



Crossing the roof of the world: Trade in medicinal plants from Nepal to China



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ABSTRACT

Ethnopharmacological relevance: Trade in medicinal and aromatic plants (MAPs) between Nepal and China has taken place for centuries along the Tibetan border. While there is anecdotal evidence that economic development in China over the past decades, coupled with regional infrastructure development and increasing market integration, has substantially changed this trade, there are no current published studies investigating this, e.g. in terms of species and market structure. This knowledge gap impedes the development of public interventions, e.g. in support of sustainable trade.

Aim of this study: The primary objective of this study is to provide the first informative insights into the Nepal-China trade in MAPs, with particular emphasis on the value chain in Tibet.

Methods and materials: Data was collected from December 2015 to August 2016 in Nepal and Tibet. The data collection included standardized questionnaires to understand and map the value chain of MAPs, including the actors involved and key governance issues. Data was collected from Katmandu-based MAPs wholesalers exporting from Nepal to China, (n = 6) and with regional wholesalers (n = 40) based in Tibet. The questionnaires contained quantitative and qualitative components focusing on key elements of the MAPs value chain, e.g. the traded species and their values. This was augmented with qualitative interviews with Lhasa-based processors (n = 4) and government officials (n = 12) working in border controls, customs, and/or drug administration. We also collected official statistics on the Nepal-China MAPs trade and conducted a workshop in Lhasa with traders and government officials to discuss the nature of the Nepal-China MAPs trade.

Results: The Nepal-China MAPs trade boomed after 2011 when the value of traded plants increased more than nine-fold. This rapid increase reflected both a broader species composition and higher unit prices in response to increasing demand from China. The trade expansion was also driven by increasing demand in China and facilitated by improved infrastructure in Nepal and Tibet, including direct flight connections for the transport of high-value products. Official records on both sides of the border under-document both the value and the volume of the trade, implying that much of it is extra-legal. The value chain is thus governed by both legal and extra-legal mechanisms.

Conclusion: This study provides the first structured overview of the current trade in commercial MAPs from Nepal to China. While the trade is thriving, growing in both volume and value to the benefit of producers in Nepal and consumers in China, there is little empirical data or research to support policy formulation on sustainable trading. This study provides informative insights into the value chain and makes public policy recommendations to increase the transparency and sustainability of trade by improving traditional border markets and removing market barriers.

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1. Introduction

Medicinal and aromatic plants (MAPs) are used by billions of people for various healthcare purposes. Indeed, it is estimated that over 70% of the world's population depends exclusively on MAPs for their healthcare needs (WHO, 2002). The use of MAPs is not limited to regions or countries with prominent indigenous cultures such as in Africa, Asia, Australia and North America: it is expanding to developed Western countries such as in Europe, where over 100 million citizens use MAPs in their healthcare (WHO, 2013). This expansion has led to a dramatic increase in demand for MAPs for not only domestic but also international markets (Hamilton, 2004; Lange, 2006). The most up-to-date research by Vasisht et al. (2016) finds that global exports of medicinal plants were valued at approximately USD\$1.92 billion and involved 601,357 t per annum in 2000, reaching 702,813 t with a value of at USD \$3.6 billion, in 2014. Meanwhile the global MAPs export market is currently growing by about 2.4% in volume and USD\$9.2 million in value per annum.

Most MAPs are harvested in the wild, and over 72,000 plant species are used as traditional medicine in both domestic and commercial trade at the local, regional, national and international levels (Schippmann et al., 2006). Most MAPs are found in the regions with the world's richest biodiversity, which are mainly regions of less-developed economies. The harvest and trade of MAPs thus contributes significantly to community livelihoods and local economic development (Neumann and Hirsch, 2000; Hamilton, 2004; Belcher et al., 2005; Belcher and Schreckenber, 2007). In many regions in Africa (Moyo et al., 2015; van Wyk, 2015; Cunningham et al., 2016), Asia (He, 2010, 2018; Rasul et al., 2012; Sher et al., 2014) and Latin America (Cotta, 2015; Lima et al., 2016), harvesting MAPs is the main source of local cash income. While some studies document the challenges to MAPs' sustainability that their commerce presents (Ticktin, 2004, Jusu and Sanchez, 2014a), scholars also argue that improved market governance can contribute not only to sustainable harvest but also to improved benefit-sharing among the social actors, particularly in poor communities (Belcher and Schreckenber, 2007, He et al., 2014; van Andel et al., 2015). Despite the importance of global markets to commerce in MAPs for both traders and indigenous people, details of market flows and the value of plant material traded are rather scarce in the literature, and the governance of cross-border trade for MAPs is particularly poorly understood.

Nepal is situated between two large economies, India and China, which are the top consumers of medicinal plants in Asia due to their long history and tradition of MAPs use (Vasisht et al., 2016). Thousands of tons of more than 30 different species are harvested annually in Nepal and exported to these two countries (Olsen, 2005, 2006). There is a rich body of literature related to livelihoods and conservation associated with the commercial MAPs trade in Nepal. Many studies document positive local commercial livelihood outcomes and their significance, especially for poor communities living in alpine areas (e.g. Olsen and Larsen, 2003; Rayamajhi et al., 2012, Shrestha et al., 2013). However, a large number of studies reveal the challenges inherent in this trade including unsustainable harvesting due to overexploitation (e.g. Ghimire et al., 2004; Larsen and Olsen, 2007; Shrestha et al., 2014) and uneven benefit-sharing due to poor legal frameworks (e.g. Olsen and Helles, 1997, Gauli and Hauser, 2011). With the growing global market, scholars have also begun paying attention to trans-boundary trade in MAPs, but among the few existing studies the focus is limited to trade between Nepal and India (Olsen, 1998; Kunwar et al., 2013, Choudhary et al., 2014). Despite the huge volume of MAPs exported to China and the fact that China is Nepal's fourth largest export market there is no literature on the trade between Nepal and China. Thus there is an urgent need to document the current market profile and governance of the Nepal-China trade in MAPs.

The primary objective of this study is to provide the first informative insights into the Nepal-China trade in MAPs, with particular

emphasis on the cross-border value chain via Tibet. To achieve this, we ask the following questions:

- 1) What are the history and current status of the trade in MAPs between Nepal and China, and how did the commercial trade in MAPs emerge?
- 2) What are the most common MAPs species traded, and which species are the most popular?
- 3) How do the traded MAPs cross the border, and what are the different routes used for trading MAPs from Nepal to China?
- 4) How is the Nepal-China MAPs value chain organized, and what institutions are involved in its structure?

To address these questions we applied a combination of global value chain (GVC) analysis (Kaplinsky, 2004; Gereffi et al., 2005) and ethnobotanical methods (Cunningham, 2001; Weckerle et al., 2018). We took an empirically-grounded approach to make three novel contributions: 1) a scientific contribution to cross-border MAPs value chain analysis; 2) an addition to the existing literature on trade in MAPs from Nepal; and 3) a methodological expansion of the conventional ethnobotanical study of trade from local to global. To our knowledge this is the first research documenting the cross-border trade in MAPs between Nepal and China.

2. Methodology

2.1. General

The GVC framework focuses on the sequences of value added within an industry, from conception to production and end use' This study adopted a qualitative case-study approach to obtain an in-depth picture of the Nepal-China trade in MAPs and quantitative methods to analyze the prices of MAPs along the value chain. The qualitative strategy aimed to generate insights into the processes and practices by which the MAPs value chain is organized, with a focus on the structure, rules and regulations, and governance of the market, as well as the economic behavior of the actors, all of which are regulated by economic, cultural and policy factors (Ribot, 1998; Gereffi et al., 2005; He, 2010). The dynamics of governance in the global value chain are difficult to quantify. The quantitative approach was therefore applied to support the insights drawn from the qualitative analysis and to provide an overall picture of the trade's significance. The combination of quantitative and qualitative methods aimed to strengthen the research findings.

2.2. Data collection

2.2.1. Value chain and sampling

To obtain a complete picture of the Nepal-China MAPs value chain, intensive data collection was carried out in Nepal and Tibet (China) from December 2015 to August 2016. For the GVC analysis, we were particularly interested in identifying the actors and institutions involved and to examine the governance of the value chain. To understand the actors in the GVC, we adopted Olsen and Bhattarai's (2005) typology of traders, focusing on local traders and central and regional wholesalers as direct actors, to understand how MAPs have been traded across the Himalayan region from Nepal to China.

The snowball sampling method was applied to contact traders for interviewing, as suggested by Bryman (2001). Indirect actors along the value chain including officials and regulators were also selected for interview, as suggested by Ribot (1998) and He (2010). To understand the mechanisms and institutions along the value chain, legal and extra-legal institutions were identified by application of the access concept, following Ribot and Peluso (2000).

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