty of 16 percent on exports of essential oils from Nepal, but it does not impose any such duty on MAPs. However, as told by the President of JABAN, when a trader in Nepalgunj wanted to export powdered form of *Pawanbokra* (*Persea spp.*), India levied 4 percent duty. Some products attract an additional 2.5 percent duty when exporting to India. Nevertheless, according to stakeholders, tariffs and other duties, imposed to some extent, are not barriers to export of MAPs and essential oils from Nepal to India mainly because India imposes standard customs duty of 30 percent on both MAPs (121190) and essential oils (330129) on imports of these products from many other countries; but due to the bilateral trade treaty between the two countries, it does not impose any customs duty on import of these products from Nepal.

Regarding non-tariff barriers (NTBs), secondary data and information are not available. Stakeholders, during interaction in Nepalgunj, highlighted that a provision regarding the issuance of the Certificate of Origin (CoO) within the country has been acting as an NTB. They said that the Nepalgunj Chamber of Commerce and Industry, as per the directives of the Federation of Nepalese Chamber of Commerce and Industry, which is the authority to issue/delegate the authority to issue CoOs, issues CoO only after the exporter provides the vehicle registration number used to export the products. Because of such provision, traders who export small quantities (for example, a few kilograms of essential oils) in lighter vehicles such as rickshaws, horse-carts, bicycles, etc., are not able to export their products with ease. Also, regarding exports to India, the Plant Quarantine Act (PQA) of India states that only those plants/planting materials listed in Schedule VII of the Act are permissible for

imports on the basis of phytosanitary certificate issued by the exporting country. For other plants/planting materials, the process depends on the discretion of the customs officer. Of the 43 different types of MAPs exported to India in 2009/2010 from Nepalgunj, only 11 were listed in Schedule VII of the PQA (Table 4.2). This has created barriers in the smooth exports of all potential MAPs from Nepal to India.

Table 4.2: List of herbs exported to India from Nepalgunj, 2009/10

S.N.	Local name	Botanical name	Export (kg)	Listed in schedule VII of PQA ?
1	Reetha	<i>Sapindus mukorossi</i>	1,141,689	Yes
2	Timur	<i>Zanthoxylum Armatum</i>	602,618	Yes
3	Tejpat	<i>Cinnamomum tamala</i>	387,487	Yes
4	Pakhanved	<i>Bacopa Moniersi</i>	176,561	No
5	Jatamansi	<i>Nardostachys Grandiflora</i>	138,577	No
6	Chutro bokra	<i>Berberis Aristata</i>	136,071	Yes
7	Kutki	<i>Picrorhiza scrophulariiflora</i>	129,617	Yes
8	Amla	<i>Embllica Officianalis</i>	126,630	No
9	Githidaarbokra	NA	102,775	No
10	Pawanbokra	<i>Persea spp.</i>	17,88,580	No
11	Dalchini	<i>Cinnamomum tamala</i>	76,341	Yes
12	Padamchal, dolu	<i>Rheum Australe</i>	75,187	No
13	Sugandha kokila	<i>Cinnamomum Ceciodophne</i>	63,548	No
14	Sugandabal mark	<i>Valeriana Wallichiti DC</i>	61,571	No
15	Amalved	<i>Rheum austral</i>	45,791	No
16	Chiraita	<i>Swertia aspera</i>	43,926	No
17	Shikakai	<i>Acacia Rugata</i>	27,930	No
18	Jiwanti	<i>Otochillus porectus</i>	24,617	No
19	Bhringaraj	<i>Eclipta prostrata</i>	24,230	No
20	Kalo musli	<i>Curculigo orchoides</i>	24,055	No
21	Satuwa	<i>Paris Polyphylla</i>	19,882	No
22	Satawar	<i>Asparagus racemosus</i>	14,046	No
23	Bisfez	<i>Polypodium Vulgare</i>	10,393	No
24	Bishjara, Bikh	<i>Aconitum spicatum</i>	8,247	No
25	Bajradanti	<i>Coleus barbatus</i>	7,952	No
26	Gurjo	<i>Tinispora cordifolia</i>	7,700	No
27	Bramhi	<i>Centella asiatica</i>	7,222	Yes
28	Manjith	<i>Rubia Corditoilia</i>	4,721	Yes
29	Kaladana	<i>Orchis Obcordata</i>	4,534	No
30	Pipala	<i>Piper Longum Linn.</i>	3,680	No
31	Atees	<i>Aconitum Heterophyllum</i>	3,462	No
32	Chulthe	<i>Rheum emodi</i>	2,400	No
33	Titepathi	<i>Artemisia vulgaris Linn</i>	2,195	No
34	Kaiphali	<i>Myrica esculenta</i>	1,870	No
35	Bet phal, bet	<i>Calamus tenuis</i>	1,579	Yes

36	Bhootkesh	<i>Corydalis gevariana</i>	1,367	No
37	Bojho	<i>Acorus Calamus</i>	1,145	Yes
38	Aankarkara	<i>Heynca trijunga Rox b.</i>	1,000	No
39	Karaj chulte	<i>Rheum australe</i>	600	No
40	Lehan	NA	500	No
41	Kakarsingi	<i>Pistacia Intergerima</i>	283	Yes
42	Negbeli dhulo	<i>Lycopodium clavatum</i>	190	No
43	Guchhi chyaw	<i>Morchella esculenta</i>	10	No
	Total		5,302,779	

Source: JABAN; botanical names from various sources.

Regarding exports to China, its Plant Quarantine Department is based in Shanghai due to which exports are delayed. There are also language barriers to export to China.

In terms of exports to European countries, the main issue related to NTBs is sanitary and phyto-sanitary (SPS) certification and good manufacturing practices (GMP) standards and certifications required in destination countries. The European Herb Growers Association has devised a set of good agricultural practices (GAP) applicable to the production of MAPs; hence they could seek such standards when importing from Nepal too. There are chances that these could act as NTBs in the future.

4.3.2 Trade facilitation

Trade facilitation needs to be discussed at three levels: (i) within the border (ii) at the border, and (iii) beyond the border. In the case of MAPs, it is disappointing to note that much of the problems regarding trade facilitation are within the border. In order to transport MAPs from the west to the east to export from Kakarvitta customs, an exporter has to get 36 stamps in his documents all along the way, with unseen cost of each stamp in the range of NRs. 500 to NRs. 5,000. Similarly, local goons and other groups extort money from every truck on the pretext of checking the consignment (Box 4.5).

Box 4.5: Problems in internal movement

A trader from western Nepal once exported two trucks of MAPs he bought in Nepalgunj from the eastern border. He paid NRs. 35,000 per truck as freight charges, but his unseen expenses were around NRs. 77,000 per truck. Since then he stopped exporting MAPs from the eastern border, although that is more efficient and cost-effective if the destination is eastern markets of India, such as Kolkata (also the major port through which Nepal exports to third countries), and/or countries such as Bangladesh.

Source: As told during the FGD by members of JABAN.

At the border, there is not much problem in case of MAPs listed in Schedule VII of the PQA of India. But there are problems in exporting the rest of MAPs since the customs officer could exercise discretionary power in making his/her decision. There is no problem at customs while exporting by air also.

Beyond the border problems include, mainly in terms of exports to India, transit permits required by the Uttar Pradesh and Uttaranchal Governments to export MAPs to other states of India via those states. They would provide the permits along with quotas, for example to export 50 tons in a year, but it could take up to three months to receive the permit. The issue has been taken to higher authorities of both countries a number of times since 1999, but it has not been solved yet permanently. In response to a case filed by Nepali exporters at the

Lucknow High Court against the requirement to acquire transit permits, the Court has given stay order for the time being, which has provided relief to exporters. But the problem will surface again once the stay order is lifted.

4.3.3 Quality and standards

Good quality is a *sine qua non* for any product to enter into a market and be competitive, more so in today's globalized context where there is stiff competition among countries to sell same or like products. It is even important if the export destination is a developed country market where buyers themselves are conscious about quality and make their demands accordingly. From an international trade perspective, product standards are mainly discussed under two categories: (i) related to food safety and human, animal or plant life or health, covered by the SPS Agreement of the WTO, and (ii) related to processing and production methods, testing and certification procedures, packaging, marking and labeling, covered by the Agreement on Technical Barriers to Trade (TBT) of the WTO. Both Agreements of the WTO have been put in place recognizing the right of countries "to establish protection, at levels they consider appropriate, for example for human, animal or plant life or health or the environment"², while at the same time to ensure that such standards do not create unnecessary obstacles to trade. Accordingly, the Agreements encourage countries to use international standards as appropriate, but do not require them to change their levels of protection as a result of standardization, as long as their levels of protection have a scientific basis to prove the need.

In the case of MAPs and essential oils, which are used in manufacturing/preparing medicines, food supplements and other products for human consumption, ensuring and maintaining quality and standard of products is very important. To ensure good quality in MAPs and essential oils is to ensure that they have the required chemical compositions; do not pose danger to human, animal and plant life or health; etc. Now-a-days, many people, mostly in developed countries, are also increasingly resorting to the use of organic products. Hence, good quality of MAPs and essential has also started to mean that they are organic.

Department of Plant Resources (DPR), Ministry of Forest and Soil Conservation, Government of Nepal, is the central agency authorized to issue quality certification, except for organic certification, of MAPs and essential oils of Nepal. However, DPR is not fully equipped and capable of certifying quality of products. Its role is limited to providing CITES certification, checking chemical composition to ascertain whether the product is adulterated or not, and certifying that containers have been sealed for export by air. Moreover, laboratory equipments that DPR has been using have been in use for a long time. Therefore, they might not produce correct results at times. As a result, many importing countries do not accept the quality certificates issued by DPR. Another problem is that, even if testing facilities are established, they lack human resources. For example, a testing facility was established in Nepalgunj, but it is not in use due to lack of human resources to run it.

Also, while importing countries demand specific pest data for each MAP for exports, Nepal does not even have basic pest data of listed medicinal plants because of which exports are hindered. Hence, exporters first send samples of products for quality inspection to the importers, mainly in third countries, and only after they receive green signals from importers do they export their products. Some traders in Nepalgunj have been making use of the accredited testing facilities in India, especially in Delhi, to send samples and export products abroad.

² www.wto.org

There have been cases when samples, mainly of essential oils, sent for quality inspection to importing countries could not pass the test. For example, some time back, oil extracted from *Timur* (*Zanthoxylum armatum*) was found to contain some pesticides. Problems in producing good quality essential oils in Nepal are mainly due to lack of knowledge and skills and modern equipment and technology. For example, stainless steel distillation units are more efficient in terms of fuel-wood consumption, distillation time, yield of essential oils, handling of the unit and producing quality essential oils compared to mild steel distillation units. Still, because mild steel distillation units are cheaper to install compared to stainless steel distillation units, the former are used by many facilities (Gurung 2010).

Another aspect regarding quality is that many traders export their products to buyers in India who do not care much about quality, and are involved in the use of MAPs and essential oils thus imported from Nepal to produce inferior quality products. This has led to complacency of Nepali exporters in receiving whatever price their exports fetch despite the potential to receive premium prices by ensuring good quality of their products and targeting high-end buyers.

Issues of quality of MAPs have also to do with the tendencies of mixing various other plants with MAPs so as to increase weight since raw MAPs are bulky substances priced according to weight. There was a case some 9/10 years earlier that *chiraita* (*Swertia aspera*) was exported by mixing with other plants. The practice of mixing continues even today in case of some MAPs.

One issue regarding standards is that essential oils need to be packaged in containers made of either glass, stainless steel or aluminum, or in epoxy coated drums or food grade high density polyethylene (Gurung 2010). Such containers are not available in Nepal and are imported mainly from India, which sometimes take more time to reach Nepal, thereby causing delays in delivering the products. In terms of labelling, although basic requirements of labelling are fulfilled, there is still scope to improve the quality of labels to make them at par with international standards.

Regarding organic certification, there are a few certifying agencies worldwide, with their representatives in different countries, who issue organic certificates. Nepali traders normally invite certifiers from India. The cost of getting organic certification is very high. Without organic certification, it is difficult to export to some countries such as France, where organic certification is mandatory.

4.3.4 Intellectual property rights

The use of intellectual property rights (IPRs) in the case of MAPs and essential oils has to be seen from two perspectives. The first is regarding traditional knowledge possessed by communities about the inherent qualities of MAPs and the medicinal and other uses that these can be brought into. Such traditional knowledge should be protected by means of IPR. However, since such knowledge is possessed not just by an individual but the whole community, it cannot be protected by any private form of IPR. Any benefit arising out of the use of such knowledge should be shared among the community possessing the knowledge. This aspect of protection of IPR and sharing of benefits is covered by the draft Access to Genetic Resources and Benefit Sharing Law, which was prepared in 2002, but is yet to be enacted. However, IPR and benefit sharing from this perspective does not apply to current exports of MAPs and essential oils from Nepal since they are exported as raw materials to be put into various other uses based on commonly held knowledge.

The second issue is regarding the use of trademark or collective mark. It is said that essential oils produced in Nepal are organic by default and are of high quality. However, there are problems in getting them tested and certified. If quality is maintained, and proper

testing and certification can be ensured, collective mark can be used to distinguish essential oils produced in Nepal from those produced in other countries.

4.4 Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA)

The Environmental Protection Rules requires that IEE should be conducted to collect 5 tons to 50 tons of forest products other than timber per year. Similarly, EIA should be conducted to collect forest related products except more than fifty tons of woods. It is not certain whether the proponent's report of the IEE or EIA would be accepted and whether the proponent who conducted the IEE or EIA would get the permit to collect the MAPs. Moreover, since the procedure to conduct the IEE or EIA has to start with mapping of forests and other preliminary tasks, it takes a huge amount of time to complete the whole process. This has provided space for corruption. On the other hand, even if due process is followed and collection permit is provided to the single proponent who conducts the IEE or EIA, it creates monopoly, mainly favouring large collectors, and deprives the smaller ones.

4.5 Research and development

There has not been enough research in the area of MAPs and essential oils from both government and private sectors. There could be a number of plants possessing medicinal or other important properties in Nepal, but this aspect has been under researched. Research has also been insufficient in the areas of processing and manufacturing techniques. Regarding exports, there has been almost no detailed study about potential markets for Nepal's MAPs and essential oils. Where potential markets have been identified, studies have not been conducted to identify demands for products in those markets beyond the HS 6-digit level.

4.6 Others

Other problems and challenges in enhancing exports of MAPs and essential oils include the shortage of human resources. Many youth, both male and female, have migrated abroad due to which there is dearth of human resource in the sector, mainly for collection/cultivation activities.

There is also lack of storage facilities for MAPs and essential oils due to which products need to be sold instantly. At often times, this fetches lesser prices for the products since sellers cannot hold their products for long and have to sell them for whatever price they get.

Chapter 5

RECOMMENDATIONS

International trade of MAPs and essential oils is growing every year but Nepal's share in such trade is very small. The country's exports so far have been mainly concentrated to India although it holds tremendous potential in diversifying its export destinations. *NTIS 2010* has also recognized this sector as having export potential, and has identified some major international markets where Nepal can diversify its exports to.

A large number of people, mainly in the hilly regions of western Nepal, are engaged in the collection of MAPs for their livelihood. Therefore, if developed well, MAPs and essential oils sector can contribute immensely in uplifting the socio-economic status of those people. Different laws, regulations, plans and policies put in place by the Government of Nepal have also encouraged the development of this sector. However, implementations of those plans and policies have not been effective.

In these contexts, this study puts forward following recommendations to promote exports of MAPs and essential oils from Nepal.

5.1 Collection and cultivation

- A mechanism should be put in place to provide market information to farmers. Development partners, government and private sector should join hands together and share resources in identifying and making available market information.
- There should be easy availability of quality seeds, and information and trainings on cultivation techniques. There should be coordinated efforts in undertaking these activities.
- Procedures that farmers have to follow in selling cultivated MAPs should be simplified.
- Awareness and training programmes on collection techniques should be undertaken in a massive scale. Such programmes should target the real beneficiaries such as collectors who are directly engaged in the collection of MAPs.

5.2 Processing

- The government should facilitate the transfer of modern and relevant technology for processing. Technology transfer should consist of both hardware and software components. Being an LDC, Nepal should make use of the special treatment provision of Article 66.2 of the Agreement on Trade-related Aspects of Intellectual Property Rights (TRIPS) of the WTO which states that "Developed country Members shall provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed country Members in order to enable them to create a sound and viable technological base".
- Importation of technology should be complemented by developing and/or enhancing skills and knowledge of human resources in the country.

5.3 Exports

- The requirement to provide vehicle registration number in order to receive the CoO should be revised since it has impacted small exporters the most. For small exporters who use small vehicles such as rickshaws and horse-carts to export, sealing of containers should suffice the requirement to issue CoO.
- Government of Nepal should take up the issue of transit permit with Government of India at a higher level and seek permanent solution to it.
- Government of Nepal should request Government of India to include more MAPs that Nepal exports to India in Schedule VII of its PQA.
- Farmers should be provided trainings on GAPs, and processors/manufacturers should be provided trainings on GMPs to ensure product quality.
- DPR should be strengthened by providing modern equipment and qualified human resources to operate them so that it can carry out complete testing and certification procedures acceptable to international buyers.
- More awareness programmes should be conducted for stakeholders to help them understand the importance of ensuring quality and how that could have a positive backward linkage in their incomes.
- Essential oils from Nepal should be promoted as unique products by ensuring its quality. Collective mark can be used to establish the uniqueness of those products. Experiences of the *pashmina* industry of Nepal can be useful in this regard.
- Database of MAPs and essential oils should be maintained beyond the HS 6-digit level.

5.4 Research and development

- DPR should be provided more funds and human resources to strengthen its research capacity and undertake research. The private sector too should not perceive that undertaking research is the sole responsibility of the government. It should also put in resources and efforts to undertake research in relevant areas.

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Annex 1: List of people interviewed

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Annex 2: List of participants

Focus Group Discussion

Jadibuti Association of Nepal, Nepalgunj, Banke
05 June 2011

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2	Rabindra Shukla	Advisor, JABAN, Nepalgunj
3	Tanka Prasad Sharma	General Secretary, JABAN, Nepalgunj
4	Md. Saleem Halwae	Executive Member, JABAN, Nepalgunj
5	Niranjan Pandit	JABAN, Nepalgunj
6	Puskar Kharel	JABAN, Nepalgunj
7	Dharmatma Lal Srivastav	Senior Scientist, Department of Plant Resources (DPR), Thapathali, Kathmandu
8	Manoj Nidhi Wagle	Assistant Scientific Officer, DPR, Nepalgunj
9	Bimal Nepal	Director, Trade and Export Promotion Centre (TEPC), Kathmandu
10	Krishna Bajgain	Officer, Trade and Export Promotion Centre (TEPC), Kathmandu
11	Puspa Sharma	Programme Coordinator, South Asia Watch on Trade, Economics and Environment (SAWTEE), Kathmandu
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