

# Balkans Herbal Development Initiative – Phase 1 Final Summary Report - Bosnia and Herzegovina

Environmental and Social Assessment

Economic & Activity Mapping

Export potential of Balkan herbs to the European Union



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### **DISCLAIMER:**

*This report was prepared by consultants. The judgments expressed and recommendations made do not necessarily reflect the views of SEED, IFC, IFC's Board of Directors or the governments they represent.*

## **Section 1: Introduction**

In September 2001, the International Finance Corporation (IFC) Project Development Facility in the Balkans (SEED) held the Balkan Herbal Forum.

Following this forum, SEED and IFC's Corporate Citizenship Facility (CCF) commissioned further work in Bosnia and Herzegovina (BiH) and Serbia and Montenegro to define and clarify a range of outstanding issues (including market, regulatory framework, environmental and social sustainability, roles and responsibilities of stakeholders) that are necessary conditions for an effective, profitable and sustainable medicinal and aromatic plants (MAP) sector. Specifically, the consultants were commissioned to undertake:

- ///* An environmental & social review of the collection of wild herbs in these countries
- ///* Economic mapping of the MAP sector
- ///* Mapping the activities of stakeholder groups

This report is the output of this work for Bosnia and Herzegovina. SEED/CCF commissioned Ulrich Helberg with the overall responsibility for the Economic & Activity Mapping (E&M) and Rob Donnelly of Traidcraft with the overall responsibility of the Environmental & Social (E&S) Assessment. Dragana Pecanac worked as a local consultant and undertook much of the field work and in country research. Draft reports were presented to stakeholders involved in the MAP sector at a workshop in Sarajevo on 21 May 2003 and this final report is informed by the outputs from that workshop.

## **Section 2: Environmental and Social Assessment**

Bosnia and Herzegovina (BiH) is rich in different landscapes and ecosystems and has a high biodiversity. At least 160 – 170 MAP species are native to BiH and most of these are still collected. The collection of wild medicinal and aromatic plants (MAPs) has been important for centuries. During the time of the former Socialist Republic of Yugoslavia, BiH was mainly a provider of MAPs.

The MAP sector is dominated, on the production side, by traditional wild collection, including more than 100,000 families as groups of collectors in rural areas. It is not clear whether all these groups depend primarily or, at least, substantially, on collection of MAPs. Research undertaken as part of this study suggests figures of commercial collectors to be much lower. There are approximately 5,000 collectors, organised by the larger companies in this sector and many more collectors, who sell directly to small processors and even retailers.

From the environmental and social assessment it is apparent that:

- ✍ The livelihoods of many collectors are neither adequate nor secure.
- ✍ Collectors and wholesalers are receiving a small proportion of the product's value in both the local and export markets and there is potential for them to capture more value.
- ✍ Market conditions of low demand, potential over supply and an apparent emphasis on price rather than quality; combined with the poverty and powerlessness of most collectors are exerting downward pressure on prices received by collectors
- ✍ While many MAP species are currently being under utilised, 64 species are at risk from unsustainable harvesting, including 2 endangered species (*Gentiana lutea* and *Arctostaphylos uva ursi* (L.) Spreng) which are amongst the most heavily traded.
- ✍ The conditions exist in BiH whereby if demand for a species exceeds its sustainable yield it will be utilised in an unsustainable way. Yet given the controlling influence that demand plays, the private sector has the power to significantly reduce the unsustainable utilisation of resources. If the traders, processors and manufacturers do not demand a species then commercial collectors will not collect it.
- ✍ The private sector can and should play a leading role in developing a sustainable industry but others also have a role to play. There is a particular need for one organisation to adopt a co-ordinating role.
- ✍ Given the fundamental importance of the attitudes of those involved in the trade, promoting and enhancing the understanding that it makes business sense to adopt sustainable practices is essential. In particular, promoting understanding amongst key traders, processors and wholesalers would be especially valuable, given the pivotal role that they play in the value chain
- ✍ The livelihoods of people who collect MAPs can be improved by:
  - ?? Enhancing equity within the value chain and enabling collectors to capture a greater proportion of the value
  - ?? Enabling collectors to get a better price through adding value

- ?? Enabling collectors to sell more product
- ?? Enabling collectors to diversify their income earning activities

✍ Sustainable harvesting can be promoted and facilitated by:

- ?? Enhancing the livelihoods of all those involved in the trade
- ?? Establishing effective resource management arrangements.
- ?? Assisting stakeholders to operate in a sustainable way through for example:
  - ?? Supporting the development of associations that represent the interests of different stakeholders.
  - ?? Supporting the development of management plans
  - ?? Training collectors in appropriate harvesting techniques.
  - ?? Enhancing cultivation efforts for at risk and endangered species

✍ Because of concerns detailed in the report it is not recommend that stakeholders in the MAP industry seek FSC certification. A good alternative to this is organic certification, something that should be encouraged and supported.

✍ There is value in the MAP industry defining standards of best practice, both with regard to sustainable harvesting and fair trade. However, despite the shortcomings of existing sustainable harvesting certification schemes, for the MAP industry in BiH to develop its own certification scheme is not recommended

### **What is a sustainable industry**

A sustainable MAP industry is important for the livelihoods of those involved in the sector and for maintaining bio-diversity. A sustainable industry is one which:

- ✍ Generates economic value (economic sustainability)
- ✍ Reduces poverty and inequality (social sustainability)
- ✍ Regenerates / preserves the environmental resource base (environmental sustainability)

There can be a tendency to treat social and environmental sustainability separately, when they are essentially the same issue.

Social sustainability is concerned primarily with the livelihoods of those involved in the sector<sup>1</sup>. The security, sustainability and standard of those livelihoods is to a large degree dependant upon the sustainable utilisation of MAP resources; something which is in turn influenced to a large extent by the livelihoods of those involved in the trade.

Of course social and environmental sustainability are also closely related to economic sustainability and clearly there is a strong case for businesses involved in the sector to adopt sustainable practices. There is a great deal of synergy and overlap between strategies that can be adopted to enhance sustainability and strategies to promote overall growth of the sector. Conversely, the failure of businesses to adopt sustainable practices will damage medium and long term business success. Thus, while the private sector<sup>2</sup> can not on its own create a

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<sup>1</sup> This report will concentrate upon collectors and to a lesser extent buyers of MAPs altho ugh it is recognised that others also derive their livelihoods from the sector

<sup>2</sup> In the context of the MAP industry the private sector refers primarily to traders, processors, manufacturers, wholesalers and retailers

sustainable MAP industry it has a vested interest and a leading role to play in driving the development of sustainable practices throughout the industry.

### **The livelihoods of collectors and buyers of MAPs**

#### **Overall economic and livelihood situation in Bosnia and Herzegovina.**

The economy and the infrastructure of BiH were almost totally destroyed during the war and a large number of people were forced to flee from their homes.

GDP per capita in the year 2000 was 50% of the pre war level<sup>3</sup>. Social structures and land-use in BiH changed tremendously during and after the war. 60% of the population live below the poverty line<sup>4</sup> and 61% of the population aged over 18 is unemployed<sup>5</sup>.

#### **The livelihoods of collectors of MAPs**

As part of this study three distinct groups of collectors have been identified.

- ✍ Domicile people (did not change place of living during or after the war)
- ✍ Refugees
- ✍ Returnees

Collectors can also be grouped according to age:

- ✍ Young people who account for 15% of collectors. Unable to find any other job they have been forced to earn money collecting MAPs.
- ✍ Middle age people who account for 55% of collectors. These are usually women, sometimes with children, collecting herbs while their husbands are casual labourers (contractors, seasonal workers, etc.)
- ✍ Older people who account for 30% of collectors. These are both, men and women. Some of them are pensioners that have very low pensions (70 – 120 KM/month), but some of them do not have any other financial resources except money earned by collection.

Lastly, collectors can be grouped according to their experience:

- ✍ 32% of collectors have been collecting since before the war. These are mainly older people and people that are traditionally involved in harvesting
- ✍ 68% of collectors have started with collection after the war or recently. They have started mainly because of their difficult financial situation.

Collectors are very poor and vulnerable. All groups of collectors, domicile, returnees and refugees have very difficult living conditions, in particular the returnees and refugees. Very often there is no other cash income in the household except money earned from collection and selling collected herbs. All interviewed collectors agreed and emphasised that collection of

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<sup>3</sup> Efendic, A. (u.d) *Macro policy for poverty reduction Bosnia and Herzegovina*. Retrieved from [http://www.worldbank.org/wbi/devdebates/ECA1/bih\\_macropolicy\\_eng.pdf](http://www.worldbank.org/wbi/devdebates/ECA1/bih_macropolicy_eng.pdf) 15 April 2003

<sup>4</sup> UNDP (1998) *Human Resource Development Report*. UNDP, Sarajevo

<sup>5</sup> Regional Environmental Center for Central and Eastern Europe (REC) (2000). *Country report Bosnia & Herzegovina within strategic environmental analysis of Albania, Bosnia & Herzegovina, Kosovo and Macedonia*. - REC Country Office Bosnia & Herzegovina, Sarajevo and Banja Luka.

wild growing MAPs is of great importance for their livelihood. The number of collectors is reducing because of generation change and the fact that anyone, who has an alternative to make a living is leaving collection.

✂ For 60% of collectors 70% – 100% of their income is from collection. People this reliant are found across all age groups and especially amongst returnees and refugees.

✂ For 30% of collectors it accounts for 40% – 70% of their income.

✂ The remaining 10% of collectors are less reliant upon the trade with it accounting for between 10% and 30% of their income.

In general those less reliant upon MAP collection are less poor than those more reliant.

With regard to collection regions, all rural areas are used for the collection of MAPs as well as for other non-timber forest products. An exception, of course, are the mine fields which cannot be penetrated.

### **Organisation of collection**

Collectors usually work on an individual basis. There are still collector's co-operatives that date back to the socialist era. Although these co-operatives formally still exist, they are practically not operating anymore

Collection is seasonal work which only takes place during the vegetation period. All household members are involved in collection. Very often collection is combined with other activities, such as herding or land cultivation. Apart from simple air-drying, there is no further processing carried out by the collectors.

Collectors sell the collected raw material to processors, traders, herbalists and to anybody who is ready to pay or offer the best price. They are paid cash upon delivery of plant material.

Approximately 60% of interviewed collectors said they are organised by buyers while 40% are not. Collectors organised by buyers usually receive training, seem to respect more the sustainable collection of herbs and produce a better quality.

### **Are the livelihoods of collectors adequate and secure ?**

Given the overall poverty and livelihood situation in BiH and the fact that collectors are amongst the poorer groups, it can be concluded that the livelihoods of many collectors are not adequate.

Livelihood security is harder to determine but without doubt, given the poverty of many collectors, the security of their livelihoods could be improved.

Many collectors do not own any land, especially refugees, who are living on somebody else's property in the knowledge that they can not stay. They have few assets, often living in damaged houses with no livestock or farming implements. They have few reserves (for example savings) and they have little access to credit. If they do have land, productivity is low and it is used mainly for subsistence purposes. They are living in communities that have been severely disrupted, with a resultant break down of social support systems. The harvesting of

MAPs is their only or major source of income and none of the collectors own the land from which they collect the MAPs. They are therefore dependent upon usufruct rights<sup>6</sup>, which are themselves relatively secure but are also open to abuse and exploitation. Furthermore wild harvesting income is notoriously inconsistent,<sup>7</sup> something which may be exacerbated by the heavy reliance of many collectors upon a limited number of species. It has been reported that most collectors are self educated and do not know about collecting more than 10 species<sup>8</sup>.

Livelihood security will vary between collecting households. Given the above conditions, for many security will be very poor and they will find it difficult to offset risk and ease shocks.

### **Is the trading relationship between collectors and buyers fair?**

60% of the collectors felt that they did not receive a fair price and almost all of them wished for a better price.

Like security, fairness is relative and it is difficult to define what constitutes a fair price. It is preferable to ask whether collectors could receive a fairer price for their product.

From the analysis of the value chain (detailed in the economic mapping section below) 2 facts stand out.

✍ It is clear that collectors are receiving a small proportion of the product's value in both the local and export markets. It is therefore likely that there is potential for collectors to capture more value.

✍ Wholesalers are also receiving a small proportion of the product's value. It is therefore likely that wholesalers too could capture more value.

That collectors receive a small proportion of the value is not surprising. Processors and traders reported that due to the high cost of borrowing in BiH and the resultant cash flow constraints they face, it is difficult for them to offer higher prices. Furthermore the value chain can be extremely complex with product often passing through many hands. It is characterised by power imbalances, both within BiH and even more so in the export market. From the interviews, collectors rarely have the opportunity to negotiate over price and are often restricted in who they sell to. Collectors reported regular "blackmailing" by buyers, saying they would not buy product if collectors do not accept their price. This was reported as a common occurrence, even when collectors have been selling herbs to the same company for many years.

The majority of MAPs collected in BiH are for the export market and this is characterised by a high degree of concentration, with further power imbalances.

The fairness of the trading relationship is not only about price. Other factors to consider include the sharing of risk, prompt or even advance payment and whether additional support or embedded services are provided such as transport or training.

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<sup>6</sup> Usufruct rights are the right to access and utilise a common property resource

<sup>7</sup> Laird, S. and Pierce, A. (2002). *Promoting Sustainable and Ethical Botanicals: Strategies to Improve Commercial Raw Material Sourcing*. Rainforest Alliance, New York

<sup>8</sup> Devetak, Z. (2001) *Traditional and present collecting of medicinal and aromatic plants in Bosnia and Herzegovina. - Final Report*. Planta



From the interviews with collectors it seems that these other aspects of the trading relationship do seem reasonably fair.

The price received by collectors is not only a function of the extent to which the trading relationship is fair. The overall state of the MAP market also has a considerable bearing. Unfortunately the MAP market has declined significantly since the war with overall demand much reduced, in both local and export markets. Furthermore, it has been reported that many international companies that buy MAP raw materials in large quantities have changed their strategies and now prefer to buy low cost material rather than high quality. The collapse of the economy, the disorganisation of the MAP market and the resulting low prices have made many harvesters stop harvesting commercially. They collect for their personal use only, further depressing the domestic market for commercial collectors. Lastly, it seems that there is considerable over capacity in the sector, with most large trading companies reporting that they could organise the collection of far greater quantities of material if the demand were there<sup>9</sup>.

These market conditions of low demand, potential over supply and an emphasis on price rather than quality; combined with the poverty and powerlessness of most collectors are exerting downward pressure on prices.

## **Resource assessment**

### **MAP species in trade and their status**

231 species are currently in trade in BiH. Appendix 1 details these

### **Are MAP species being harvested in a sustainable way?**

It has not been possible as part of this research to determine with scientific certainty the resilience of species to harvesting and whether harvesting is sustainable as this often requires several years of ecological monitoring<sup>10</sup>. Furthermore, no previous research has been identified which looked at the impact that harvesting has had on any of the species in BiH. The resource assessment in this study has been undertaken through a review of key literature and through interviewing key informants.

It may be possible to further develop this methodology, including the use of additional indicators such as price fluctuations in order to establish a relatively low cost monitoring system for vulnerable species. The use of proxy indicators has been described by others<sup>11</sup> and may be a more cost effective and responsive method for predicting vulnerability to over-harvesting.

From the research it is evident that for many MAP species current harvesting levels are significantly below maximum sustainable levels. There is scope to increase the utilisation of these species. However, it is equally evident that some species are being utilised unsustainably. Of the 231 species in trade 7 are endangered, 49 are vulnerable and 8 are rare. This makes 64 species at risk from unsustainable harvesting. Of the 22 most traded species 2 are endangered and 8 are vulnerable. The table in appendix 1 details these species. While the

<sup>9</sup> Kathe, W., S. Honnef and A. Heym (2002) (2002) *Medicinal and Aromatic Plants in Albania, Bosnia-Herzegovina, Bulgaria, Croatia and Romania*. Study on behalf of the German Federal Agency for Nature Conservation (BFN), Bonn, by WWF-Germany and TRAFFIC Europe-Germany

<sup>10</sup> World Wildlife Fund (nd). *Fact sheet 1: Towards Sustainable Herbal Medicine*

<sup>11</sup> Cunningham, A.B. (2001) *Applied Ethnobotany*. Earthscan Publications Ltd, London.

resource assessment has identified ‘at risk’ species based upon the current market situation, it is important to note that the demand for a specific species can rise dramatically in a very short period of time, putting at risk, species which are currently considered to be safe.

From the interviews with collectors, when asked about the future of the industry a number predicted the extermination of herb potential by collectors and the disappearance of certain plant species from natural habitats.

The general opinion of collectors is that some plant species are starting to disappear from their natural habitats. It happens because of over exploitation by collectors; changing land use, particularly the reduction in livestock and pastures; felling of trees; fire in the Herzegovina region etc. Collectors are increasingly required to travel to distant places to collect and this increases their travel costs

Also reported by collectors who have been certified organic or who are aware of good harvesting practice are incidents in which they have harvested respecting appropriate principles, only for other collectors who do not harvest in a sustainable way to follow afterwards and harvest all that they find.

Interviews with academics in BiH have indicated that there are concerns over the status of a number of MAP species<sup>12</sup> and all MAP species regarded as endangered in BiH are still collected from the wild<sup>13</sup>.

### **The potential for unsustainable harvesting of MAP resources**

A review of the literature concerning the sustainable use of common property resources<sup>14</sup> combined with an understanding of the market for MAP species and the situation prevalent in BiH indicates that significant potential exists for the unsustainable exploitation of MAP species.

Sustainable management, which involves trade offs with other objectives, such as increased income in the short term, is only rational when:

- ~~///~~ Short term livelihood needs are being met
- ~~///~~ The long term benefits of sustainable management are necessary or attractive
- ~~///~~ There is certainty that the long-term benefits will accrue and can be enjoyed

#### Are short-term livelihood needs being met?

As described in the previous section, for a lot of people in BiH, including the collectors of MAPs it is evident that short term livelihood needs are not being met.

There is a significant body of literature, which argues that the over exploitation of resources by the poor is a direct result of their poverty. This is often done unwillingly, in the knowledge that such unsustainable practices will compromise their ability to attain an adequate livelihood in the future.

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<sup>12</sup> *Gentiana lutea*, *Arctostaphylos uva-ursi*, *Salvia officinalis*, *Juniperus communis*, *Hypericum perforatum*, *Veronica officinalis*. Quoted from Kathe, W., S. Honnef and A. Heym (2002) *Op cit*. However, for *Juniperus communis*, *Hypericum perforatum* and *Veronica officinalis* it is questionable whether they are indeed at risk from over harvesting and they have not been denoted as such in this study.

<sup>13</sup> Kathe, W., S. Honnef and A. Heym (2002) *Op cit*

<sup>14</sup> Most MAPs are collected from open access land and are therefore a common property resource

*Are the long term benefits of sustainable management necessary or attractive?*

For the majority of MAP collectors, this forms an important part of their livelihood (60% of collectors derive more than 70% of their income from MAP collection with a further 30% deriving more than 40% of their income). On the face of it, for these people the desire to harvest in a sustainable way if at all possible should be substantial. However, it is also important to note that many collectors are involved because they have few other options and the research has indicated that as many as 70% would do something else if they could. It is likely that a substantial proportion of this 70% do not see themselves involved in the MAP sector in the long term. For these people and the remaining 10% of collectors who derive a relatively small part of their income from MAP collection, the risk or threat of lost future earnings may not outweigh the attractiveness of maximising earnings in the short term. In such circumstances there is less of an incentive to ensure sustainability.

*Is there certainty that long-term benefits will accrue and can be enjoyed?*

In some circumstances, the certainty of long-term benefits will not exist. The rational response to this is to make the most of an opportunity while it is still possible to do so

✍ In BiH there are no controls over the collection of MAPs, except in the few protected areas that exist in the country. Almost all MAPs are collected from common land where access is open to all. In such circumstances it is clear there is little certainty that it will be possible to enjoy long-term benefits. This is borne out from the interviews with collectors, who stated that when they harvest in a sustainable way, other collectors often follow later and remove all that they see.

✍ The 'boom and bust' nature of the MAP market for some species may lead some to conclude that it is better to make the most of existing opportunities as the opportunity may not be there in the future.

*Demand*

Notwithstanding the above, the key determinants on the MAP quantities that are harvested are demand and to a lesser extent price. Most harvesting of MAPs is undertaken against orders from buyers. If no order is placed or if the price is not attractive then commercial collection generally does not occur. Thus the private sector within the MAP industry has the power to control the quantities of MAP species harvested and significantly reduce the unsustainable utilisation of resources. If they do not buy a species then commercial collectors will not collect it.

*Unsustainable harvesting is rational*

Given the above combination of factors, the conditions exist whereby if demand for a species exceeds sustainable yield it will almost certainly be exploited unsustainably.

**Towards a socially and environmentally sustainable MAP industry**

There is no simple solution to creating a MAP industry that operates on a sustainable basis. Rather, it is a process of gradual change involving a range of complementary interventions from a range of stakeholder groups (public, private, civil society and donors) each seeking to contribute to the long term goal of a sustainable industry. While it is clear that the private sector can and should play an important role, others too have a role to play.

In particular, given the sometimes conflicting interests of different stakeholders a co-ordinating role is necessary. This is especially so because the identification of co-operative solutions that may appear attractive to any objective observer are hindered by vested interests in the value chain and the absence of any organisation able to articulate and represent the views of collectors<sup>15</sup>.

Co-ordinating institutions are effective when they perform 3 interrelated functions<sup>16</sup>:

✍ **Collating information** (including Information relating to marginalised groups)

✍ **Balancing interests** . Mobilising dispersed interests and providing forums in which all parties can express their interests, assess options and strategies and work out mutually acceptable bargains or develop win win situations. This is particularly necessary in the MAP sector, where collectors are widely dispersed and marginalised with their voice rarely heard

✍ **Executing agreements** . Identifying and agreeing roles and responsibilities and ensuring that actions are undertaken as agreed

Additionally, the co-ordinating role could include:

✍ Catalysing and promoting action by different stakeholders

✍ Mobilising financial, human and technical resources

✍ Co-ordinating actions

Initially, the organisation fulfilling the co-ordinating role would need to be subsidised by donors. However, the co-ordinating role would potentially be required in the short to medium term only. With a more effectively functioning sector, including the effective provision of business services to the sector and better representation of different stakeholder groups, the need for the functions identified above would diminish. The co-ordinating organisation could either withdraw from the sector or seek to provide its services on a commercial fee paying basis in order to achieve cost recovery.

### **GTZ project on the wild-collection and sustainable use of MAPs in BiH**

In early 1999, the German agency GTZ initiated a project on the wild-collection and sustainable use of MAPs in BiH<sup>17</sup>. The project focuses on establishing a management system for harvesting MAPs from the wild in BiH. The project is co-ordinated by GTZ and is supported by the Swiss SIPPO and the Institute for Market Ecology (IMO; bio-certification). Further co-operation partners are SEED/IFC, WHO, FAO and WWF/TRAFFIC.

The project objectives are:

✍ to support the change from traditional collection and traditional business management to the sustainable use of biodiversity

✍ to generate income for the rural population involved in MAP collection

✍ to establish a modern supply chain management

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<sup>15</sup> The World Bank (2003) *World Development Report 2003, Overview: Sustainable Development in a Dynamic World*. The World bank, Washington, D.C

<sup>16</sup> Ibid

<sup>17</sup> This section is extracted from Kathe, W., S. Honnef and A. Heym (2002) *Op cit* pages 165 - 166

The GTZ project is phasing out during 2003 yet its objectives and activities are in line with many of the strategies that will be detailed below for developing a sustainable MAP industry. Collaboration with GTZ and building upon the work started by the project will be important and will assist with the development of a sustainable sector.

### **Drivers that may encourage the development of a sustainable industry**

Fundamental to achieving the goal of a sustainable MAP industry is the attitudes of those involved in the trade.

#### *The national interest driver.*

As a consequence of the difficult political, economic and social situation in BiH, nature conservation has a hard time<sup>18</sup> and there are very few regulations or controls at a national level or entity level, governing the utilisation of MAP resources. Furthermore, BiH is not a member of CITES and is not a signatory to the Convention of Biological Diversity. However, things are beginning to change. The development of a National Environmental Action Plan was recently started and in both entities an environmental protection law is being drafted<sup>19</sup>.

With regards to addressing the poverty situation in the country the Government has embarked upon the process of developing a Poverty Reduction Strategy Paper (PRSP). The Interim PRSP has been completed and a full paper will be completed soon.

#### *The supply chain management driver.*

It makes business sense to ensure the sustainability of the supply of key raw materials into the business. Increasingly businesses, especially those in the export market, are recognising the value of sustainable supply chain management. Research<sup>20</sup> found that larger companies often express a strong interest in sustainability because their business model requires it. If a company can not get raw material for a product in 1 or 2 years time at the price, volume and quality required then the product can not be sustained and if still in development it will not be launched.

More and more companies, particularly in the export market are looking to establish long term commercial relationships and even strategic alliances with their suppliers (and via these links, are exerting pressure through the entire value chain). Such long term relationships can offer considerable supply chain management benefits resulting for example in reduced costs, processing time and risk; increased cooperation and understanding between trading partners; and ultimately improved profitability. Pre-requisites for establishing such relationships include trust between the parties and fairness in the trading relationship; and an assurance that the long term supply of the raw material is secure. For at risk species in particular but for others also, such security can only come about through the sustainable utilisation of the resource.

#### *Legal and quasi legal drivers.*

Closely related to the national interest and supply chain management drivers above are a range of legal and quasi legal instruments which seek to protect certain species or promote a sustainable industry. The desire and need to comply with these instruments is a powerful driver for the adoption of sustainable practices.

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<sup>18</sup> Kathe, W., S. Honnef and A. Heym (2002) *Op cit*

<sup>19</sup> For an overview of the legal framework see Kathe, W., S. Honnef and A. Heym (2002) *Op cit*. Pages 146 - 152

<sup>20</sup> Laird, S. and Pierce, A. (2002) *Op cit*

A number of legal and quasi legal instruments are relevant:

✍ Legislation and regulations concerning environmental protection and the use of natural resources in BiH are in the process of being developed or implemented.

For the export trade:

✍ The CITES convention.

✍ Guidelines for Good Agricultural and Collection Practice for starting materials of Herbal origin (GACP) The scope of the guidelines includes the provision that collectors of MAPs must ensure that they avoid damage to existing wildlife habitats and that they make efforts to maintain and to enhance biodiversity

#### The market driver.

Consumers are increasingly concerned about the origin of products that they purchase and the way they have been produced. As part of this research it has not been possible to undertake specific market research into the market for socially and environmentally sustainable MAP products, however evidence from secondary sources suggests that this is a potentially growing market. For example:

✍ The growth in the market for organic products in recent years has been significant. Where MAPs are concerned this growth has mainly been confined to foodstuffs such as herbal teas and culinary herbs with minimal growth in the cosmetics and pharmaceutical sector. However, one UK producer and importer of MAPs, who specialises in organic production is predicting significant growth in these sectors in the future. Although sustainable production is not the same as organic production there are many similarities and overlaps.

✍ A recent TRAFFIC survey<sup>21</sup> of herbal companies advertising on the internet found that more than 100 made claims attesting to the sustainability or ethical sourcing of raw materials.

✍ There has been a documented increase in ethical and green consumerism, with consumers increasingly concerned about the social and environmental conditions in which goods have been produced. Recent research undertaken in the UK<sup>22</sup> found that:

?? more than 50% of the population had bought a product and recommended a supplier because of its responsible reputation within the previous 12 months

?? 33% of consumers are seriously concerned with ethical issues

?? 25% have investigated a company's responsibility at least once

?? Over 15% frequently buy or boycott products because of the way the manufacturer treats its workers, communities or the environment

The research concluded that for many high profile ethical and environmental products, they have less than the share of their markets which the analysis of consumers suggests is available and given their current rapid sales growth further growth can be expected.

✍ Over 10% of all wood based products sold in the UK should soon be FSC<sup>23</sup> labelled.

✍ Approximately 9% of the UK population are now members of environmental groups.

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<sup>21</sup> Quoted from Laird,S. and Pierce,A. (2002) Op cit

<sup>22</sup> Cowe,R. and Williams,S. (2000) *Who are the ethical consumers*. Cooperative Bank, UK

<sup>23</sup> The Forest Stewardship Council (FSC) certifies forest products that come from sustainably managed forests

✍ The success of fair trade has grown considerably in recent years, to the extent that it has created a growing US\$500million network of businesses that seeks to push the benefits of that trade to the poorest. As a result mainstream businesses are increasingly taking into consideration their impact on their stakeholders, looking at how they can have a more positive impact on their suppliers and in certain sectors increasingly consider how they can access Fair Trade products for their own market.<sup>24</sup>

✍ The Fairtrade labelling organisation is considering introducing a fair trade standard for spices and herbs. As the introduction of new product standards is market led, this indicates a belief that the demand for these products exists.

Where there is a growing market then producers that serve that market will look to meet the needs of the consumer. As evidence of this:

✍ In October 2000 representatives from the phyto-pharmaceutical industry in Germany (e.g. Weleda, Martin Bauer and Madaus), practitioners associations and international organisations including the International Council on MAPs, WWF, IUCN and TRAFFIC demonstrated their commitment to the conservation of natural medicine resources by signing a joint declaration for the health of people and nature.

✍ Numerous businesses have introduced codes or practice into their supply chains. Suppliers to these businesses are required to conform to the code, which usually outlines minimum standards of employee welfare, based upon ILO conventions. To date very few codes are concerned with the fairness or otherwise of trade within supply chains.

#### The livelihoods driver.

As detailed above, for those that are dependant upon the harvesting of MAPs for their livelihood there is a significant incentive to ensure they are harvested sustainably as the future of their livelihood may depend upon it. Unsustainable practices are often:

✍ The result of poverty (people want to practice sustainable practices but can not afford to do so)

✍ Inadvertent (incorrect harvesting techniques etc)

✍ Practised by those with a lesser dependence upon the resource.

#### Promoting and enhancing these drivers

From the above it is apparent that a strong case can be presented arguing that the sustainable exploitation of MAP resources and fairness in trading relationships is in the interests of all involved in the value chain and it makes business sense to adopt sustainable practices.

**Given the fundamental importance of the attitudes of those involved in the trade, promoting and enhancing these drivers is essential. In particular, promoting understanding of these drivers amongst key traders, processors and wholesalers involved in the sector would be especially valuable, given the pivotal role that they play in the value chain. Any strategy for creating a sustainable MAP sector needs to start with this.**

Promoting these drivers will require suitable entry points to be identified. For instance, rather than engaging stakeholders on issues of sustainability it may be more appropriate to engage

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<sup>24</sup> Redfern,A, and Snedker,P. (2002) Creating Market opportunities for small enterprises: Experiences of the fair trade movement. *SEED Working Paper No 30*. ILO, Geneva

them on issues of supply chain management or maintaining or increasing market penetration. Addressing these issues, which those in the trade would immediately recognise as being important, would inevitably require the issue of sustainability to be raised.

### **To enhance the livelihoods of MAP collectors**

It is possible to identify a number of ways in which the livelihoods of people who collect MAPs can be improved.

- ✍ Enhance equity within the value chain and enable collectors to capture a greater proportion of the value
- ✍ Enable collectors to get a better price through adding value
- ✍ Enable collectors to sell more product
- ✍ Enable collectors to diversify their income earning activities

#### Enabling collectors to capture more value

Potential activities to enable collectors capture more value include:

- ✍ Efforts to empower collectors
- ✍ Efforts to enable others in the value chain to pay a better price, through for instance:
  - ?? addressing constraints that affect other businesses in the value chain, for example the severe cash flow constraints that they report prevent them from paying a higher price
  - ?? enabling others in the value chain to capture more value. It is important to recognise that a pre-requisite for enabling collectors to capture more value may be enabling those that buy from them to capture more value also
- ✍ Providing up to date market information to collectors and other players in the value chain.
- ✍ Provide support in the establishment of direct trading relationships. By including within these direct trading relationships clear benefit sharing arrangements<sup>25</sup> then equity within the trade is also promoted. The importance of benefit sharing arrangements can not be understated. There is potentially a valuable role for an honest broker, catalysing and facilitating the establishment of direct trading relationships and the development of benefit sharing arrangements.
- ✍ Seeking to improve efficiency in the value chain. By reducing costs more is available for the benefit of collectors and other in the chain.
- ✍ Enabling businesses within the value chain to change their practice so that they are more socially responsible.
- ✍ Seeking to establish fair trade initiatives.

#### Enable collectors to get a better price through adding value

Some ways in which collectors can add value include:

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<sup>25</sup> For a brief discussion on benefit sharing arrangements see Walter,S. (2002) Certification and benefit sharing mechanisms in the field of non wood forest products – an overview. *Medicinal Plant Conservation, volume 8* & IUCN Species Survival Commission, Medicinal Plant Specialist Group, Bonn, Germany  
For guidelines on benefit sharing see Swiss State Secretariat for Economic Affairs (1999) *Draft Guidelines on Access and Benefit Sharing Regarding the Utilisation of Genetic Resources*



✍ Enhancing the quality of product. By improving the quality of their collected product, collectors should be able to command either a higher price, improved market access or both and these benefits will be passed on up through the value chain.

An additional benefit of better quality product is that often less is required, creating another link between quality and sustainability.

✍ Obtaining organic and/or other forms of eco-certification. For organically certified product, collectors should be able to command either a higher price, improved market access or both and these benefits should be passed on up through the value chain.

Through the GTZ project outlined above, 18 groups of collectors are now certified organic in BiH. In due course there should be significant learning from the experiences of these groups which should give a clearer view regarding:

?? The costs and benefits of certification.

?? The most appropriate way to obtain certification.

?? The impact that certification has had upon the sustainable use of resources

✍ Branding product. Increasingly, particularly in the export market, value is added to products through branding. Extending the branding concept down the value chain to collectors, possibly in collaboration with processors or wholesalers warrants further investigation. A brand which stands for organic, high quality, fairly traded, sustainably harvested product collected by traditional collectors as part of their cultural heritage may enhance market penetration and price in the local market and potentially in the export market also. If the values associated with the brand are in tune with those of forward thinking wholesalers or fair trade organisations in Europe for example, then they may be interested in endorsing the brand or purchasing product associated with it.

✍ Undertaking initial processing of product. For example sorting, grading drying bulking up and transporting.

#### Enable collectors to sell more product

For collectors to sell more product will require overall demand of MAP products to increase. This means increased exports and increased consumption in the local market. Achieving this is addressed in the economic and activity mapping section of this report.

It is interesting to note the synergy between strategies for enhancing the price received by collectors and strategies for growing the overall market. Enhancing quality, organic and eco-certification, branding, new product development and the adding of additional value in country (for import substitution) are all strategies for both growing the market and enhancing the price received by collectors.

#### Enable collectors to diversify their income earning activities

The best way to enhance livelihoods may be to assist collectors to earn more from other activities or even to enable them to move out of MAP collection completely. Alternatively, it may be possible to identify opportunities that operate in parallel with wild plant collection and which provide a means to continue to use natural environments, thus providing incentives to avoid over collection, for example bee keeping for 'herb honey'.

### **To promote and enable the sustainable utilisation of MAP resources**

In order to promote and enable the sustainable utilisation of MAP resources, the situation described above needs to be reversed: the sustainable harvesting of species needs to become the rational choice for the majority of those involved in the trade. Accordingly:

- ✍ The livelihoods of those involved in the trade, particularly those highly dependent upon it need to improve and become more secure
- ✍ Sustainable harvesting needs to deliver short term as well as long term benefits. These need to be more attractive than the short term benefits of unsustainable harvesting
- ✍ Effective resource management is required. This should include:
  - ?? Protection of endangered species
  - ?? Management of other species, particularly those identified as at risk from over exploitation. Management should include clear controls over usufruct rights and access.
  - ?? Ongoing monitoring of harvest activities, trade and the status of MAPs.

Further to making sustainable utilisation of resources the rational choice, additional activities can be undertaken. These include:

- ✍ Assisting stakeholders to operate in a sustainable way through for example:
  - ?? Supporting the development of associations that represent the interests of different stakeholders.
  - ?? Supporting the development of management plans
  - ?? Training collectors in appropriate harvesting techniques.
- ✍ Enhancing cultivation efforts for at risk and endangered species

#### Enhancing the livelihoods of collectors of MAPs

The literature argues that people dependant upon a resource will utilise it in a sustainable way if they have a secure and decent livelihood. The key ways to enhance the livelihoods of people involved in the MAP trade and enable them to meet their short term livelihood needs have been detailed above.

Enabling collectors to obtain a better price or sell more product (of species not at risk) may not be sufficient to promote sustainable harvesting.

Accordingly, enhancing the livelihoods of collectors is not sufficient.

#### Creating short term incentives for sustainable harvesting.

By linking the price received for a product to its sustainable management, an incentive is created that would encourage the sustainable use of resources by enabling sustainable management to potentially deliver greater short-term benefits than unsustainable management.

#### Resource management andquotas

For sustainable exploitation of a resource to be rational it is important that there is certainty that long-term benefits can be enjoyed. In a situation of open access to resources then effective management of the resource is required. Effective resource management must

include mechanisms for controlling usufruct rights. Much of the literature<sup>26</sup> argues that in order to generate the necessary security and certainty that a resource will deliver long term benefits, then those that are reliant upon the resource for their livelihoods must have some stake in its management

In addition to involving those that are reliant upon a resource and controlling usufruct rights, a management system must include clear, appropriate and enforceable penalties.

The wild-harvesting of MAPs is only partly controlled in BiH, mainly through organic certification. There are no effective control mechanisms operated by state institutions in BiH. Except for some species used for timber production, no plant species are explicitly protected by national legislation however, a 'Red List of Protected Plant Species' in FBiH is in the pipeline<sup>27</sup>

The protection, preservation and promotion of the environment is under the authority of the entities, not of the state of BiH. Various obstacles have prevented the approval of a satisfactory environmental legislation.<sup>28</sup>

- ~~///~~ inadequate co-operation between the two entities
- ~~///~~ inadequate institutional framework and capacity for the implementation of legislation
- ~~///~~ ineffective co-ordination between various sectors, at local and national levels
- ~~///~~ poor social and economic conditions in BiH, slow process of privatisation

The need for effective control mechanisms is widely recognised. Mechanisms established in Bulgaria have been much praised. The system that has been established is considered unique in that it combines regional harvesting quotas for certain species, species and habitat conservation measures and other legislation to control collection and trade<sup>29</sup>. Learning from this model may be of benefit as efforts to establish an effective system in BiH are embarked upon.

It is recommended that in BiH a quota system controlling the quantities of at risk species should be established. This system should:

- ~~///~~ Be decentralised, empowering stakeholders, particularly collectors but other stakeholders also, to participate in the system. This would involve:
  - ?? Setting quotas for specific MAP collection areas rather than at a national level, with quotas updated annually.
  - ?? Involving a broad range of stakeholders in the setting of quota levels. Stakeholders to include as a minimum, collectors, processors/traders and National / Entity / Canton authorities.
- ~~///~~ Ensure that any charging system (if introduced) for the sale of quotas supports the development of a sustainable industry rather than undermines it. Accordingly it should:

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<sup>26</sup> For example, Vivian, M. (1990) Greening at the grassroots: people's participation in sustainable development. *UNRISD discussion paper, No 22*

<sup>27</sup> Kathe, W., S. Honnef and A. Heym (2002) *Op cit*

<sup>28</sup> REC(2000). *Op cit*

<sup>29</sup> Lange, D. and Mladenova, M. (1997) Bulgarian model for regulating the trade in plant material for medicinal and other purposes. In : Bodeker, G., Bhat, K.K.S., Burley, J. and Vantomme, P. (eds) Medicinal plants for Forest Conservation and Healthcare. *Non-wood Forest Products, 11 pp.135-146*. FAO, Rome

- ?? Operate in a way that minimises the cash flow and risk burden that purchasers might face. As an example, the system in Serbia requires quotas to be purchased in advance with no refund for any quota that isn't used. This places a high cash flow and risk burden on the processors and wholesalers who are the ones that have to buy the quota, severely undermining the viability of their businesses.
- ?? Empower collectors rather than dis-empower them. A mechanism should be established which enables quotas to be sold or allocated to associations of collectors that represent the collectors active in the area for which the quota has been set. The alternative of selling or allocating quotas to processors, traders or wholesalers would reduce the options available to collectors when they come to sell their product.

Assisting stakeholders to operate in a sustainable way

In addition to promoting sustainable practice, stakeholders may also require assistance to enable them to operate in a sustainable way. Such assistance may include:

- ✍ Training to collectors in appropriate harvesting techniques.
- ✍ Supporting the creation or further development of associations that represent the interests of different stakeholders, in particular the interests of collectors, who as the group actually involved in the harvesting of product are those in the strongest position to ensure sustainable harvesting. If associations of collectors are to be engaged in the setting of quotas and are to purchase the quotas for the MAP collection areas that they represent, then working and representative associations will be required.

Stakeholders involved in the sector have suggested that collectors should be registered. Associations of collectors could fulfil this role, registering those collectors that have undergone the training proposed above and have attained the required standards in collection.

- ✍ Support in the development of management plans for MAP collection areas involving all the key stakeholders

Enhancing cultivation efforts for 'at risk' and endangered species

One way of reducing pressure upon wild harvested species is to promote their cultivation.

The majority of companies in the export market prefer cultivated material<sup>30</sup> and processors in Serbia would prefer cultivated material because as no quota is imposed, there is no tax either.

Cultivation can be used as a means to secure both the product and engage a broader market. However cultivation is not a panacea and it does have a number of limitations.

- ✍ In the United States in particular, many prefer wild harvested products
- ✍ Not all species can be easily cultivated and others take a number of years before they reach maturity and can be harvested. Also, cultivation of MAPs is limited to only few species of known production technology, while many others are not produced because of lack of information on cultivation process

<sup>30</sup> Laird,S. and Pierce,A. (2002) Op cit

✂ Some species require regular chemical inputs when cultivated, which reduces their appeal to consumers

✂ Cultivation is often undertaken by people other than the current collectors and this undermines the livelihoods of the collectors. However models do exist of successful village-based cultivation (for example for bulbs with Flora and Fauna International's Indigenous Propagation Project in Turkey<sup>31</sup>), where collectors do take on the role of cultivators

✂ By meeting market demand with cultivated product, the economic value of wild product is reduced or removed. With no economic value, the protection of medicinal and aromatic plants in these natural habitats will most likely become less important to the local population and to authorities and will not help the protection of MAP species in the wild<sup>32</sup>.

✂ Many collectors may work by collecting a number of different species concurrently from the most diverse habitats. Cultivation precludes the efficiencies of multi-species collection.

Notwithstanding the above limitations, efforts to promote the cultivation of particularly threatened species should be considered. Mechanisms for doing this without undermining the livelihoods of existing collectors should be investigated and adopted wherever practicable.

### **Trade offs**

The above sections inevitably over simplify the situation. Inherent in any programme to develop a sustainable MAP sector will be a number of conflicting objectives, which will require trade offs to be made and may not be easy to resolve. For example:

✂ There may always be conflicts between the livelihoods of collectors and sustainable harvesting practices. It may not be possible for some to earn a decent livelihood within sustainable yields. A more appropriate solution may be to assist with the diversification of livelihood strategies – enabling people to move out of the MAP trade or reduce their dependence upon it.

✂ Any resource management system will cost money to implement. A sustainable system must pay for itself. There may be a conflict between enabling this, through for instance selling quotas (the quota tax), enabling a competitive and viable trade and ensuring decent livelihoods.

✂ There may be a trade off between how simple a management system is to administer and its effectiveness at actually protecting resources. The ideal system would be simple, cheap and effective. However such a system may not exist. The decentralised system proposed above is probably more complex to administer than the current system and as a result more expensive. Yet it would also be more effective.

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<sup>31</sup> Entwistle, A. Atay, S. Byfield, A. and Oldfield, S. Alternatives for the bulb trade from Turkey: a case study of indigenous bulb propagation *Oryx* Vol 36 No 4 October 2002

<sup>32</sup> Kathe, W., S. Honnef and A. Heym Op cit

## **Certification**

### **What is certification**

Certification schemes usually involve independent verification that a product, producer or supply chain complies with a set of pre-determined rules or criteria. Those that comply are awarded recognition of this, often through the right to use certain logos, brands or descriptions.

The advantage of certification schemes is that they enable others in the supply chain to be confident that certain standards have been met. However, it must be recognised that the value of the certification scheme is to a large degree determined by the credibility of the certifying body.

### **Certification schemes relevant to sustainable harvesting in the MAP sector**

No certification scheme has been developed specifically for the MAP sector. However, work has been undertaken to develop schemes for non timber forest products (NTFP) and these appear the most relevant. Regarding the sustainability of harvesting, 3 schemes are particularly relevant<sup>33</sup>:

- ✍ Forest management certification
- ✍ Social certification
- ✍ Organic certification

Certification specific to NTFPs is recent and largely untested and many of the principles and processes by which these products get certified are still being worked out. It has been argued<sup>34</sup> that forest management certification under FSC has the most well rounded criteria and may be a good choice for NTFPs. However, it is an expensive and time consuming certification programme to implement and is difficult to apply to informal community based harvesting such as that practised in BiH<sup>35</sup>.

From a number of trial certification assessments some challenges have been identified<sup>36</sup>. These include:

- ✍ A lack of ecological knowledge about individual species
- ✍ Possible negative impacts on small producers.
- ✍ Uncertain realisation of market benefits from certification. The markets for certified products are not well developed and tend to occupy niche markets that value products of consistent high quality. In addition, it has yet to be shown whether certified NTFPs are able to command a price premium in the marketplace.
- ✍ Inexperience with NTFP certification including lack of certifiers with experience in the ecology and regeneration of specific NTFPs

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<sup>33</sup> Walter,S. (2002) Op cit

<sup>34</sup> Mallet,P. (2000). Non-timber forest products certification – challenges and opportunities. *Forests, Trees and People newsletter No 43*

<sup>35</sup> FSC is starting to look at new models of community based certification where a number of harvesters are certified as a group or where a resource manager is certified to oversee multiple collectors

<sup>36</sup> Mallet,P. (2000). Op cit

Based upon these results NTFP certification seems most successful in situations where it is a complement to timber certification or some other existing large scale, organised enterprise.

It is difficult, given the above concerns, to recommend that stakeholders in the MAP industry in Bosnia and Herzegovina seek FSC certification, unless this is undertaken as part of a donor supported programme to further test and refine the standard and process.

A good alternative to FSC certification is organic certification<sup>37</sup>. For small scale operations such as that practised by collectors in Bosnia and Herzegovina, it may be the best option. It is less costly and has good consumer recognition. This currently means a better guarantee of price premiums for certified products and access to a range of specialised markets.

The basic standards of the International Federation of Organic Agriculture Movements (IFOAM) on the collection of non cultivated material of plant origin and honey<sup>38</sup> specify that organically collected plant material should:

- ☞ Be derived from a stable and sustainable growing environment
- ☞ Be harvested and gathered in way not exceeding sustainable yields
- ☞ Be derived from a clearly defined collecting area
- ☞ Be harvested and gathered by operators who shall be clearly identified and familiar with the collecting area

However, it is important to recognise that while organic certification may be a good alternative to schemes specifically concerned with sustainability, it does not guarantee that products are being harvested sustainably or have been obtained from a sustainably managed resource. While those collectors covered by the organic certificate must comply with sustainable practices, others collecting from the same area need not comply and their actions may undermine sustainability.

### **Certification schemes relevant to social standards in the MAP sector**

There are 2 broad approaches concerned with social standards in supply chains. Confusingly in the UK they are referred to as ethical trade and fair trade. Although these 2 approaches have similar names and both are about improving the lives of people who supply products into international markets, they are in fact different.

Fair Trade works with producer businesses whose circumstances mean they could not participate in the international trading system without external input, and enables access to new markets and buyers under terms that are mutually acceptable. Ethical trade is mainly driven by the concerns of brand image in the destination market. It concentrates on ensuring employees in established supplier companies are working in conditions that match or exceed a minimum standard so that companies who sell the products are reassured that supplier employees are not being exploited<sup>39</sup>.

Compliance down the supply chain against ethical trade standards is monitored either through:

- ☞ Individual company codes of practice, audited either internally or using external auditors.

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<sup>37</sup> Mallet,P. (2000). Op cit

<sup>38</sup> IFOAM (2000) *Basic Standards for Organic Production and Processing*. From <http://www.ifoam.org>

<sup>39</sup> Redfern,A, and Snedker,P. (2002) *Op cit*

☞ Generic ‘off the shelf’ standards, usually audited by accredited certifiers. The best known of these is SA8000

Compliance to fair trade standards is monitored by:

☞ The Fairtrade Labelling Organisation (FLO) which has developed product specific standards for 9 products<sup>40</sup>.

☞ Individual fair trade organisations, monitoring against their own fair trade standard.

In the context of the MAP industry and improving the livelihoods of collectors, ethical trade is not particularly relevant. It is rare for ethical standards to cover the nature of trading relationships. Hence, the trade between collectors and their buyers would not be covered.

There is no FLO standard for MAP products although one will be developed for herbs and spices in the near future. Furthermore, a FLO standard would not apply to a European country. Accordingly, options are limited to individual fair trade organisations, monitoring and endorsing against their own fair trade standard. The starting point for obtaining endorsement would be to market the idea of fairly traded MAP products from Bosnia and Herzegovina to an appropriate fair trade organisation. The details of how to proceed could then be jointly developed.

### **Limitations of certification**

The purpose of certification schemes is to provide assurance that a product conforms to certain standards and through this assurance, enable the producers to benefit accordingly. While those in the MAP trade can use the criteria in certification schemes as models for best practice, the schemes can not in themselves create a sustainable MAP industry – they can only certify it once it has been created. This is important to recognise as it clearly indicates where the priorities should lie in seeking to address sustainability concerns.

☞ Firstly, through the range of measures identified above promote and enable a sustainable industry.

☞ Secondly, consider certification. But recognise that certification may not be necessary or desirable. If it is not required by others in the supply chain, does not provide a price premium or enhanced market access or if the costs of certifying outweigh the benefits then it is likely to add little value.

### **Should the MAP industry in BiH develop its own certification scheme?**

There is certainly value in the MAP industry in BiH defining standards of best practice, both with regard to sustainable harvesting and fair trade. Criteria in existing certification schemes would provide a useful guide for doing this. However, despite the shortcomings of existing schemes, for the MAP industry in Bosnia and Herzegovina to develop its own certification scheme is not recommended. There are a number of reasons for this.

☞ The value of a certification scheme is to a large degree determined by the credibility of the certifying body. While a local certificate might carry weight in the local market, this would not be the case in the export market.

<sup>40</sup> Coffee, tea, rice, fresh fruit, juices, cocoa, sugar, honey, sport balls



Considerable work is ongoing by for example the NTFP working group of the FSC<sup>41</sup> to further refine and develop schemes appropriate for the certification of NTFPs. Additionally, efforts are ongoing to harmonise different certification systems. One interesting example of this is efforts currently being made by the Soil Association, a UK based organic certifier to develop an organic and fair trade standard for use in the UK/EU.

To collaborate and work with these endeavours is likely to yield greater long term benefits than to independently develop a separate scheme.

### **Certification initiatives in BiH**

There are a lot of initiatives regarding organic certification in BiH. Part of the GTZ-project, described above, is the certification of cultivated and collected medicinal and aromatic plants, according to European regulation on organic agriculture 2092/91 (EEC). GTZ is working together with the Swiss organic certification body There are now 18 MAP companies that are certified within this project.

Another, more recent program is the Swedish SIDA funded project “Development of Organic Agriculture in Bosnia and Herzegovina”. The project aims at contributing to the establishment of a viable organic farm sector in Bosnia and Herzegovina. It is not specifically aiming at the MAP sector, but some companies of this sector participate in the SIDA program.

A local certification organisation has just been created and named Organska Kontrola, OK. The local partner of the project is ECON.

<sup>41</sup> This group has been attempting to put NTFP certification into practice since 1996

## Section 3: Economic Mapping

### Major stakeholders and value chain

About 50 companies have been identified that are of some importance. Of these, 11 companies could be considered important. Klas is the only company remaining that can be considered big.

The vast majority of the companies is involved in collection and distribution of cultivated or wild harvested medicinal plants. Many of these companies also trade in wild berries, mushrooms and other non-timber forest products.

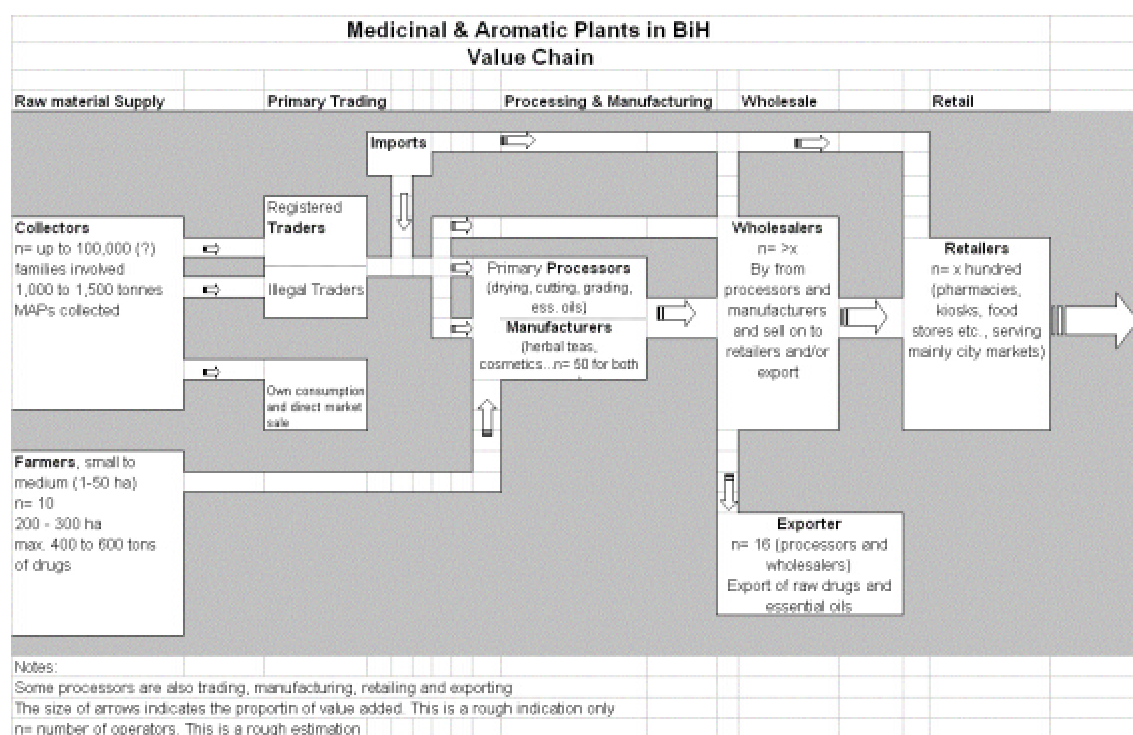


Figure 1: Value chain of the MAP sector in BiH

Another group of companies is involved in the cultivation of medicinal plants. Examples are GM in Banja Luka, Ljekobilje in Trbinje or Neven in Rudo.

Finally there is a rapidly growing group of companies that is involved in basic value added processing (e. g. Andjelic in Trbinje, Planta in Sarajevo, Mushroom in Selinac and Halilovic in Vogasca). Figure 1 shows the value chain in Bosnia and Herzegovina.

### Production and trade figures

Overall area under medicinal and aromatic plants in BiH is not expected to exceed 200-300 hectares although it is expanding quite rapidly. There are no detailed local statistics of either

the production or export of medicinal plants from BiH on state level., 16 of the most important collected plants in trade in BiH account for approximately 1,100 tons of dried plant material.<sup>42</sup> Between 80 and 100 percent of these plants are exported.

The Federal Office of Statistics for the Federation provided export and import figures for the years 2000 to 2002. A summary of the quantities exported is given in table 1. No statistical data could be obtained for Republika Srpska.

Table 1: Export of MAP's from FBiH<sup>43</sup>

| Year | Product | Quantity (Kg) | Value (US\$) |
|------|---------|---------------|--------------|
| 2000 |         | 223,476 kg    | \$427,316    |
| 2001 |         | 213,902 kg    | \$585,481    |
| 2002 |         | 189,851 kg    | \$662,330    |

According to the official figures, around 200 tons of dry plant material are exported annually from FBiH, valued at \$400,000 to 600,000. Import figures for the Federation are between 80 and 105 tons per year, valued at around \$800,000. Table 2 gives import figures for the most important trading partners of BiH in South East Europe, the EU and USA.

Table 2: Imports of medicinal and aromatic plants<sup>44</sup> from major trading partners of Bosnia and Herzegovina.

| Importing country | Value (US\$'000) | Estim. quantity (tons) | Source and year of trade    |
|-------------------|------------------|------------------------|-----------------------------|
| Slovenia          | 165              | 110                    | UNCTAD, 2000                |
| Germany           | 165              | 37                     | Stat. Bundesamt, 2002       |
| Croatia           | 158              | 105                    | UNCTAD, 2000                |
| Yugoslavia        | 102              | 68                     | Stat. Office, FR Yugo, 2000 |
| EU                | 82               | 55                     | UNCTAD, 2000                |
| USA               | 22               | 15                     | UNCTAD, 2001                |
| Romania           | 0                | 0                      | UNCTAD, 2000                |
| Macedonia         | 0                | 0                      | UNCTAD, 1999                |
| Albania           | 0                | 0                      | UNCTAD, 2000                |
| Bulgaria          | 0                | 0                      | UNCTAD, 2000                |
| Hungary           | 0                | 0                      | UNCTAD, 1997                |
| <b>Total</b>      | <b>694</b>       | <b>390</b>             | (For value only)            |

Estimation of quantity is based on an average export price of \$1.50/kg of drug. Figures for Germany as provided by Statistical office. Since the figures reflect imports from different years, the total quantity only gives a rough indication of exported MAP's from BiH.

### **Institutions involved in the MAP sector**

GTZ-MAP Project. The Project "Medicinal and Aromatic Plants - Wild Collection and Sustainable Use" started in 1999 and is supported by the Swiss SIPPO.

<sup>42</sup> According to Kathe et al (2002), based on research work of D. Pecanac

<sup>43</sup> Source: Federal Office of Statistics, Sarajevo

<sup>44</sup> HS code 121190 (other plants)

☞ Institute of Agriculture, Banja Luka

☞ Faculty of Agriculture, University Banja Luka, Banja Luka

☞ Centre For Ecology and Natural Resources, Faculty of Science, University of Sarajevo, Sarajevo (CEPRES)

☞ Faculty of Agriculture, University of Sarajevo

☞ BAMAP-FbiH. The Business Association FbiH was established under the Chamber of Commerce and Industry FbiH and has 9 members.

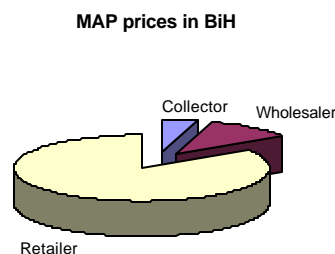
☞ BAMAP-RS. The Business Association Medicinal and Aromatic Plants in Republika Srpska (BAMAP-RS) has 16 members.

☞ Association of Rare and Endangered Species, Banja Luka. This association has just been founded as an NGO by Prof. Djordje Gataric of the Agricultural Institute, Banja Luka. So far, it has four members. No further information available.

### **Prices, margins and value chain**

A research on prices at collector, wholesaler and retailer level has revealed that there are very substantial price differences paid at the different levels. As could be expected, collectors get the lowest share of the value chain. On average, they receive €1.00/kg of dried plant material delivered.

The wholesaler receives, on average, a price that is 2.3 times higher than at collector level. The biggest share, as can be expected, goes to the retailers. Retail prices are more than 17 times higher than prices paid to collectors. However, there are naturally much higher costs involved for processing and packaging. Figure 2 illustrates the margins paid at the different trade levels.



*Figure 2: Relation of margins paid at different trade levels in BiH*

The potential to earn more at the retail level or at least for processed products has encouraged many companies, even very small ones, to produce herbal teas and cosmetic products in retail packs. However, the retail market in Bosnia and Herzegovina is limited and only a small part of the medicinal and aromatic plants collected can be sold locally. Companies therefore aim to export final products, at least to other countries in the Region.

### Case study: The company Neven from Rudo

Neven is a relatively young company that is run by the family of its Director, Goran Durovic. All family members are working together and, during the peak season, casual workers are employed as well.

“Neven” is the local name for Marigold (*Calendula officinalis*) a well know plant that is native to southern Europe. Marigold is the only plant Neven is working with. The company, however, is not engaged in collection of wild plants but is cultivating Marigold on the family owned land, currently one hectare. For the near future, an outgrower system is planned to increase the production.

Between June and September the flower heads are picked by hand and dried in a forced air drier. One person can collect about two to three kg of flower heads (dry weight) per day. One hectare can produce about 2 tons of dried flower heads.

Marigold has many medicinal uses, with choleric (stimulating production of bile in the liver), anti-inflammatory (counteracting inflammation) and antispasmodic (relieving spasms of the smooth muscles) properties. However, the plant is much more used externally to heal wounds, sores, ulcers, bruises etc. and is hence used in complexion cremes and lotions. This is why Neven has added value to the flowers and created a range of products, such as teas, cremes, tinctures, lipsticks (“labello”), peeling masks and a fatty oil.



Taking part in the GTZ program, Neven is certified organic as from 2003 and can now sell the products with reference to organic production methods. Up to now the products are sold to pharmacies in BiH but Goran plans to open his own pharmacy as well, where he can sell his products. This will close the value chain and all value adding, from the drying of the flowers up to manufacturing of cosmetic product, will remain in the family run company. This shows that even a small family business can make a living from medicinal and aromatic plants – by adding more value to the raw material.

## **The European Market for Medicinal and Aromatic Plants**

### **Market Size**

The European Union represents the largest single commercial market for medicinal and aromatic plants in the world with imports of around 120,000 tons valued at US\$200 million (wholesale prices for dried raw materials) for the period 1991 to 2000<sup>45</sup>. The annual growth rate is estimated at 5 to 10%.

Within the EU, Germany is by far the largest importer, with around 38% (over 45,000 tons annually of the market, followed by France with 17% and Italy (9%) of total imports (Commonwealth Secretariat; 2001). Germany is also Europe's largest (re-) exporter of medicinal and aromatic plants, exporting some 15,000 tons annually to other European countries and to the USA. Although the former Republic of Yugoslavia used to be a major supplier of medicinal and aromatic plants to the European Union, Bosnia and Herzegovina and Serbia and Montenegro, currently only play a minor role in the trade with values of 0.04% and 0.43% respectively of the total MAP imports to the EU. The most important east European competitors for the two countries are Bulgaria, Poland, Hungary and Albania. The most important suppliers of MAPs to the EU by value (percentage of total imports) are: the US (15.8%), India (8.0%), China (7.45%), Bulgaria (6.44%) and Egypt (5.47%).<sup>46</sup>

The European Union is also a large producer of medicinal and aromatic plants, totaling 62,700 hectares. France and Spain are by far the largest producers with 25,000 ha and 19,000 ha respectively.<sup>47</sup>

### **European Trade Structure**

European, especially German, companies dominate the global medicinal and aromatic plant sector. The structure of the European herbal market is very complex and characterized by a concentration process as shown in Figure 2.

The biggest herbal raw materials group in Europe is the Martin Bauer Group, a German-based holding, positioned now as "the nature network" with agencies in 50 countries and five continents and with an annual turnover of €350 million. Other leading companies include German Madaus and the Italian Indena with turnovers of €30 million and €170 million respectively. Another big German group is Dr. Willmar Schwabe Arzneimittel, with an annual turnover of over €400 million of which over €300 million are in phyto-pharmaceuticals only.

In Germany, there are about 20 major wholesalers of MAPs and seven agents.<sup>48</sup> There is an increasing interest in organic certified MAPs and about half of the importers and wholesalers also deal in organic plant material, (although the quantities are small compared to conventional products.<sup>49</sup> Only very few importers and processors deal only in organic MAPs and spices.

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<sup>45</sup> UNCTAD COMTRADE database, 2001

<sup>46</sup> *ibid.*

<sup>47</sup> Commonwealth Secretariat (2001) *A Guide to the European Market for Medicinal Plants and Extracts*. Pall Mall, London

<sup>48</sup> Lange, D. (1996) *Untersuchungen zum Heilpflanzenhandel in Deutschland; Bundesamt für den Naturschutz (BFN)*. Bonn, Germany

<sup>49</sup> probably not higher than 2-3 % of conventional market

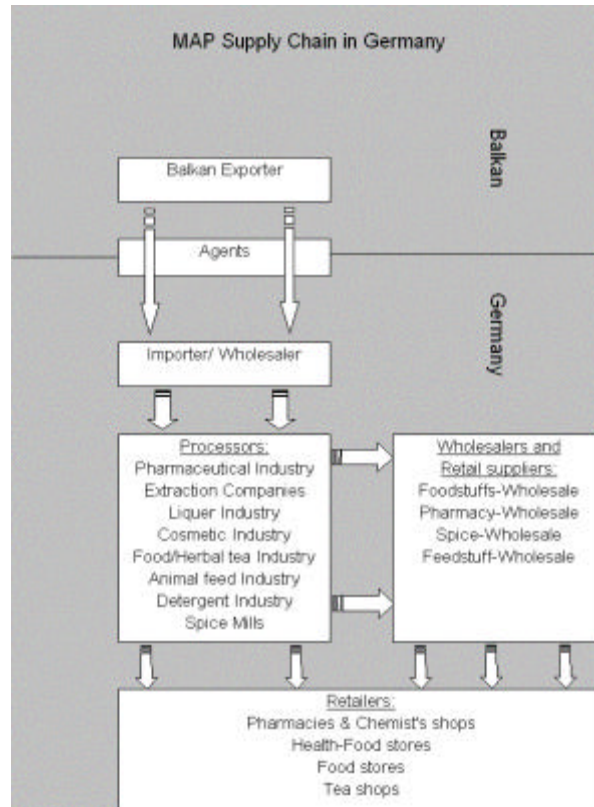


Figure 3: Supply chain of medicinal and aromatic plants in Germany

The trade structure in France is similar to that in Germany, although quantities traded are much lower. There are between 20 and 30 MAP traders in France, of which some also deal in organic products.<sup>50</sup> One of the biggest phyto-pharmaceutical companies in France is Arkopharma, with an annual turnover of about €180 million. Another big player is Berkem, processing over 5,000 tons of raw material.

In the United Kingdom, the trade structure is quite different although processing of medicinal plants has a long tradition here. There is very little local production and raw material is

### MAP prices at different levels

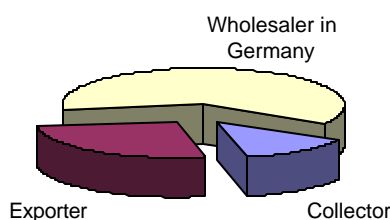


Fig. 4: Relation of margins paid at different levels of the value chain in Serbia and Germany<sup>51</sup>

### Regulatory Environment

Regulations on the trade of medicinal plants are mainly based on health and safety requirements and there are a wide range of regulatory measures that affect the sale of products based on medicinal plants.

In particular, as soon as a product label makes any claim to cure, it is considered as a medicine and thus requires market authorization. This authorization may be a very long and costly procedure involving clinical trials and toxicological testing.

Minimum specifications relevant for exporters and importers of MAPs are laid down in plant monographs which are developed by various organizations, such as the European Pharmacopoeia, the European Scientific Cooperative on Phytotherapy (ESCOP) and the World Health Organization, WHO.

Products, which do not make any claim concerning medicinal qualities, may be sold freely, as long as labeling laws, such as the EC Directive 79/112, and general food laws are respected.

For the exporters of herbal drugs in the Balkans, market authorization is usually not necessary as this is only required for final products, ready to be sold in the retail market. In most cases, raw such as extracts and essential oils are exported from Balkan countries. However, the minimum requirements laid down in the plant monographs have to be respected by all producers and exporters of herbal drugs.

Another aspect, and probably the most important for growers, collectors, processors and exporters of medicinal and aromatic plants, concerns the quality control and quality assurance which is drawn as a guideline of Good Agricultural and Collection Practice. Hygienic aspects are dealt with in the European Hygiene regulation HACCP. These are explained more detailed below.

#### Good Agricultural and Collection Practice

The European Herb Growers Association (EUROPAM) has developed Good Agricultural Practice (GAP) guidelines which were further developed into Good Agricultural and

<sup>51</sup> No comparable prices were available from BiH



Collection Practice for starting materials of herbal origin (GACP) by the European Agency for the Evaluation of Medicinal Product (EMA). Also the WHO has developed similar guidelines.

Although the GACP guidelines are not directly legally binding, they have to be followed by all European companies involved in the production and trade of herbal drugs. The guidelines may be adopted to specific needs of the individual companies. Exporters of MAP's have to be aware that the implementation of GACP guidelines, including relevant documentation, will be demanded by European and US importers as part of their Quality Assurance System. In future, companies that do not have implemented the GACP guidelines will find it very difficult to remain in the international trade in MAP's.

Especially important aspects of GACP are that plant raw materials:

- are produced hygienically, in order to reduce microbiological load to a minimum,
- are produced with care, so that the negative impacts affecting plants during cultivation, processing and storage can be limited.

GACP guidelines are to be used in bilateral relationship between the supplier and the customer. Production certificates should contain all information of the production process (from primary producers to traders, who are required to comply with these guidelines voluntarily and to elaborate practical measures in order to realize them). Growers, traders and processors of medicinal and aromatic plants should respect and comply with the GACP Guidelines, and demand that their partners also meet these requirements.

### HACCP

HACCP (Hazard Analysis Critical Control Point) is an internationally accepted system for preventing microbiological, chemical and physical contamination along the food supply chain and becomes increasingly mandatory for food suppliers and exporters. Rather than relying on end-of-line product testing, HACCP is a preventive quality assurance process designed to provide increased control during critical stages of the food production and processing chain. Within the European Union, HACCP has been turned into law by EU regulation 93/43/(EEC) which is binding for all companies that deal with foodstuffs.

HACCP incorporates seven main principles:

- Identification of potential hazards
- Identification of Critical Control Points (CCPs)
- Establishment of targets to control CCPs
- Establishment of a monitoring system for CCPs
- Implementing corrective actions when needed
- Establishment of verification procedures to show the HACCP system is working
- Establishment of a record-keeping system

Although HACCP does not apply to medicinal and aromatic plants, many of these are used in the food and beverage sector (e.g. herbal teas, spices), thus requiring application of HACCP principles. HACCP is usually integrated in the Quality Management System of processing companies.

## **Market Access for herbs from Bosnia and Herzegovina**

Export medicinal and aromatic products from the Balkans are generally restricted to raw materials, such as dried herbs, probably cut, sieved and sorted and semi-processed raw materials, such as alcoholic extracts and essential oils. Most of these products are exported in bulk to importers and wholesalers in Europe.

Marketing strategies that could improve the herbal sector's performance should emphasize on quality, sustainability, social justice and specific niche markets. While exporters of bulk, conventional herbs have to face stiff competition from other countries within the region, there are not yet many suppliers who meet the growing demand for well documented organic and/or fairly traded MAPs that also meet the product quality requirements of the international markets. This could be a chance to access new markets. Certification to certain standards could improve the market position of herbal companies in the Balkan. There are many standards that can be related to herbal products. These can be grouped as:

- ✍ Environmental standards
- ✍ Fair Trade and Social standards
- ✍ Organic standards
- ✍ Quality and Quality Assurance

While the first three sets of standards have already been discussed in section 2 of this report, the different quality standards setting organizations are briefly described below.

### **Quality and Quality Assurance**

Each country has its own standards that deal with food hygiene, consumer protection, product quality etc. On international level, some organizations are working on the harmonization of standards in order to facilitate trade. With reference to MAPs, these organizations are.<sup>52</sup>

#### ***European Agency for the Evaluation of Medicinal Products (EMA)***

EMA coordinates scientific resources existing in member states with a view to evaluating and supervising medicinal products for both human and veterinarian use. EMA grants certificates of medicinal products in conformance with WHO. Its Herbal Medicinal Products Working Group looks into a number of standards issues affecting the botanicals trade, including GMPs and GAPs. [www.ema.eu.int/](http://www.ema.eu.int/)

#### ***European Scientific Cooperative on Phytotherapy (ESCOP)***

ESCOP is an umbrella organization of phytotherapy associations across Europe. Its aim is to advance the scientific status of phytomedicines and assist with harmonization of their regulatory status at the European level. ESCOP promotes phytomedicines, develops scientific frameworks for their assessment, conducts phytomedicinal research and publishes reference monographs on therapeutic use of plant drugs. ESCOP also hosts PhytoNet, an internet information resource for those involved in the development, manufacture, regulation and surveillance of phytomedicines and herbal drugs. [www.escop.com](http://www.escop.com)

#### ***World Health Organization (WHO)***

WHO drafted 'Guidelines for the Assessment of Herbal Medicines' in 1991. These guidelines contain basic criteria for the assessment of quality, safety, and efficacy of herbal medicines as

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<sup>52</sup> Adapted and altered from Pierce, A., S. Laird and R. Malleson (2002). *Annotated Collection of Guidelines, Standards and Regulations for Trade in Non-Timber Forest Products (NTFPs) and Botanicals*. Rainforest Alliance, New York, USA

well as important requirements for labeling and package inserts, both of which are useful for consumers' information. WHO has also developed guidelines on Good Manufacturing Practice (GMP). [www.who.net](http://www.who.net)

### ***Codex Alimentarius***

International standards governing the safety and purity of food products. Guidelines address food hygiene; food labeling; food import and export inspection certification systems; organic guidelines for production, processing, labeling and marketing; nutrition labeling; food additives; contaminants; etc. New proposals would have the organization create stricter guidelines for dietary supplements. [www.codexalimentarius.net](http://www.codexalimentarius.net)

### ***US Food and Drug Administration FDA***

Various guidelines, including GMPs. The US FDA website provides information on a variety of GMP standards for food, drugs and functional/dietary ingredients. [www.fda.gov](http://www.fda.gov)

### **Certification and premiums**

It is important to recognise that certification will not guarantee a price premium. However it may be useful to improve or maintain market access. The advantage of organic certification is that, at least part of the documentation procedure demanded in the Good Agricultural and Collection Practice (GACP) guidelines is also required in the organic certification procedure.<sup>53</sup>

Although premiums of 20 to 30 % above conventional prices are generally accepted for organically certified products, demand and offer decide on whether these premiums are paid or not. In certain cases, where the demand is higher than the offer, premiums may be over 100 percent above “normal” prices as shown in table 3 in which some wholesale prices of a German trading company for conventional and organic medicinal and aromatic plants are listed.

*Table 3: Wholesale prices for organic and conventional MAP's in Germany<sup>54</sup>*

| Product              | Conventional price in €kg | Organic price in €kg | Premium |
|----------------------|---------------------------|----------------------|---------|
| St John's Wort       | 5.20                      | 5.70                 | 10 %    |
| Marshmallow root     | 9.30                      | 10.00                | 7 %     |
| Nettle leaf          | 3.60                      | 5.20                 | 44 %    |
| Dog rose, whole      | 1.10                      | 1.60                 | 45 %    |
| Linden flower, whole | 5.20                      | 11.00                | 111 %   |
| Ribwort Plantain     | 4.10                      | 6.20                 | 51 %    |
| Savory               | 4.10                      | 8.00                 | 95 %    |
| Yarrow               | 3.90                      | 4.10                 | 5 %     |
| Wormwood             | 3.10                      | 3.90                 | 26 %    |
| Birch leaf, cut      | 3.60                      | 4.70                 | 30 %    |
| Wild Thyme           | 5.20                      | 6.70                 | 29 %    |
| Valerian root, cut   | 5.20                      | 9.00                 | 73 %    |

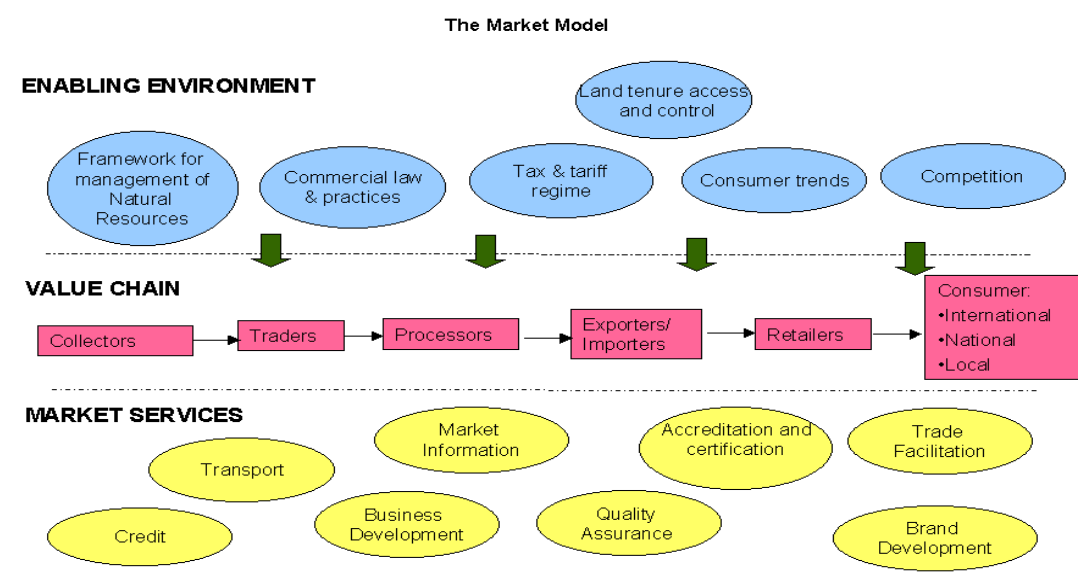
<sup>53</sup> The organic documentation concerns mainly the transparency of the supply chain while GACP additionally requires documentation about hygiene and product quality aspects

<sup>54</sup> Source: Alfred Galke GmbH, Germany; based on dried and cut plant material, Ex works; minimum sale: 5kg

## **Section 4: Recommendations**

From the above report and discussions in the workshop a number of recommendations are proposed for interventions or action within the Balkan MAP sector. The main objective is based on the assumption that assistance to the sector should promote an efficient and profitable herbal sector that addresses the issues of social equity and ecologically sustainable supply.

Recommendations are structured using the market model below<sup>55</sup>



Trade occurs within a value chain, but the wider enabling business environment will have a large influence on how effectively and efficiently the value chain operates. The diagram above shows examples of market services and factors within the enabling environment which will impact upon the value chain.

The recommendations are structured as follows:

☞ **General recommendations** concerned with delivering effective projects and programmes to support the MAP sector.

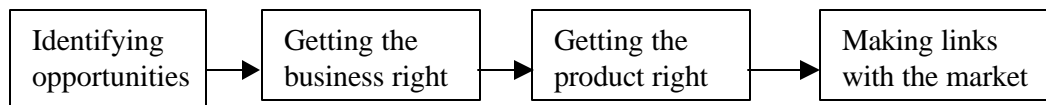
☞ **Recommendations concerning the enabling environment.** Within the MAP sector these mainly concern resource management and the institutional / legal framework

☞ **Recommendations concerning the value chain.** These look at:

?? **Enhancing equity and sustainability**– What can be done with organisations operating in the value chain to address equity and sustainability concerns.

<sup>55</sup> Adapted from the *market model* © developed by the Intermediate Technology Development Group (ITDG), UK

?? **Enhancing market access.** How can market access be improved. These recommendations are structured using a framework<sup>56</sup> which maps out a process for enhancing access to markets for small businesses.



### ~~///~~ **Recommendations concerning the provision of market services**

Each recommendation identifies:

- ~~///~~ The problem, challenge or opportunity
- ~~///~~ The recommendation itself
- ~~///~~ Where responsibility lies for implementing the recommendation. Specific organisations have not been identified. Rather, responsibility has been assigned to:
  - ?? The public sector. This includes government departments and other public institutions such as universities
  - ?? Collectors
  - ?? The private sector. This includes organisations involved in the value chain, excluding collectors
  - ?? Support organisations and service providers. This includes donors, NGOs, service providers, consultants and other support organisations

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<sup>56</sup> Adapted from the *market access framework* © developed by the Traidcraft Market Access Centre, UK



## General recommendations

| Challenge / problem / opportunity  | Recommendation   | Responsibility  |
|--|--|---|
| Lack of co-ordination across the sector  | <p>One organisation should play a co-ordinating / facilitating role across the sector. It should:</p> <ul style="list-style-type: none"> <li>/// Catalyse and promote action by different stakeholders</li> <li>/// Mobilise financial, human and technical resources</li> <li>/// Balance diverse interests and act as an “honest broker” and arbitration service</li> <li>/// Execute and follow through on agreements, identifying and agreeing roles and responsibilities and ensuring that actions are undertaken as agreed</li> <li>/// Co-ordinate actions</li> </ul> | A support organisation that is objective and not aligned to any of the value chain players or organisations in the public sector should take on this role. The support organisation would require donor funding initially but in the longer term could either withdraw from the sector (having achieved its objectives) or seek financial independence based on fees/revenues charged for services. |
| Learn from experiences of the GTZ project: There is an opportunity to learn from the experiences of GTZ in BiH and apply this learning to further activities in the sector   | In conjunction with GTZ articulate the learning from their project in BiH and identify lessons which can be applied to any further work in the sector. Disseminate the learning to other stakeholders in the MAP sector  | The co-ordinating agency recommended above should liaise with GTZ.  |
| Test business models on a small/pilot scale to see what works best. (Given the scale of some of the recommendations below and the fact that some are also innovative in the local context there is a need to gain support from appropriate stakeholders and adopt an approach that maximises benefits and learning whilst minimising risks.) | <p>A pilot project would allow business models/approaches to be tested and scaled up as appropriate. Key issues to be addressed could include:</p> <ul style="list-style-type: none"> <li>/// inventory of MAPs,</li> <li>/// quota system,</li> <li>/// collectors’ association,</li> <li>/// training for collectors,</li> <li>/// improvement of processing facilities</li> <li>/// introduction of best practices and organic certification</li> <li>/// introduction of local brand</li> </ul>  | Representatives from all stakeholder groups in the value chain would be involved in the pilot project. The lead would probably need to be taken by donors interested in supporting the sector or the co-ordinating agency recommended above.  |

**Recommendations concerning the enabling environment (resource management and the institutional / legal framework)**

| Challenge / problem / opportunity  | Recommendation   | Responsibility  |
|--|--|---|
| <p>Some species are being used unsustainably</p> <p>Regulation of the sector is weak</p>   | <p>Undertake an inventory of MAP species, in-depth research into the status of the most at risk species and the impact that harvesting is having upon them.</p> <p>Disseminate findings to stakeholders involved in the MAP sector.</p>  | <p>The public sector. There is expertise within Universities. Donor funding may be required</p>   |
| <p>There is no framework for resource management at a national level</p> <p>There is insufficient information on the status of MAP species and whether collection is sustainable</p> <p>There is a lack of ongoing monitoring on the status of MAP resources</p> | <p>Introduce an effective quota system, considering suggestions outlined in the report:</p> <ul style="list-style-type: none"> <li>✍ Ensure the system is decentralised and involves the participation of a broad range of stakeholders: <ul style="list-style-type: none"> <li>?? Set quotas for specific MAP collection areas and update these annually</li> <li>?? Involve a broader range of stakeholders in the setting of quota levels.</li> <li>?? Sell quotas to associations of collectors that represent the collectors active in the area for which the quota has been set.</li> </ul> </li> <li>✍ If quotas are sold, ensure this is done in a way which minimises the cash flow and risk burden upon purchasers.</li> </ul> | <p>Government.</p> <p>There is a role for the co-ordinating agency to catalyse the introduction of the quota system and promote the involvement of a broad range of stakeholders.</p> <p>Stakeholders also have a responsibility to lobby for necessary changes and promote their own involvement</p> |
| <p>There is no quota system or other similar system for resource management</p>  | <p>Develop management plans for MAP collection areas.</p>  | <p>As above</p>   |
|  | <p>Investigate the potential to develop a low cost monitoring system, using proxy indicators for assessing changes in the status of at risk species</p>  | <p>Government / public sector</p>   |
|  | <p>Lobby the government and assist it develop national level regulations and control and a national framework</p>  | <p>All stakeholders, through associations as relevant</p>   |
| <p>Cultivation can reduce the pressure upon wild populations of species at risk from over harvesting</p>   | <p>Cultivate at risk species in a way that does not undermine the livelihoods of collectors.</p>   | <p>Cultivation to be undertaken by collectors and the private sector</p> <p>Research may be required – to be undertaken by the public sector. This may require donor funding.</p> <p>A role for the co-ordinating agency to represent the interests of collectors</p>                                 |



## Recommendations concerning the value chain

### Enhancing equity and sustainability

| <b>Challenge / problem / opportunity</b>   | <b>Recommendation</b>   | <b>Responsibility</b>  |
|--|---|--|
| <p>There is a power imbalance within the value chain, which prevents collectors from participating effectively or on equal terms.</p> <p>Collectors are not organised and are not represented.</p>   | <p>Establish and develop associations of collectors. These would enable:</p> <ul style="list-style-type: none"> <li>/// Collectors to negotiate a better price</li> <li>/// The effective participation of collectors in the quota system; the development of management plans; and the control of usufruct rights</li> <li>/// Collectors to pool resources and access external support, assisting them enhance quality; undertake initial processing such as better drying, sorting and grading; bulk product up and transport product.</li> </ul>  | <p>Collectors have responsibility for organising themselves. Support would be required from external facilitators.</p> <p>Donor funding might be required.</p>   |
| <p>A lack of transparency and information about prices enables the exploitation of collectors and others that are marginalised.</p>  | <p>Provide market information concerning prices to marginalised organisations and individuals within the value chain</p>  | <p>The co-ordinating agency in collaboration with collectors' associations</p>   |
| <p>It is not widely recognised that the sustainable exploitation of MAP resources and fairness in trading relationships is in the interests of all involved in the value chain and that it makes business sense to adopt sustainable practices</p> | <p>Implement a programme aimed at influencing and changing the attitudes and practices of those involved in the MAP sector. Such a programme should:</p> <ul style="list-style-type: none"> <li>/// Start with a greater understanding of the drivers in the local context</li> <li>/// Demonstrate and document the business case for sustainable harvesting</li> <li>/// Using this understanding, influence the attitudes of those involved in the sector. A programme of seminars, using appropriate entry points or hooks (as discussed in the text above) could form the start of such a programme</li> <li>/// Provide support or enable others to provide support to businesses to enable them to change their practice once they recognise the value of doing so</li> <li>/// Identify and develop local champions of a sustainable industry.</li> </ul> | <p>Business associations should take the lead on influencing the attitudes of their members and deliver such a programme, potentially in collaboration with an appropriate support organisation.</p> <p>Donor funding would be required</p> <p>There is a role for appropriate service providers to assist businesses change their practice.</p> |
| <p>Regulation of the sector is weak. Yet it is in the interest of the private sector to ensure better regulation and it has the leverage to promote better standards of practice</p>   | <p>Self regulation by the private sector, including the development of best practice standards for sustainable harvesting and fair trade. This may include determining minimum prices to be paid to collectors for particular species.</p>  | <p>The private sector, in particular business associations should take the lead on promoting the adoption of sustainable practices</p> <p>They may require assistance from support organisations</p>   |

## Enhancing market access

### *Identifying and developing opportunities*

| <b>Challenge / problem / opportunity</b>   | <b>Recommendation</b>   | <b>Responsibility</b>   |
|--|---|---|
| There is a lack of knowledge about regional and foreign markets - structure, stakeholders, trends, requirements etc  | Disseminate this report<br><br>Develop mechanisms for updating the relevant information in this report and adding to it as necessary (eg see <a href="http://www.cbi.nl/accessguide/">http://www.cbi.nl/accessguide/</a> )  | SEED and business associations/ Chambers of commerce  |
| Locally produced value added MAP products (herbal teas, essential oils, cosmetic and body care products) have a relatively small share of the local market | Seek to grow the local market for MAP products by:<br><del>///</del> Undertaking marketing campaigns for local products<br><del>///</del> Promoting innovative value-adding measures with the view to substitute imports but also to broaden the spectrum for exports | An industry wide marketing campaign (as opposed to individual company campaigns) should be led by business associations.<br><br>Donor support may be required in the short term |

### *Getting the business and the product right*

| <b>Challenge / problem / opportunity</b>   | <b>Recommendation</b>  | <b>Responsibility</b>  |
|--|--|--|
| Some collectors and personnel of purchasing companies are not qualified with regards to the clear identification of species and their sustainable harvesting   | Train collectors and personnel of purchasing companies in species recognition and appropriate harvesting methods.<br><br>Register qualified collectors | The private sector could take on the responsibility of ensuring collectors and its staff are trained.<br><br>Training conducted by the public sector (e.g. academic departments) or service providers (e.g. private trainers)<br><br>Collectors registered by their associations or the private sector |
| Businesses are not aware of quality standards, such as Good Agricultural and Collection Practice (GACP) and Hazard Analysis and Critical Control Point (HACCP). Staff are not sufficiently trained in these areas. | Increase awareness and understanding of GACP and HACCP.<br><br>Provide appropriate training to personnel within the private sector as necessary        | Business associations to promote awareness and understanding<br><br>Training to be provided by appropriate service providers (e.g. trainers in quality control) .<br><br>Donor support may be required.  |

|   |   |   |
|---|---|---|
| <p>Most companies have severe working capital shortages, which constrain trading operations (the purchasing, processing and transporting of products) in advance of payment</p> <p>Working capital constraints put downward pressure on prices paid to collectors</p>                 | <p>Assist companies to better access attractive loans</p> <p>Additional, second payment to collectors. Cash on delivery at the current rate followed by an additional payment after processors have on-sold the product</p> <p>Improve access to appropriate business development services in the areas of operations and finance (including stock)</p> | <p>Donors, support organisations and the private sector (through business associations) to lobby for access to attractive loans</p> <p>Individual businesses are responsible for developing payment terms that are fair to collectors but appropriate to their cash flow.</p> <p>Financial service providers to assess new business opportunities in sector (SEED to host financing workshop)</p> <p>Business service providers to make services available at affordable prices. Donor subsidy may be required.</p> |
| <p>A lack of market information (likely demand and prices in export markets) makes business planning difficult and increases risk</p>   | <p>Provide market information / market analysis concerning prices and potential demand</p>  | <p>A potential function for business associations.</p> <p>A potential service of business service providers</p>   |
| <p>Business performance and competitiveness can be improved.</p> <p>Staff do not speak foreign languages</p>  | <p>Improve access to appropriate business services in the key areas of marketing, operations and finance.</p> <p>Improve access to language training</p>  | <p>Support organisations and business service providers to make services available at affordable prices. Donor subsidy may be required.</p>   |
| <p>Processing facilities are usually inadequate, compromising product quality, the ability to meet market requirements and add value.</p> <p>Many companies do not have access to bank loans for necessary investment capital</p> <p>Raising capital requires good business plans</p> | <p>Assist companies to better access attractive loans to overcome shortages of investment capital</p> <p>Improve access to appropriate business development services for business planning and capital raising</p>  | <p>Donors, support organisations and the private sector (through business associations) to lobby for access to attractive loans</p> <p>Collectors have responsibility for organising themselves. Support would be required from external facilitators. Donor funding might be required.</p> <p>Support organisations and business service providers to make services available at affordable prices. Donor subsidy may be required</p>  |
| <p>Producing organic product enhances market access and may deliver price premiums</p>  | <p>Support as appropriate existing programmes in BiH which are promoting and supporting organic certification</p>   | <p>Businesses are responsible for obtaining organic certification.</p> <p>The co-ordinating agency would be well placed to support existing programmes</p>  |
| <p>Appropriately branded product enhances market access, and may deliver price premiums.</p>  | <p>Investigate the potential for developing a local brand as described in the text. Market this brand in the local market and to buyers in the export market. The brand could reflect the best standards regarding sustainable harvesting and fair trade recommended above</p>  | <p>The private sector, in particular through business associations should take the lead on developing a local brand. Collaboration with collectors' associations would be required</p> <p>Assistance from support organisations might be necessary</p>  |

Linking with the market

| <b>Challenge / problem / opportunity</b>   | <b>Recommendation</b>  | <b>Responsibility</b>   |
|--|--|---|
| <p>The private sector in BiH needs to maintain and expand links with the export market</p> <p>Direct trading relationships governed by benefit sharing arrangements could deliver greater benefits to stakeholders</p> | <p>Continue with seller/buyer meetings and/or participation at regional and international trade fairs.</p> <p>Facilitate the development of direct trading arrangements based upon clear benefit sharing agreements, which conform to best practice</p>                                      | <p>The co-ordinating agency or other support organisations could ensure that the programme of buyer – seller meetings and trade fair participation continues as necessary. Donor funding would be required.</p> <p>The co-ordinating agency to take on this role or to identify an organisation willing to be an honest broker.</p> |
| <p>Many businesses in BiH producer products in quantities that are too small for the export market</p>   | <p>Investigate and consider the creation of a trading company or agency, that could belong to collectors' groups and traders. This company could bulk up products for trading in the export market. It could potentially be an effective and efficient means of enhancing market access.</p> | <p>Business and collectors associations. The co-ordinating agency could promote this idea and assist with the business analysis and research required for the development of the business plan.</p>   |

**Recommendations concerning the provision of market services**

| <b>Challenge / problem / opportunity</b>  | <b>Recommendation</b>  | <b>Responsibility</b>  |
|---|--|--|
| <p>Business associations for those involved in the MAP sector in BiH are recently established and there is potential to increase their effectiveness and capacity</p> <p>Business associations should play a role in delivering many of the recommendations above</p> | <p>Assist the business associations to enhance their capacity so that they can provide effective services to their members and undertake the responsibilities identified above.</p>  | <p>Businesses have responsibility for developing their business associations. They would require support from external facilitators. Donor funding might be required</p> |
| <p>For businesses to grow they require access to effective business services at prices they can afford.</p> <p>Business service providers have a role to play in the delivery of many of the recommendations above</p>  | <p>Review the business services market in order to determine whether the required services are available at an affordable price. This includes business development services but also support services such as laboratories, research institutions etc</p> <p>Support the development of a more effective business services market if necessary, through for instance building the capacity of service providers, promoting and marketing the use of services to potential clients and subsidising service delivery as appropriate</p> | <p>This is the responsibility of the co-ordinating agency, other support organisations and donors.</p>   |

## Appendix 1 – MAP species in trade and their status

| No | Species                                      | Status |            |            | Quantity in trade |           |          | At Risk | Cites listed |
|----|--|--------|------------|------------|-------------------|-----------|----------|---------|--------------|
|    |  | Rare   | Vulnerable | Endangered | Most important    | Important | In trade |         |              |
| 1  | <i>Abies alba</i> Mill.                      |        | X          |            |                   | X         |          | X       |              |
| 2  | <i>Achillea millefolium</i> L.               |        |            |            | X                 |           |          |         |              |
| 3  | <i>Aconitum toxicum</i> G. Beck              |        |            |            |                   |           |          |         |              |
| 4  | <i>Acorus calamus</i> L.                     | X      |            |            |                   |           | X        | X       |              |
| 5  | <i>Adiantum capillus veneris</i> L.          | X      |            |            |                   |           | X        | X       |              |
| 6  | <i>Adonis vernalis</i>                       |        |            | X          |                   |           | X        | X       | X            |
| 7  | <i>Aesculus hippocastanum</i> L.             |        |            |            |                   | X         |          |         |              |
| 8  | <i>Agrimonia eupatoria</i> L.                |        |            |            |                   |           | X        |         |              |
| 9  | <i>Agropyrum repens</i> (L.) Beauv.          |        |            |            |                   |           | X        |         |              |
| 10 | <i>Ajuga reptans</i> L.                      |        |            |            |                   |           | X        |         |              |
| 11 | <i>Alchemilla vulgaris</i> L.                |        |            |            |                   |           | X        |         |              |
| 12 | <i>Allium ursinum</i> L.                     |        | X          |            |                   |           | X        | X       |              |
| 13 | <i>Althaea officinalis</i> L.                |        | X          |            |                   | X         |          | X       |              |
| 14 | <i>Anacamptis pyramidalis</i> (L.) Rich.     |        |            |            |                   |           |          |         |              |
| 15 | <i>Angelica archangelica</i> L.              |        | X          |            |                   | X         |          | X       |              |
| 16 | <i>Antennaria dioica</i> (L.) Gaertn.        |        |            |            |                   |           | X        |         |              |
| 17 | <i>Anthyllis vulneraria</i> L.               |        |            |            |                   |           | X        |         |              |
| 18 | <i>Arctium lappa</i> L.                      |        |            |            |                   | X         |          |         |              |
| 19 | <i>Arctostaphylos uva ursi</i> (L.) Spreng.  |        |            | X          | X                 |           |          | X       |              |
| 20 | <i>Arnica montana</i> L.                     |        | X          |            |                   | X         |          | X       |              |
| 21 | <i>Artemisia absinthium</i> L.               |        | X          |            |                   |           | X        | X       |              |
| 22 | <i>Artemisia vulgaris</i> L.                 |        | X          |            |                   |           | X        | X       |              |
| 23 | <i>Asarum europaeum</i> L.                   |        | X          |            |                   |           | X        | X       |              |
| 24 | <i>Asperula odorata</i> L.                   |        |            |            |                   |           | X        |         |              |
| 25 | <i>Atropa belladonna</i> L.                  |        | X          |            |                   | X         |          | X       |              |
| 26 | <i>Ballota nigra</i> L.                      |        |            |            |                   |           |          |         |              |
| 27 | <i>Berberis vulgaris</i> L.                  | X      |            |            |                   | X         |          | X       |              |
| 28 | <i>Betula pendula</i> Roth.                  |        |            |            | X                 |           |          |         |              |
| 29 | <i>Borago officinalis</i>                    |        |            |            |                   |           | X        |         |              |
| 30 | <i>Bidens tripartita</i> L.                  |        |            |            |                   |           | X        |         |              |
| 31 | <i>Calamintha officinalis</i> Moench.        |        |            |            |                   |           | X        |         |              |
| 32 | <i>Calendula officinalis</i> L.              |        |            |            |                   | X         |          |         |              |
| 33 | <i>Caluna vulgaris</i> (L.) Hull.            |        |            |            |                   | X         |          |         |              |
| 34 | <i>Capsella bursa-pastoris</i> (L.) Med.     |        |            |            |                   | X         |          |         |              |
| 35 | <i>Carlina acaulis</i> L.                    |        |            |            |                   |           | X        |         |              |
| 36 | <i>Carum carvi</i> L.                        |        |            |            |                   | X         |          |         |              |
| 37 | <i>Castanea sativa</i> Mill.                 |        | X          |            | X                 |           |          | X       |              |
| 38 | <i>Centaurea cyanus</i> L.                   |        |            |            |                   |           | X        |         |              |
| 39 | <i>Centaureum umbellatum</i> Gilib.          |        |            |            |                   | X         |          |         |              |
| 40 | <i>Cetraria islandica</i> Achr.              |        | X          |            | X                 |           |          | X       |              |
| 41 | <i>Chamaenerion angustifolium</i> (L.) Scop. |        |            |            |                   |           | X        |         |              |
| 42 | <i>Chelidonium majus</i> L.                  |        | X          |            |                   |           | X        | X       |              |
| 43 | <i>Cichorium intybus</i> L.                  |        |            |            |                   | X         |          |         |              |
| 44 | <i>Cnicus benedictus</i> L.                  |        |            | X          |                   |           | X        | X       |              |

| No | Species                                     | Status |            |            | Quantity in trade |           |          | At Risk | Cites listed |
|----|---|--------|------------|------------|-------------------|-----------|----------|---------|--------------|
|    |   | Rare   | Vulnerable | Endangered | Most important    | Important | In trade |         |              |
| 45 | <i>Colchicum autumnale</i> L.               |        | X          |            |                   |           | X        | X       |              |
| 46 | <i>Conium maculatum</i> L.                  |        |            |            |                   |           |          |         |              |
| 47 | <i>Convallaria majalis</i> L.               |        | X          |            |                   | X         |          | X       |              |
| 48 | <i>Cornus mas</i> L.                        |        | X          |            |                   | X         |          | X       |              |
| 49 | <i>Corydalis cava</i> (L.) Schweigg.&Koerte |        |            |            |                   |           | X        |         |              |
| 50 | <i>Corylus avellana</i> L.                  |        |            |            |                   |           | X        |         |              |
| 51 | <i>Cotinus coggygria</i> Scop.              |        |            |            |                   |           |          |         |              |
| 52 | <i>Crataegus monogyna</i> Jacq.             |        | X          |            | X                 |           |          | X       |              |
| 53 | <i>Crataegus oxycantha</i> L.               |        | X          |            | X                 |           |          | X       |              |
| 54 | <i>Crocus sativus</i> L.                    |        | X          |            |                   |           | X        | X       |              |
| 55 | <i>Cyclamen purpurascens</i> Miller         |        | X          |            |                   | X         |          | X       |              |
| 56 | <i>Cynoglossum officinale</i> L.            |        |            |            |                   |           | X        |         |              |
| 57 | <i>Datura stramonium</i> L.                 |        |            |            |                   |           | X        |         |              |
| 58 | <i>Daucus carota</i> L.                     |        |            |            |                   | X         |          |         |              |

| No  | Species                                | Status |            |            | Quantity in trade |           |          | At Risk | Cites listed |
|-----|--|--------|------------|------------|-------------------|-----------|----------|---------|--------------|
|     |  | Rare   | Vulnerable | Endangered | Most important    | Important | In trade |         |              |
| 91  | Hieracium pilosella L.                 |        |            |            |                   |           | X        |         |              |
| 92  | Humulus lupulus L.                     |        |            |            |                   |           | X        |         |              |
| 93  | Hyosciamus niger L.                    |        |            |            |                   |           | X        |         |              |
| 94  | Hypericum perforatum L.                |        |            |            |                   |           | X        |         |              |
| 95  | Hyssopus officinalis L.                |        | X          |            |                   | X         |          | X       |              |
| 96  | Inula heleinum L.                      |        |            |            |                   | X         |          |         |              |
| 97  | Iris florentina L.                     |        | X          |            |                   |           | X        | X       |              |
| 98  | Iris germanica L.                      |        | X          |            |                   |           | X        | X       |              |
| 99  | Juglans regia L.                       |        | X          |            |                   | X         |          | X       |              |
| 100 | Juniperus communis L.                  |        |            |            | X                 |           |          |         |              |
| 101 | Juniperus oxycedrus L.                 |        |            |            |                   |           | X        |         |              |
| 102 | Juniperus sabina L.                    |        |            |            |                   |           | X        |         |              |
| 103 | Leonurus cardiaca L.                   |        |            |            |                   |           | X        |         |              |
| 104 | Levisticum officinale Koch             |        |            |            |                   |           | X        |         |              |
| 105 | Lycopodium clavatum L.                 | X      |            |            |                   | X         |          | X       |              |
| 106 | Lycopus europaeus L.                   |        | X          |            |                   |           | X        | X       |              |
| 107 | Lysimnachia vulgaris L.                |        |            |            |                   |           |          |         |              |
| 108 | Lythrum salicaria L.                   |        | X          |            |                   |           | X        | X       |              |
| 109 | Malva moshata L.                       |        |            |            |                   |           | X        |         |              |
| 110 | Malva silvestris L.                    |        |            |            |                   | X         |          |         |              |
| 111 | Marrubium vulgare L.                   |        |            |            |                   |           | X        |         |              |
| 112 | Matricaria recutita L.                 |        |            |            |                   | X         |          |         |              |
| 113 | Melilotus officinalis (L.) Pallas      |        | X          |            |                   |           | X        | X       |              |
| 114 | Melissa officinalis L.                 |        | X          |            |                   | X         |          | X       |              |
| 115 | Mentha longifolia L.                   |        |            |            |                   |           | X        |         |              |
| 116 | Mentha piperita L.                     |        |            |            |                   | X         |          |         |              |
| 117 | Mentha pulegium L.                     |        |            |            |                   |           | X        |         |              |
| 118 | Menyanthes trifoliata L.               |        | X          |            |                   |           | X        | X       |              |
| 119 | Micromeria thymifolia (Scop.) Fritsch. |        | X          |            |                   |           |          |         |              |
| 120 | Morus alba L.                          |        |            |            |                   |           | X        |         |              |
| 121 | Morus nigra L.                         |        |            |            |                   |           | X        |         |              |
| 122 | Nasturtium officinale R. Br.           |        |            |            |                   | X         |          |         |              |
| 123 | Nepeta cataria L.                      |        |            |            |                   |           | X        |         |              |
| 124 | Nigella sativa L.                      |        |            |            |                   |           |          |         |              |
| 125 | Numphar luteum (L.) Sm.                |        |            |            |                   |           | X        |         |              |
| 126 | Ononis spinosa L.                      |        |            |            |                   | X         |          |         |              |
| 127 | Orchis morio L.                        | X      |            |            |                   | X         |          | X       | X            |
| 128 | Orchis simia L.                        |        |            |            |                   |           | X        |         |              |
| 129 | Origanum vulgare L.                    |        | X          |            |                   | X         |          | X       |              |
| 130 | Paeonia officinalis L.                 |        |            |            |                   |           | X        |         |              |
| 131 | Palirus spina-christi Mill.            |        |            |            |                   |           | X        |         |              |
| 132 | Papaver rhoeas L.                      |        |            |            |                   |           | X        |         |              |
| 133 | Pastinaca sativa L.                    |        |            |            |                   |           | X        |         |              |
| 134 | Petasites hybridus (L.) G.M.Sch.       |        | X          |            |                   |           | X        | X       |              |
| 135 | Peuceadum oreoselinum (L.) Moench.     |        |            |            |                   |           | X        |         |              |
| 136 | Physalis alkekengi L.                  |        |            |            |                   |           | X        |         |              |

| No  | Species                                  | Status |            |            | Quantity in trade |           |          | At Risk | Cites listed |
|-----|--|--------|------------|------------|-------------------|-----------|----------|---------|--------------|
|     |  | Rare   | Vulnerable | Endangered | Most important    | Important | In trade |         |              |
| 137 | <i>Pimpinella saxifraga</i> L.           |        |            |            |                   | X         |          |         |              |
| 138 | <i>Pinus cheldreichii</i> Christ         |        | X          |            |                   |           | X        | X       |              |
| 139 | <i>Pinus mugo</i> Turra                  |        |            | X          |                   |           | X        | X       |              |
| 140 | <i>Pinus nigra</i> Arnold                |        | X          |            |                   |           | X        | X       |              |
| 141 | <i>Pinus silvestris</i> L.               |        | X          |            |                   | X         |          | X       |              |
| 142 | <i>Platanthera bifolia</i> (L.) Rich.    |        |            |            |                   |           | X        |         |              |
| 143 | <i>Plantago lanceolata</i> L.            |        | X          |            | X                 |           |          | X       |              |
| 144 | <i>Plantago media</i> L.                 |        |            |            |                   |           | X        |         |              |
| 145 | <i>Plantago major</i> L.                 |        |            |            |                   |           | X        |         |              |
| 146 | <i>Polygonatum odoratum</i> (Mill) Druce |        |            |            |                   |           | X        |         |              |
| 147 | <i>Polygonum aviculare</i> L.            |        |            |            |                   |           | X        |         |              |
| 148 | <i>Polygonum bistorta</i> L.             |        |            |            |                   |           | X        |         |              |
| 149 | <i>Polygonum hydropiper</i> L.           |        |            |            |                   |           | X        |         |              |
| 150 | <i>Populus nigra</i> L.                  |        | X          |            |                   |           | X        | X       |              |
| 151 | <i>Populus tremula</i> L.                |        | X          |            |                   |           | X        | X       |              |
| 152 | <i>Potentilla erecta</i> (L.) Rauschel   |        |            |            |                   |           | X        |         |              |
| 153 | <i>Primula veris</i> Huds.               | X      |            |            |                   | X         |          | X       |              |
| 154 | <i>Primula officinalis</i> L.            |        |            |            |                   |           | X        |         |              |
| 155 | <i>Prunella vulgaris</i> L.              |        |            |            |                   |           | X        |         |              |
| 156 | <i>Prunus spinosa</i> L.                 |        |            |            |                   | X         |          |         |              |
| 157 | <i>Pulmonaria officinalis</i> L.         |        |            |            |                   |           | X        |         |              |
| 158 | <i>Punica granatum</i> L.                |        |            |            |                   |           | X        |         |              |
| 159 | <i>Quercus cerris</i> L.                 |        |            |            |                   |           | X        |         |              |
| 160 | <i>Quercus petraea</i> (Matt.) Liebl.    |        |            |            |                   |           | X        |         |              |
| 161 | <i>Quercus pubescens</i> Willd.          |        | X          |            |                   |           | X        | X       |              |
| 162 | <i>Quercus robur</i> L.                  |        | X          |            |                   | X         |          | X       |              |
| 163 | <i>Reseda luteola</i> L.                 |        |            |            |                   |           |          |         |              |
| 164 | <i>Rhamnus catharticus</i> L.            |        |            |            |                   |           | X        |         |              |
| 165 | <i>Rhamnus fallax</i> Boiss.             |        |            |            |                   | X         |          |         |              |
| 166 | <i>Ribes grossularia</i> L.              |        |            |            |                   |           | X        |         |              |
| 167 | <i>Ribes multiflorum</i> Kit.            |        |            |            |                   |           | X        |         |              |
| 168 | <i>Rosa canina</i> L.                    |        |            |            | X                 |           |          |         |              |
| 169 | <i>Rosmarinus officinalis</i> L.         |        |            |            |                   | X         |          |         |              |
| 170 | <i>Rubia peregrina</i> L.                |        |            |            |                   |           | X        |         |              |
| 171 | <i>Rubus idaeus</i> L.                   |        |            |            |                   | X         |          |         |              |
| 172 | <i>Rubus fruticosus</i> Auct.            |        |            |            |                   | X         |          |         |              |
| 173 | <i>Rumex crispus</i> L.                  |        |            |            |                   |           | X        |         |              |
| 174 | <i>Ruscus aculeatus</i> L.               |        | X          |            |                   |           | X        | X       |              |
| 175 | <i>Ruscus hypoglossum</i> L.             |        | X          |            |                   |           | X        | X       |              |
| 176 | <i>Ruta graveolens</i> L.                | X      |            |            |                   |           | X        | X       |              |
| 177 | <i>Salix alba</i> L.                     |        | X          |            |                   | X         |          | X       |              |
| 178 | <i>Salix fragilis</i> L.                 |        | X          |            |                   |           | X        | X       |              |
| 179 | <i>Salix purpurea</i> L.                 |        |            |            |                   |           | X        |         |              |
| 180 | <i>Salvia officinalis</i> L.             |        | X          |            | X                 |           |          | X       |              |
| 181 | <i>Salvia pratensis</i> L.               |        |            |            |                   |           | X        |         |              |
| 182 | <i>Sambucus nigra</i> L.                 |        |            |            | X                 |           |          |         |              |



| No  | Species                                       | Status |            |            | Quantity in trade |           |          | At Risk | Cites listed |
|-----|---|--------|------------|------------|-------------------|-----------|----------|---------|--------------|
|     |   | Rare   | Vulnerable | Endangered | Most important    | Important | In trade |         |              |
| 183 | Sanguisorba officinalis L.                    |        |            |            |                   |           | X        |         |              |
| 184 | Sanicula europaea L.                          |        |            |            |                   |           |          |         |              |
| 185 | Saponaria officinalis L.                      |        | X          |            |                   |           | X        | X       |              |
| 186 | Satureja montana L.                           |        | X          |            | X                 |           |          | X       |              |
| 187 | Satureja subspicata Vis.                      |        |            |            |                   |           | X        |         |              |
| 188 | Sedum acre L.                                 |        |            |            |                   |           | X        |         |              |
| 189 | Sempervivum heuffelli                         |        |            |            |                   |           | X        |         |              |
| 190 | Sinapsis arvensis L.                          |        |            |            |                   |           | X        |         |              |
| 191 | Sissymbrium officinale (L.) Scop.             |        |            |            |                   |           |          |         |              |
| 192 | Solanum dulcamara L.                          |        |            |            |                   |           | X        |         |              |
| 193 | Solanum nigrum L.                             |        |            |            |                   |           | X        |         |              |
| 194 | Solidago virgaurea L.                         |        |            |            |                   |           | X        |         |              |
| 195 | Sorbus torminalis (L.) Crantz                 |        |            |            |                   |           |          |         |              |
| 196 | Stachys officinalis (L.) Trevis Betony        |        |            |            |                   |           | X        |         |              |
| 197 | Symphytum officinale L.                       |        |            |            |                   |           | X        |         |              |
| 198 | Tamus communis L.                             |        |            |            |                   |           | X        |         |              |
| 199 | Tanacetum macrophyllum (W.&K.)<br>C.H.Schultz |        |            |            |                   |           |          |         |              |
| 200 | Tanacetum vulgare L.                          |        |            |            |                   |           | X        |         |              |
| 201 | Taraxacum officinale Weber                    |        |            |            |                   | X         |          |         |              |
| 202 | Taxus baccata L.                              |        |            | X          |                   |           | X        | X       |              |
| 203 | Telekia speciosa (Schreb.) Baumg.             |        |            |            |                   |           |          |         |              |
| 204 | Teucrium arduini L.                           |        |            |            |                   |           | X        |         |              |
| 205 | Teucrium chamaedrys L.                        |        |            |            |                   |           | X        |         |              |
| 206 | Teucrium montanum L.                          |        |            |            | X                 |           |          |         |              |
| 207 | Teucrium polium L.                            |        |            |            |                   |           | X        |         |              |
| 208 | Teucrium scordium L.                          |        |            |            |                   |           | X        |         |              |
| 209 | Thymus serpyllum L.                           |        |            |            | X                 |           |          |         |              |
| 210 | Thymus sp.                                    |        |            |            |                   |           | X        |         |              |
| 211 | Tilia cordata Miller                          |        |            |            | X                 |           |          |         |              |
| 212 | Tilia platiphyllos Scop.                      |        |            |            | X                 |           |          |         |              |
| 213 | Tussilago farfara L.                          |        |            |            |                   | X         |          |         |              |
| 214 | Urtica dioica L.                              |        |            |            |                   | X         |          |         |              |
| 215 | Vaccinium myrtillus L.                        |        |            |            | X                 |           |          |         |              |
| 216 | Vaccinium vitis idaea L.                      | X      |            |            |                   | X         |          | X       |              |
| 217 | Valeriana officinalis L.                      |        |            |            |                   | X         |          |         |              |
| 218 | Valeriana montana L.                          |        | X          |            |                   |           | X        | X       |              |
| 219 | Veratrum album L.                             |        | X          |            |                   | X         |          | X       |              |
| 220 | Verbascum phlomoides L.                       |        |            |            |                   |           | X        |         |              |
| 221 | Verbascum thapsus L.                          |        |            |            | X                 |           |          |         |              |
| 222 | Verbena officinalis L.                        |        |            |            |                   |           | X        |         |              |
| 223 | Veronica officinalis L.                       |        |            |            |                   | X         |          |         |              |
| 224 | Viburnum opulus L.                            |        |            |            |                   |           | X        |         |              |
| 225 | Vinca minor L.                                |        |            |            |                   |           | X        |         |              |
| 226 | Viola biflora                                 |        |            |            |                   |           | X        |         |              |
| 227 | Viola odorata L.                              |        |            |            |                   |           | X        |         |              |

| No  | Species                        | Status |            |            | Quantity in trade |           |          | At Risk | Cites listed |
|-----|--------------------------------|--------|------------|------------|-------------------|-----------|----------|---------|--------------|
|     |                                | Rare   | Vulnerable | Endangered | Most important    | Important | In trade |         |              |
| 228 | <i>Viola elegantula</i> Schott |        |            |            |                   |           | X        |         |              |
| 229 | <i>Viola tricolor</i> L.       |        |            |            |                   |           | X        |         |              |
| 230 | <i>Viscum album</i> L.         |        |            |            |                   | X         |          |         |              |
| 231 | <i>Vitex agnus castus</i> L.   |        |            |            |                   | X         |          |         |              |

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