

Butter Tea

Butter-tea is a delicacy made from a combination of Pu-erh, an aged dark tea from the *Camellia sinensis* plant, yak butter, and Himalayan salts [1,2,3]. It represents a collaborative product between dairy and tea farmers, with the potential to expand production in both sectors, benefitting a diversity of farmers. This report analyses the feasibility of creating an international market for Butter-tea from Nepal.

Pu-erh

Nepal's tea trade is well established, with tea ranked as Nepal's third largest export in 2011 [4]. Consumers worldwide favor Pu-erh for its antioxidant and antimicrobial properties, beyond general tea effects against cancer, hypertension, and vascular diseases [5,6,7,8]. Black tea output increased 5.5% in 2012 due to record prices in Asian markets, with Pu-erh accounting for 58.2% of total Chinese dark tea produced [1].

Nepal has great potential to increase its Pu-erh trade due to arable soil and rain conditions favorable to tea production [1, 11]. Using Integrated Pest Management, *Camellia sinensis'* susceptibility to pathogens can be controlled, leading to eco-certification of Pu-erh [9,10]. A natural fermentation process forming black caffeinated tea normally takes weeks, but can be shortened through microbial inoculation with proper microbial strains [1,11]. Thus, Pu-erh has great potential for South Asian export.

Yak Butter & Salt

In Nepal, butter is crucial for both nutrition and ritual. It is consumed daily in many households in the form of Butter-tea [12, 3]. Sherpas use yak butter in cooking, making butter lamps and for ritual preparations [12]. Yaks provide protein and butterfat rich milk (twice the fat content of cows) at high altitudes on the Tibetan plateau [13]. This milk is processed into butter by hand churning at the subsistence farm level and provides a source of income for highland farmers [12,13,14,15]. Livestock butter is an invaluable marketable commodity, as it is non-perishable and can be transported long distances [12,14]. It accounts for 72% of all milk products sold amongst Nepalese farmers [14]. However, only 60% of the yak butter produced is sold

[3,14,16].

Yak butter is formed into “bricks” and transported to villages market [3]. In Tibet, its price ranges from \$9-\$14 USD per “brick” and a yaks can produce many more “bricks” than cows [3]. Yak-cow hybrids (zomos) provide an opportunity for increased butter production because they thrive at lower altitudes and show heterosis (hybrid vigor) resulting in greater milk yields [12]. Zomos can produce 29-39kg of butter annually, individually generating \$104.00-211.00 in income [12].

Yields for Butter-tea can be increased using small-scale solar drying technologies that are commercially available for developing countries [14,17,18]. As a public health initiative with UNICEF, the use of iodized salt in large-scale production of Butter-tea could decrease iodine deficiency’s stated estimate to effect one-third of Nepalese households [19].

Restraints of Yaks and Butter

Despite the demand for yak butter, highland farmers require better transportation infrastructure to access Nepalese dairy industries for marketing on a larger scale [3,12,15]. The Dairy Development Corporation collected only 2% of total milk produced in 1987, emphasizing a need for more accessible trade [14]. Over herding results in soil erosion and deforestation due to intense grazing [12,14]. A high incidence of disease and parasitism reduces livestock productivity and increases mortality [14]. Thus, animal husbandry inputs are needed for knowledge extension in animal care [14]. Capitalizing on improved feeding systems can increase yak butter production [13,14]. Transitioning from transhumance to stall-fed systems in Nepal would require collective ownership and increased forage resources but provide opportunities for environmental regeneration and reduced labour requirements (grass collection) for women [14].

Local Constraints

Nepal’s Dairy Development Corporation’s objective is to provide a fair-priced market for milk products [15]. It has seen a reduction in farm labourers as youth migrate to urban jobs, necessitating the use of farm livestock to work as draught animals to support farm labour [14,15,20]. Nepalese law prevents the slaughter of cows, resulting in a prevalence of

unproductive cattle [14]. Furthermore, transportation challenges result in diversions of tea through India, generating sale prices below premium [3,14]. However, with the relative labour shortages, a valuable role for women can be developed through the production of Butter-tea [20].

Regulatory Barriers

The Canadian dairy sector has a quota system to stabilize prices, imposing high tariffs on imports [21]. Therefore, the butter component in Butter-tea may be subjected to trade restrictions. The tea component is minimally restricted and Nepal exports tea through international agreements with Canadian firms such as David's Tea [22,23]. In 2009, the Organic Products Regulation enforced regulations protecting against false labeling and supporting growth in the Canadian organic industry [10]. If Nepal utilized Phytosanitary Certificates, trade could be facilitated [34]. This provides an opportunity to market ecofriendly Butter-tea.

Tea & Livestock Industries

Livestock in Nepal's mountainous areas is multipurpose, generating income and sustaining crop productivity [14,24]. Agronomists encourage synergy between crop production and animal husbandry as it enhances biological cycles in farming systems [24]. Nepal's 3.1 million hectares of cultivated land use animal power, including yaks, for cultivation [14]. Small-scale Nepalese organic tea farmers tend to have more livestock, and these animals provide draught labour and natural fertilizers, resulting in reduced hours of labour compared to conventional farmers without livestock [14,20].

Currently, 20% of tea producing arable land in Nepal is planted [1]. Altitude constrains play a role in this inefficiency [1]. While Pu-erh grows ideally at ~1800m, yacks can only thrive between 3000-5000m [12,25]. Yak-cow hybrids are needed at Pu-erh altitudes for synergistic crop-livestock practices that produce Butter-tea [12,13]. Butter-tea is consumed daily by Nepalese [3,12]. By studying current Nepalese farming practices, further insight can be gained into how Butter-tea is produced at lower altitudes in order to achieve a centralized synergistic industry [3,12].

Tea Tourism

Butter-tea is an important aspect of Nepalese socio-cultural and economic society. Butter-tea has significant religious value, being blessed and served in Buddhist monasteries in the Himalayas [3,12]. It is also claimed to alleviate altitude sickness [3,12]. Additionally, tea tourism is an income opportunity in Southeast Asia [1]. A study described a demand for Butter-tea in China's Yunnan province where annual tourist numbers reach 1.28 million [3]. Similarly, tea tourism is a potential untapped income source for Nepalese highland farmers in the eastern Mechi Zone [1,28,29,30,35]. A market exists for Butter-tea along the "Ancient Tea Horse Road": a trading route that connects Tibet (Lhasa) and Southeast Asia and facilitates the trade of yak butter, Pu-erh, and Butter-tea [3]. Nepalese farmers could take advantage of this trading route, as Lhasa is accessible [26,27]. Expansion of Nepalese butter-tea markets could be facilitated through further examination of shipping logistics [17].

Export Potential

Nepal's government provides support for agricultural development programs [31]. However, there is also potential international support for eco-certified Butter-tea production [3,10]. Developed countries pay a premium for eco-certified products and consumer interest revolves around the specialty and health benefits of tea [10]. Organic and specialty teas increase income for farmers and are growing in demand on world markets [17,22]. Additionally, tea farming is reducing poverty rates through employment of women in rural areas [1]. The Canadian firm David's Tea imports eco-certified organic tea from *small family estates* in Nepal's hillsides [23,32]. Earnings are recycled into schools and programs focusing on women empowerment, as women now comprise 80% of their tea-producing workforce [23,32]. Eco-branding of yak butter can fetch higher prices per unit, and provide an advantage for yak herders' competing against cattle products [3]. The expansion of eco-branded yak butter and Pu-erh tea through synergistic farming represents a two-fold opportunity, while raising international attention of a sacred Nepalese beverage [3,33].

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Potential Canadian Buyers and Supporters

1. David's Tea: 5430 Ferrier, Mount-Royal, Quebec, Canada, H4P 1M2
Toll free: 1-888-873-0006
Fax: 1-514-739-0200

2. Shanti Tea Importers Inc: 1501 Sieveright Avenue, Unit 7, Ottawa, Ontario, Canada, K1T 1M5
Toll Free: (800) 9-SHANTI (974-2684)
Local/International: (613) 706-0672

3. Ecocert Canada: 510, Saint-Onesime Levis, (Quebec) Canada G6V 5Z4
Toll free: 1-855-246-9383
Levis: (418) 838-6941
Fax: (418) 838-9823

For Information: info.canada@ecocert.com
Accounting: Nancy Roy nancy.roy@ecocert.com
Director: France Gravel france.gravel@ecocert.com
Certification Coordinator: Andreeanne Nolette andreeanne.nolette@ecocert.com
Customer Service: info.canada@ecocert.com

4. University of Guelph – Hospitality Services: 50 Stone Road East, Guelph, Ontario, N1G 2W1

Kenny, M. Personal Communication by email (markkenny@mac.com).

Date: Nov. 16, 2015. Mr. Kenny is the Procurement Manager for Hospitality Services at the University of Guelph and demands fairly traded Butter Tea. The University of Guelph is the only accredited fair trade university campus in eastern Canada, requiring fairly traded products.