



WTO Public Forum 2015  
BioTrade for Inclusive Growth: What works and what Challenge Persist

## **BioTrade Supply Chains and Regulatory Environment: Constraints and Challenges<sup>1</sup>**

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### ***Introduction***

To illustrate the theme of BioTrade supply chain “Gaps and Challenges”, this presentation focuses on the specific case of one important biodiversity product, which is at the core of Biotrade activities; namely:

*Natural ingredients from medicinal and aromatic plants for cosmetics and bio-pharmaceuticals – essential oils, natural dyes, soapy, creams, butter, and moisturizers in case of cosmetics and extracts and infusions from medicinal plants, natural medicines capsules in case of pharmaceuticals.*

### ***The problem***

Medicinal and aromatic plants (MAPs), which have been traditionally used in many parts of the world as food and/or traditional medications are either gathered from wild biodiversity sources or, more recently, cultivated as income generating activity, generally in response to the growing demand of the drug- and cosmetic manufacturing industry – and also, as an initiative from industries to respond to a public opinion increasingly sensitive to environmental issues. As a matter of fact, in today’s market, there is an increasing demand for natural medicinal and cosmetic products, particularly derived from environmentally responsible and socially conscious practices.

Fig. 1: Typical BioTrade Supply Chain

A web of transactions and range of actors are involved in the process through which biodiversity-derived medicinal and aromatic plants are transformed into commercial natural cosmetic and bio-pharmaceutical products. These include harvesters and growers, wildlife hunters, traders, exporters, brokers, bulk ingredient and processing companies, manufacturer and marketers, distributors and retailers and finally consumers. A typical supply chain<sup>2</sup> involves alliance between producers, traders, processors, and regulatory and

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<sup>1</sup> The present document is based on the author’s experience with BioTrade supply chains in Vietnam and contributions to BioTrade development in Andean and Amazon countries of Latin America.

<sup>2</sup> The term supply chain refers to coordinated relationships between actors who are involved in productive activities, with the aim of taking a product or a service from its supply source to the processor or manufacturer of a commercialized product and, finally, to the consumer

supporting institutions, whose common starting point is the understanding that there is a market demand for their products and services.

However, in reality, collectors and growers of medicinal and aromatic plants, manufacturing enterprises and distributors of natural cosmetic and bio-pharmaceutical products face many problems, including market access and transaction problems, information gaps, lack of reliable traders, and discriminatory and unfair pricing. The tangible challenges faced by collectors and growers of medicinal and aromatic plants in the upstream part of the supply chain relate, therefore, to five specific areas: market information, capital and skills, volume, quality and consistency of supplies. Additional major constraints include: limited knowledge of cultivation and inadequate post-harvest techniques, lack of availability of good quality planting material, and low access to financial tools and services.

According to some analysts, a community-industry partnership is the most efficient and commercially viable supply chain mechanism for the producers and manufacturers of agricultural products. However, the danger exists that such partnership may make supply chain a buyer driven one, which tends to be exploitative, extracting as much resources and demanding lesser price from suppliers, if not moderated by an “honest broker” between industry and the producing community.

### ***Key Constraints affecting the efficiency and effectiveness of MAPs Supply Chains***

Fig. 2: Key Constraints affecting MAPs Supply chains

Most developing countries of Latin America, Africa and Southeast Asia are well positioned to expand domestic markets and increase their presence in global markets provided that they would strengthen various aspects of supply chains. Moreover, given the nature of the biodiversity-derived raw material, the large number of rural poor participants and the direct link with the health and human wellbeing sectors, adequate supply chains, if efficiently managed, have the potential to promote better livelihoods, equity, empowerment and biodiversity conservation goals.

However, to meet these goals in an efficient way, supply chains have to consider, even to overcome, both a certain amount of weaknesses and issues resting both with supply chains actors themselves, as well as with national and international governance frameworks. By governance frameworks, I mean existing national and international legal and regulatory frameworks and market requirements.

Some of most important key constraints affecting the efficiency of supply chains include:

- *Progressive depletion of high-value medicinal and aromatic plants species due to unregulated harvesting by passing existing control and loss of biodiversity.* To counter those negative trends, national policy environments should be improved by developing coherent rules and regulations and ensuring efficient enforcement mechanisms;
- *Lack of conservation incentives.* Collectors or growers of medicinal and aromatic plants are generally poor, often poor marginal landowners or landless forest-dependent families who collect or grow medicinal and aromatic plants for quick cash generation

or using them for their livelihood security. Entrapped as they are in complex supply chains dominated by middlemen and intermediaries, they generally are not or poorly aware of biodiversity issues and they have limited knowledge and incentives to apply conservation practices. Experiences, however, have demonstrated that by ensuring fair prices, by making information available, by strengthening their bargaining power, producers or growers are taking responsibility for the sustainable management of this resource.

- *Unpredictable markets and absence of contractual arrangements, which may lead to overharvesting and resource depletion.* Yet, collectors and growers' livelihood depend on the sustainable management of specific medicinal and aromatic plants species. For supply chain to function more efficiently, it requires the establishment of longer term contracts between producers and processors as to provide stable markets for their medicinal and aromatic plants products;
- *Collectors and growers have little power to influence prices in the face of processors' middlemen or traders.* As a result, in most cases, they accrue little direct benefits from participation in ordinary supply chains. Strengthening and integrating medicinal and aromatic plants producers into a broader cooperative structure could improve their bargaining position;
- *The general quality of medicinal and aromatic plants, collected or cultivated, remains low, especially by international standards.* Improving quality would require both upgrading collectors and growers' skills through capacity building, training and provision adequate equipment and technologies and processors to invest in processing facilities meeting international market standards;
- *End (export) markets increasingly demand that MAP products conform to specific norms meeting GAP/GACP, health and sanitary, and certified organic, sustainable harvest and/or Fair Trade standards.* Processors and exporters of MAP products should accelerate the process of promoting equitable eco-labeling and certification standards focusing on different areas along the supply chain – production, processing, trade, manufacturing and marketing. However, meeting certification standards are time consuming and induce additional costs that can only be met by premium prices and access to international markets;
- *Lack of cooperation between supply chains' stakeholders.* To counteract such constraint is the development of vertically integrated supply chains that could secure a constant and reliable supply of raw material to the processing industry and a fairer price for both the producer and the processor. This would require manufacturing and export companies to provide advanced information to producers and traders on requirements (in terms of quality and quantity) and production schedule.

### ***The UNCTAD BioTrade Approach***

Fig. 3 : The BioTrade Principles

In this context, the UNCTAD concept of BioTrade is laying the foundation for the development of more efficient and more responsive supply chains that would offset the

above problems and facilitate the marketing of BioTrade products in national and international markets. In this sense, UNCTAD BioTrade supply chains embrace environmental, social and economic objectives in accordance to the seven BioTrade Principles and other technological criteria essential to facilitate the market access of BioTrade products, such as certification for instance.

Furthermore, BioTrade supply chains imply a participatory process in which producers, middlemen, traders, processors, manufacturers and institutions (such as for instance providers of technical services, sector associations, or trade promotion organizations) are involved.

There are two basic prerequisites, which are underlying the development of BioTrade supply chains. They include:

- The availability of biological resources used as raw material for the development of specific products (in our case bio-medicinal and bio-cosmetic products); and
- The presence of a market demand for those products or, at least the potential for those products to enter national and/or international markets.

By putting supply chain actors and the availability of markets for BioTrade products at the center of its approach, the UNCTAD BioTrade's objective is to ensure that prospective BioTrade businesses would be viable.

Nevertheless, even if there is an increasing demand for BioTrade products, there remain prerequisites that supply chain actors must face in order to capture this potential. Such prerequisites to the success of BioTrade initiatives include:

- *The existence or, if not, the development of an enabling BioTrade policy environment* supportive to the development of BioTrade businesses, and notably the development and adoption of sustainable practices throughout the supply chains;
- *The provision of reliable market information*, notably to support BioTrade companies to develop their marketing strategies and plans, notably to prioritize BioTrade products with the higher market potential and to identify key partners and potential buyers;
- *The use of market tools to differentiate BioTrade products in markets*. They include support to certification and/or distinctive signs such as Geographical Indications or Appellation of Origin and/or other trademarks with the goal to protect the identity and quality standards of BioTrade products as well as preserving and enhancing their reputation and market shares, thus maximizing the economic incentives for BioTrade products.

Other prerequisite measures such as access to finance, access to adequate equipment and enhancement of production facilities, and fiscal incentives are also key to the engagement supply chain actors and the success of BioTrade initiatives.

### ***Potential Benefits expected from BioTrade Supply Chains***

Fig. 4: Benefits from BioTrade Supply chains

At this point, it should be remember that BioTrade supply chains objectives are to overcome the inherent weaknesses of standard biodiversity-based supply chains based on uncontrolled harvest, by improving the position of producers, by promoting sustainable practices, by enhancing the efficiency and equity of the entire supply chains, by promoting participation in decision-making and by facilitating access of BioTrade products to national and international markets.

If cost-effectively implemented, the implications and benefits of efficient BioTrade supply chains are multi-fold:

- They enable primary collectors or growers not to remain passive suppliers but to become active participants who are motivated to sustainably manage their resource base, reinvest and innovate;
- They remove market barriers for the primary producers, which may be seen as key constraints for the improvement of their livelihood;
- In the same way, they also result in better commercialization of the products collected or grown by the rural poor, which translate into greater marketing opportunities, which, in turn, translate into greater generation of income opportunities;

### ***Challenges faced by MAPs BioTrade supply chains***

Fig. 5: Challenges to improve the efficiency of BioTrade supply chains

BioTrade supply chains can, therefore, generate considerable sustainable development benefits by actively promoting the equitable commercialization of biodiversity-based resources, thus creating additional biodiversity-based incomes to serve as incentives for conservation.

However, despite the inherent strengths of and benefits derived from of BioTrade supply chains, many constraints still hinder the efficiency and effectiveness of BioTrade supply chains. Absence of national level BioTrade policy, inappropriate (or unsustainable) methods of collection, price fluctuation and the very strong bargaining power of middlemen and traders vis à vis collectors or growers, irregular supplies, quality constraints, asymmetric information on prices and benefits derived from the processing of medicinal and aromatic plants, non-compliance with rules, regulations and standards of importing countries, and consequent refusal, are some of the major examples of constraints faced by BioTrade supply chains. All those constraints, once consolidated could be grouped into the following eight main challenges, which, if currently addressed, could be transformed into opportunities:

1. *Harmonization of policies.* In most cases, medicinal and aromatic plants supply chains are affected by lack of decision-makers' knowledge about the multi-facets benefits that can be derived from BioTrade supply chains. As a result, ambiguity and contradictions in rules and regulations is resulting in disparity in procedures and protocols, for

example to implement management plans thus limiting the application of standards for and access to certification required by international markets.

The formulation of comprehensive national BioTrade policy is, therefore, a crucial prerequisite for the development of BioTrade initiatives. In many countries, this would require primarily the harmonization of existing sector policies, notably in our case, those related to forestry and biodiversity conservation. Strengthening policies related to BioTrade also include the design of guidelines, principles and operational to be integrated into national policies and legal framework<sup>3</sup>.

2. *Increasing the efficiency, effectiveness and sustainability of BioTrade supply chains.* The development of properly coordinated and strengthened supply chains is the basis for biodiversity conservation and successful poverty reduction through inclusive business models and environmentally and socially ethical behaviors. However, three major constraints in the development of efficient BioTrade supply chains are: the current fragmentation of the supply chains, the limited benefit sharing with those at the base of the supply chain, namely, in our case, collectors and growers of MAPs, and their ability, or non ability, to consistently maintain high quality of biodiversity-based products in reliable supplies.

The strengthening of BioTrade supply chains is, therefore, indispensable for the promotion of BioTrade as a valid management model. For strengthening supply chains, the following two main capacity building programs should be considered. First, providing organizational and management support to producers to increase their competitiveness. And second, training businesses in areas of management, accounting, trade and market strategies to improve their capacity and engagement to sustainably support other supply chain actors.

3. *Increasing emphasis on poverty reduction.* One of the crucial challenges for BioTrade is poverty reduction even if poverty reduction is not one of the primary objectives of UNCTAD BioTrade. However, poverty poses a threat to biodiversity conservation it forces local communities to overexploit it. Medicinal and aromatic plants are generally collected or grown in regions with the highest poverty rate, although such regions may have the most valuable biodiversity-based resources - demand for which is continuously increasing in international markets -. For BioTrade supply chains developed in those regions, the commercialization of high-end products that carry premium prices, would be, therefore, a positive driving force for improving the livelihood of the low income population associated with the first steps of the supply chain. Ensuring that benefits derived from the commercialization of BioTrade products would be equitably transmitted to those at the base of the supply chains would be key for their sustainable engagement.

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<sup>3</sup> In Peru, where BioTrade did not figure into any strategy of development, the CAF BioTrade project presented a proposal to the Ministry of the Environment for the creation of an interagency committee for the promotion of BioTrade-compliant industries. This initiative led to the allocation of US\$3.5 million for the development of additional supply chains. In Vietnam, under the auspice of the SECO BioTrade project, a BioTrade Sector Association grouping companies adhering to Ethical BioTrade Principles is currently contemplated. Its objective would be to encourage the synchronizing of policies with the participation of relevant stakeholders, while keeping track of international policy developments related to BioTrade.

The impact of BioTrade supply chains on poverty reduction would even be higher if better compliance with the third BioTrade principle (benefit sharing) could be achieved. Yet, the concept of benefit sharing, which often extends beyond financial returns, remains little known and, therefore, hardly applied;

4. *Improving market access for BioTrade products.* Lack of scientific information and technological processes resulting in low value-added products, limitations on production processes resulting in small-scale unsustainable production and insufficient volumes to meet market demands and quality standards and difficulties to access market information (in terms of demand, prices and consumer preferences), are among the major constraints limiting medicinal and aromatic plants products' access to national and international markets. Given the above and recognizing the market as a dominant element for the marketing of BioTrade products, increasing market access would require more attention given to creating programs to strengthen logistics and quality as well as to increase marketing opportunities through both existing certification and license schemes, trademarks, and patents and market intelligence and knowledge sharing.

Certification and quality standards pose a challenge primarily to facilitate access to profitable high-end markets and to improve the image of biodiversity-derived commercialized products. With regard to certification, an important distinction should be made between wild-harvested MAPs and MAPs grown by small holders. For MAPs collected from the wild, where artificial fertilizers and pesticides are not employed, certification standards are generally based on sustainable harvest standards, against various ecological, social and economic requirements. FairWild, based on the International Standard for Sustainable Wild Collection (ISSC-MAP), is one good example of certification (among others) applying to the collection of wild plants. On the other hand certifying products from cultivation should adhere to different set of rules, notably to those issued by "Organic" and "Fair Trade" or those issued by the WHO on "Good Agricultural Practices (GAP-WHO)". Although not a certification program per se, adhering to the "Union for Ethical BioTrade Standards (UEBT)", is another way to conform to the BioTrade seven principles. Under the UEBT standards, actors of the supply chains commit themselves to gradually ensure that their sourcing practices promote the conservation of biodiversity, respect traditional knowledge and assure an equitable sharing of benefits all along the supply chain.

Besides, increasing publications for knowledge sharing, participation to promotional events and technological exchange missions, creation of networks, dialogue and exchange of information between companies, B2B arrangements and building strategic alliances for the development of innovative products (e.g. B2B) would indubitably generate fast and efficient results that would bring added value to BioTrade supply chains.

5. *Engagement of the private sector.* Another significant barrier to the development of efficient BioTrade supply chain is the lack of alternative financing opportunities, aside of those from the conventional banking sector. In particular, high interest rates prevent producers using native products from setting competitive prices and receiving additional profit margin. They also prevent the private sector not only to upgrade

existing (often obsolete) processing and/or manufacturing infrastructure, but also to invest in technological improvements and innovative marketing channels.

Securing commercial partnerships in national and international markets through B2B transactions and other commercial agreements would be an important way to reduce the private sector's risk perception and provide incentives to the private sector to invest in higher level of technology by, *inter-alia*, upgrading their capacities to meet importers' requirements. Tailoring appropriate financial tools and institutional arrangements that permit economic support to BioTrade supply chain actors, including improving access to competitive credits in terms of interest rates and requirement terms and guarantee, grants and subsidies should also be seen as an important step that should be incorporated in the development of BioTrade supply chains. The most valued attributes valued by companies that access those funding are the flexibility in procedures for credit rating and payment terms that are adapted to their revenue streams and production cycles or season;

6. *Linking BioTrade and REDD+*. Climate change represents a threat to biodiversity, as shifts in temperature can result in change in species distribution. Given the impacts that such changes will have on development, notably on poor forest-dependent people, it is clear that addressing climate change would require an integrated and strategic approach, in particular the integration of biodiversity-based strategies in REDD+ programs.

Linking BioTrade and REDD+ programs can provide cost-effective solutions to climate change issues, particularly as both programs are positive incentives to conserve and sustainably manage existing forests – and the biodiversity they contain. They both imply an enabling policy environment; private sector engagement and investment; and the participation of local communities in the management of forests, the sustainable value-added activities and benefit sharing. They also share major fundamentals related to forest conservation, land ownership, respect of traditional rights and protection of traditional knowledge, which are at the core of BioTrade principles.

7. *Research and Development*. Moving BioTrade from its current niche market would require more investment on research and development. Research topics such as enhancing the flow of information - related to sustainable resource management, and post-harvesting techniques, storage, packaging requirements, market opportunities and characteristics of competition, marketing and market entry conditions, process innovation to increase competitiveness, etc. – would certainly be crucial to the development of more efficient BioTrade supply chains.

Likewise, identifying ways improve the chance of success of benefit sharing arrangements, which may open-up new opportunities for poverty reduction and eliminate existing imbalance in price negotiating power between producers and manufacturing companies would be another key topic to be addressed in research and development;

8. *Awareness raising and information dissemination*. So far, BioTrade remain a niche concept. There is still a lack of awareness and knowledge of the potential value of biodiversity resources, in national and different international markets. BioTrade

success stories have not yet been publicized enough, both at national and international level.

In order to increase the level of awareness for BioTrade products, the level of engagement of local and international media needs to be strengthened. Furthermore, more efforts should be made to share success stories with donors to encourage them to scale up in terms of investment and support to BioTrade initiatives. In addition, raising awareness for BioTrade within financial and credit institutions would be critical for improving BioTrade supply chain efficiency and product competitiveness. Finally, awareness needs to rise among consumers internationally, so that they could recognize a product specifically produced under BioTrade principles,

### ***Developing markets for BioTrade Products***

**Fig. 6: Key Import Requirements of Western Countries (besides SPS)**

Although difficult to assess in absence of specific trade statistics related to BioTrade products, revenue of BioTrade companies has been estimated by .... at US\$5.2 billion in 2012. Although this number could be considered a positive result, it is far below the market potential for BioTrade goods, which has been estimated at US\$141 billion. As a result, there is still a lot of unmet demand and thus room for growth.

However, even if the above challenges would be efficiently addressed, the export of MAPs and related bio-products still face substantial barriers affecting the trade of BioTrade products in many importing countries, including stringent Sanitary and Phytosanitary measures (SPS) and other safety requirements. Demonstrating compliance with these standards has become more and more complicated because of a shift from product standards – largely enforced through testing at the borders of importing countries – to process standards based on the way bio-products are grown, harvested, processed and transported. In particular, the general absence of laboratories in developing countries means that BioTrade products could not straightforwardly comply with SPS measures or other import regulations, even if they meet documentation requirements or standards such as quality assurance (e.g. GMP), GAP/GACP recommendations of the WHO and those of private certification and labeling schemes.

However, with the revision of the EU Novel Food regulations in 2013, the import in the EU countries of BioTrade products under the definition of “traditional food from third countries” - with a history of safe use - has become easier. Consequently, developing countries are now in a better position to export BioTrade products (excluding processed products) and BioTrade supply chain actors in a better position to harness a better part of the environmental and economic value of BioTrade products.

### ***Conclusions***

Working with BioTrade supply chains offers poor forest-dependent communities collecting biodiversity products and small-scale MAPs growers many advantages.

The strong linkages between the different actors in the chain enable the transfer of knowledge and technology to small producers, helping them to comply with quality and

sustainability criteria and enhance their productivity while protecting their native biodiversity capital. BioTrade supply chain also bear great significance through reducing poverty and inequality at the producers' level and, as a result, by contributing to social sustainability, which should be viewed as a prerequisite to ensuring environmental sustainability. Furthermore, BioTrade supply chains are contributing to building greater industry competitiveness at both national and international markets level, where there is a growing demand for BioTrade products, in particular in the cosmetics and the bio-pharmaceuticals sectors.

Biodiversity conservation, the sustainable trade of biodiversity-based products, and poverty reduction in a climate change environment are, therefore, key challenges that need to be addressed coherently in the post-2015 trade agenda and the implementation of the Sustainable Development Goals. Moreover, as markets increasingly demand that BioTrade products conform to specific norms and standards, developing markets for BioTrade products remains a complex and complicated issue.

### ***Suggested Reading***

- Various documents published by the UNCTAD/BioTrade Initiative (see: [www.biotrade.org](http://www.biotrade.org));
- UNCTAD/BioTrade Initiative: Linking the sustainable use of biodiversity with poverty alleviation
- GIZ: BioTrade: A Catalyst for Transitioning to a Green Economy (2012)
- UNEP: BioTrade : A Catalyst for Transitioning to a Green Economy in Peru (2012)
- UNEP: BioTrade: A Catalyst for Transitioning to a Green Economy in Namibia (2012)
- UNEP: BioTrade Harnessing the Potential of Transitioning to a Green Market Economy: The Case of Medicinal and Aromatic Plants in Nepal (2012)
- CBD: Access and Benefit-Sharing in Practice: Trends in Partnership across Sectors (CBD Technical Series 38)
- UNCTAD: The BioTrade Initiative: Implementation Strategy (2005)
- UNCTAD: Biodiversity: The Life on the Green Economy (Report of the First BioTrade Congress (2013)
- UNCTAD: Biodiversity and Climate Change: Integrating REDD+ into BioTrade Strategies (report of the Second BioTrade Congress (2014)
- UNCTAD: New European Union Commission's Proposal on Novel Foods Regulations: A preliminary overview from the perspective of biodiversity-based and traditional foods (2014)
- IUCN: An Explanatory Guide to the Nagoya Protocol on Access and Benefit Sharing (2012);