

# Sustainable production and marketing of large cardamom

The role of transboundary cooperation in harnessing comparative advantages in the Kangchenjunga Landscape

The Kangchenjunga Landscape – spread across parts of eastern Nepal, Sikkim and North Bengal in India, and the western and south-western parts of Bhutan – is home to an array of niche mountain products. An assessment conducted by the Kangchenjunga Landscape Conservation and Development Initiative (KLCDI) on ecosystem services identified large cardamom (*Amomum subulatum* Roxb) as an important cash crop in the region<sup>1</sup>. Large cardamom is an agro-ecologically sympatric crop that is less labour intensive and less dependent on external inputs than other farming options. It has comparative advantages for mountain communities as it is a high-value, low-volume crop that grows well on marginal lands and favours agroforestry systems suited to mountain environments.

Large cardamom is a primary export commodity in countries such as Bhutan, India, and Nepal, with national and local governments prioritizing its production and promotion. Over the past few decades, the productivity of traditionally managed large cardamom agro-ecosystems has either stagnated or declined despite the efforts of development agencies and governments to promote the crop and increase the area under plantation.

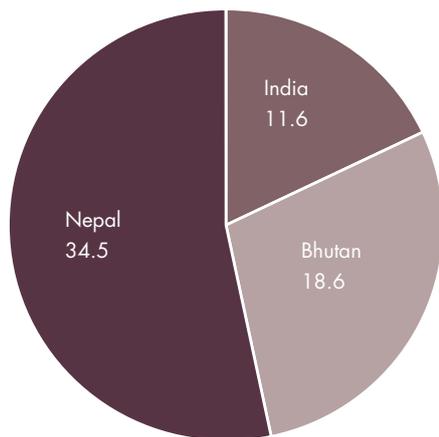
Extreme climate events, erratic rainfall, increasing pest and disease, hailstorms, and snowfall have impacted traditional management practices and the crop cycle. For example, flowering and harvesting times have changed due to rising temperatures and decline of pollinators, resulting in reduced fruit setting. Large cardamom farming systems now demand more labour and increased investments in irrigation, planting material, soil management, shade management, and pest and disease management. At the same time, the increased dependency on large cardamom poses higher risks to farmers due to production fluctuation and volatile markets. For example, in 2014, large cardamom capsules in Nepal fetched USD 28 per kg, and dropped to USD 10 per kg in 2017.

During a regional policy dialogue organized in Taplejung, Nepal in May 2019 stakeholders stressed the need to reduce risks and harness opportunities through collective efforts. Some collaborative actions identified related to exchange of germplasm and research on production practices to improve yield, and for developing coherent regional standards and messaging to promote large cardamom as a niche product and distinguish it from green and white cardamoms.

<sup>1</sup> ICIMOD, WCD, GBPNHESD, & RECAST. (2017). *Regional conservation and development strategy and regional cooperation framework*. ICIMOD Working Paper 2017/2. Kathmandu: ICIMOD.

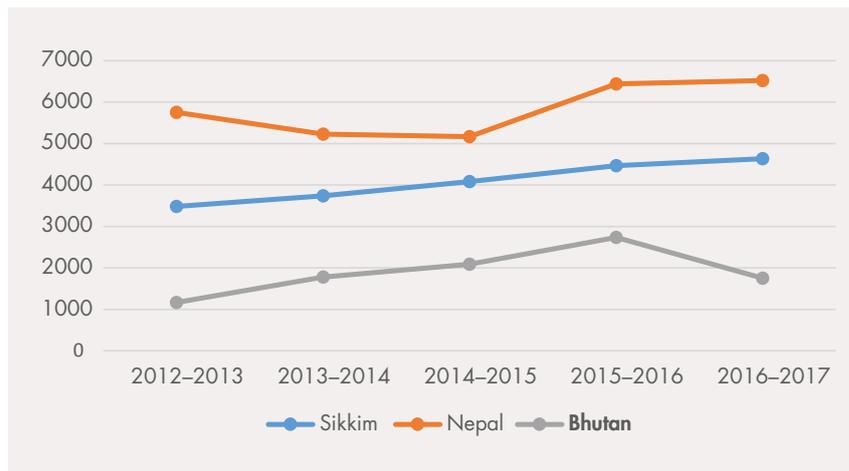
### Earning from large cardamom exports in 2017

(USD expressed in millions)



### Production trend of large cardamom over five years

(in metric tons)



## Large black cardamom faces competition from other cardamoms

Several plants in the genera *Amomum*, *Elettaria*, and *Aframomum*, all belonging to the Zingiberaceae family, are referred to as cardamom<sup>2</sup>, though they have different local names and their taste, aroma, and chemical compounds greatly vary. Cardamom is often described as green, white, black, or red based on the appearance of the dried fruit, and indexed to fruit size/form such as small, large, and round. The green or small cardamom (*Elettaria cardamomum*) is cultivated in India, Sri Lanka, Guatemala, and other tropical countries; large black cardamom (*Amomum subulatum* Roxb) is a particular species of cardamom grown only in Bhutan, India, and Nepal. The other species of large black/red cardamom includes *Amomum costatum* and *A. tsao-ko* grown in China and the Hoang Lien Mountain Range of Vietnam. White cardamom such as *Amomum kervanh* grows in Cambodia, Thailand, Vietnam, and Laos.

Most data on international trade in cardamom, market actors, and use is generic. There is limited information on particular species/products. Though the overall demand for cardamom has increased over the years, the expansion of cardamom plantation area in other countries has led to increased competition and a drop in international market prices. Large black cardamom from the Eastern Himalaya has to compete in price with green, white, and large cardamom, as it is not differently positioned in the international market. So, there is a need to position this as a product with unique attributes. It is important that stakeholders from Bhutan, India, and Nepal explore the possibility for collective action and a common marketing approach to improve the competitiveness of large black cardamom, communicating its special attributes and backing this up by Geographical Indication (GI).

The cost of production of large black cardamom from the Eastern Himalaya is high compared to the other species of cardamom from tropical countries. Poor crop management, shift in plantations from moist areas to dryland, overexposure to sunlight with inappropriate shade trees, and extreme climate and edaphic factors make large cardamom more susceptible to pests and diseases. The crop needs shade trees with a sparse upper canopy to receive both shade and light, and as a shallow rooted crop it cannot tolerate moisture stress. There is limited understanding of the micro-climatic habitat requirements of the crop, and existing policies in Bhutan, India, and Nepal do not specifically address climate risks to cardamom farming systems, germplasm conservation, and exchange of disease-resistant planting stock. Though farmers in the transboundary landscape do share experiences, transfer technologies, and exchange seeds and saplings for trials, a formal regulatory mechanism for collaborative research on climate resilient varieties does not exist. The value chain is poorly developed, and the link among value chain actors is weak. After collection, tail cutting, and grading, the local traders package large cardamom in 40 kg sacks and supply them to bordering towns. From there, a major quantity moves to third countries without any value addition and blending. Large cardamom from the Eastern Himalaya loses its identity (geographic origin) once it reaches these markets.



## Key issues and emerging trends

Large black cardamom is facing increased competition from white and green cardamoms produced in Vietnam, Cambodia, Ethiopia, and Guatemala (box). In recent years, the supply is growing and these competitors offer 'white, green, and black' cardamoms at very competitive prices (USD 5/kg) in a market used to the high prices of cardamom from Nepal (USD 20+/kg)<sup>3</sup>. Even though large black cardamom from the Eastern Himalaya has a different flavour profile, buyers in distant markets are not well informed about its unique attributes

## Opportunities for regional collaboration

The HKH Assessment<sup>4</sup> highlights climate risks and the susceptibility and sensitivity of livelihoods dependent on natural resources. Due to limited land for cereal crops and horticulture, farmers in the HKH tend to diversify livelihood options to buffer against shocks and stress. For harnessing the comparative advantages of mountain landscapes, there is a need to promote high-value crops that do not compete with other crops for land. Large cardamom is one such crop, which can be grown on fallow and under-utilized lands and can help restore the ecosystem. It helps enrich biodiversity, controls soil run-off, and increases soil fertility. The capsules are reported to possess allopathic, analgesic, anti-inflammatory, antimicrobial, antioxidant, antiulcer, cardio-adaptogen, and hypolipidaemic properties. More research is needed to understand the composition, bioactivity, and uses of large cardamom in comparison with other varieties of cardamom.

Bhutan, India, and Nepal have prioritized large black cardamom as a valuable, foreign exchange earning export commodity. Nepal has listed it in its National Trade Integration Strategy (2010–2015 and 2016–2020). Bhutan has included large cardamom as an important product under its 'One Gewog One Product (OGOP)' policy and the Government of Sikkim has placed great emphasis on the promotion of this crop to support rural livelihoods. There are opportunities for transboundary collaboration to promote large cardamom as a regional product through coordinated research, exchange of technology for improving yield, building organized markets and infrastructure, and developing compatible regional policies. Moreover, increased competition from white and green cardamoms in the international market requires that these three countries come together to highlight the unique attributes of large black cardamom that is native to the Eastern Himalaya. Some of the opportunities are listed below:

## Improving yield and reducing risk of production volatility

- Formation of a task force from Bhutan, India, and Nepal to identify and develop climate-resilient, location-specific varieties; facilitate germplasm conservation and exchange; and diagnose causal organisms and suggest disease management practices.
- Development of a package of good practices to improve yield and reduce climate stress of the crop by integrating key elements of resilient agriculture, such as water and soil management; crop and weather smart practices; and energy smart, knowledge smart, and business smart practices.

<sup>2</sup> Ravindran PN (2017). *The encyclopedia of herbs and spices, Vol 1 and 2*. Wallingford, UK: CABI; 1-1128.

<sup>3</sup> National Sector Export Strategy. 2017. *Nepal National Sector Export Strategy Large Cardamom 2017-2021*. Government Of Nepal. International Trade Centre, 116.

<sup>4</sup> Wester, P., Mishra, A., Mukherji, A., and Shrestha, A. B. (2019). *The Hindu Kush Himalaya Assessment-Mountains, Climate Change, Sustainability and People*. Cham: Springer Nature Switzerland AG.



## Adding value and achieving economy of scale

- Formation of a large cardamom farmers' association at the landscape level to achieve economy of scale and share information and best practices.
- Development of common regional standards, collaborative research and development (R&D), and extension of drying technology options for farmers, and facilities for longer-term storage and warehousing.
- Focus on product diversification and development of appropriate technology and skills for processing of large cardamom.

## Marketing and product positioning

- Conduct research to generate information on chemical characteristics and uses, and establish common regional facilities for product testing and certification.
- Establish common regional guidelines for geographic indication, product standards, and codes of conduct to assure quality and origin of products.
- Promote large cardamom through media and participation in regional/international trade fairs based on detailed product mapping and market trend analysis.
- Position large cardamom as a unique product under the brand 'Himalayan large black cardamom' and explore new markets and value-added products.



## For further information

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