



## Research Article

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# ANALYSIS OF COFFEE SUBSECTOR OF NEPAL: POLICY AND PRODUCTION PERSPECTIVE

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### Abstract

The paper has assessed the policy and the production status of Nepali coffee. Coffee is one of the most famous beverages in the world. Although coffee farming has a relatively short history in Nepal, it is gaining popularity. The government has introduced a separate policy for coffee. Coffee has been included as a priority crop in the several other plans, policies and strategies including Nepal Trade Integration Strategy (NTIS). The government has also established a board to take lead in the coffee and tea sector of the country. The secondary data were retrieved from several government agencies and were analyzed. The National Coffee Policy was reviewed critically. As a methodology for the study, the scoring and the raking were performed for the major coffee-producing districts. The area, the yield, the number of households involved in the coffee production, and the area holding per farming household were variables under consideration. It was found that none of the coffee-producing district is superior in all aforementioned aspects. Moreover, the top ten coffee producing countries have a market share of 90 per cent and Nepal is far behind the scene. Therefore, the area expansion and the productivity enhancement are two important issues need to be considered. Improvement of the policy and the further proactive role of the board is deemed necessary to make the coffee farming as a real cash crop at the national and the international arena.

**Keywords:** Coffee, Policy, Nepal, Organic, Review, GAP

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### 1. Introduction

Coffee is one of the important cash generative crop grown in the mid-hill of Nepal. It is one of the most popular beverage around the globe (Coltri et al., 2019). In Nepal, initially, it was introduced in 1938 AD at Aanpchaaur, Gulmi district (Tiwari, 2010; Ranjitkar et al.,

2016). Despite its short history, it became a popular crop among Nepali farmers. Altogether 32,581 households are actively engaging in commercial coffee production (MOAD, 2015). Production of the 513MT green bean was achieved from 2,650 ha of land with 193Kg/Ha productivity in 2074/075 (NCTDB, 2016).

Nepalese coffee is gaining a glorious export market globally as highland organic coffee (Subedi, 2010). In 2074/075 BS, Nepali coffee worth of 32 Billion Rupee was exported to different countries while import of 1.2 billion was recorded (NCTDB, 2014). Despite the higher demand for Nepalese organic coffee in the international market, the domestic production is not sufficient to meet the demand (Subedi, 2010). Among 77 districts, 24 districts of the mid-hill are found as the major coffee producing districts (MOAD, 2015). To become coffee as a popular agriculture crop agro-climatic suitability, availability of human resources, multiple purposes of the coffee tree and the government priority on it are playing a crucial role. Most of the hilly areas under coffee plantation are by default organic (Subedi, 2010). Farmers are using organic manure, organic pesticides and other organic methods of cultivation on the coffee orchard. Therefore, it has huge scope in the national as well as the international market. The establishment of small-scale coffee processing industries led and supported by cooperatives, NGOs, GOs and farmer-groups are also creating a market and an employment opportunities at the local level (CoPP, 2007; Shrestha et al., 2007).

Though there is an ample scope on coffee industries, the industry is not free from various problems and challenges. Therefore, the paper attempts to assess the policy environment, production status and the global market of coffee in Nepal.

## 2. Material and Method

The paper is based on review and secondary data analysis. The documents and peer-reviewed articles were retrieved from various platforms including Directory of Open Access Journals, Google Scholar and Researchgate. Likewise, publications from the government organizations including the Ministry of Agriculture and Livestock Development (MoALD) and the National Tea and Coffee Development Board (NTCDB) of Nepal were reviewed. Similarly, the reports published by various academic institutes and non-government organizations were also considered for this study.

The government policies related to coffee has been reviewed to assess the policy environment of coffee in Nepal. National Coffee Policy, 2003 has been critically reviewed since it is a special policy solely dedicated to the coffee sector.

The data of coffee production were retrieved from the MoALD. Likewise, trade data for coffee was collected from the Trade and Export Promotion Center (TEPC) and the Department of Customs (2018). These data were analyzed to understand the current status of coffee production and trade. To rank the coffee producing districts, scoring was done considering the area under cultivation, the number of households involved in the coffee production and acreage of coffee farm per

household.

### 2.1. Scoring

An average for the area, the yield, the household involved in the coffee farming (HH) and per household coffee farm (Ha/HH) was calculated. The coffee growing district was assigned with value either 1 (if a value is equal or higher than the national average) or 0 (if a value is less than the national average). Thus obtained scores were summed up and the final score is produced. In this method, the maximum possible score is 4 and the minimum possible score is 0. According to this method, all coffee growing districts were ranked.

$$\text{Score} = \sum S_i$$

Where,

$$S_i = 1 \text{ if } X_i \geq \bar{X} \text{ and } S_i = 0 \text{ if } X_i < \bar{X}$$

$S_i$  = Score for variable (Area, Yield, HH, Ha/HH)

$X_i$  = Value of each variable (Area, Yield, HH, Ha/HH)

$\bar{X}$  = National average of each variable (Area, Yield, HH, Ha/HH)

## 3. Results and Discussion

The results has been presented hereunder in separate subheadings and discussed accordingly. The subsections were divided into "Status of coffee in Nepal", "Global Coffee Market", "Scoring", "National Coffee Policy, 2003" and "Problems of the coffee industry in Nepal".

### 3.1. Status of Coffee in Nepal

In Nepal, coffee is growing in 41 districts albeit 24 districts are the major producers (MoALD, 2018). According to the MoALD, in 2017/18, Nepal is growing coffee in 2,646 ha with an average yield of 176 kg/ha. In coffee farming, 32,629 households are involving and producing 466 Mt of green bean. The maximum yield was observed in Pyuthan district (367 kg/ha) and the minimum yield was obtained from Lamjung district (91 kg/ha). In coffee farming, the maximum number of the household were found in Kaski district (4251) and the minimum number of the household involved in the coffee sector was found in Bhojpur district (163). Likewise, Pachthar district has the highest area per household (0.30 Ha) whereas average household holding was 0.08 ha per household. In fiscal year 2075/76 BS, Nepal exported around 83 MT of coffee valued around \$ 751,613. However, on the same year, it has imported 86 MT of coffee valued around \$779,625. Likewise, in the previous fiscal year, 82 MT of coffee was exported and 151 MT coffee was imported.

### 3.2. Global Coffee Market

Table 1 presents the export data for the top ten coffee-producing countries from 2010 to 2017. Brazil was found the top with more than one-fourth market share followed by Vietnam and Colombia. These top ten countries occupy around 90% of the export market. In this global list of last ten years average export, Nepal stands at 48 among 56 exporting countries. Figure 1 present the global export market share of the coffee by average quantity exported from 2008 to 2017.

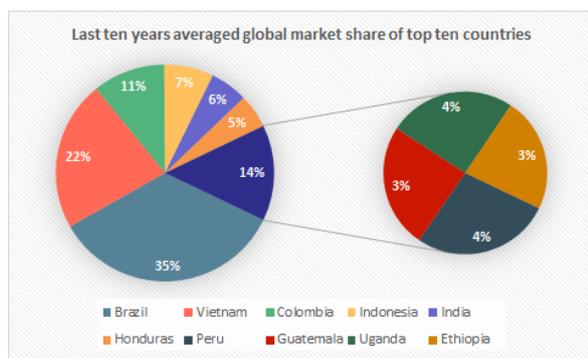


Figure 1. Global export market share of the coffee

3.3. Scoring

Among 24 major coffee-producing districts, none of the districts achieved full score (4). Likewise two districts – Gorkha and Sankhuwasava got the lowest score (0). Seven districts got score 3, five districts got score 2 and

rest 10 districts got score 1. The detail of the scoring has been presented in Table 2.

Table 3 presents the top five districts in each variable. None of the districts has secured the same position in all four parameters. Pyuthan, Syangja, Kaski and Panchthar were found the top in yield, area, farming households and hector by area per household, respectively.

3.4. National Coffee Policy, 2003

The Government of Nepal has introduced a separate policy for the coffee sector in 2003 with the objectives of export promotion, import-substitution, income and employment generation, environment conservation and making the coffee industry sustainable and lucrative (MoALMC, 2018). The policy options have been categorized into four broad policy groups. They are policy options related to – (i) production and processing, (ii) market and trade promotion, (iii) organizational provisions, and (iv) coffee development fund.

Table 1. Top ten coffee exporting countries with its share in the global market in thousand 60 kg bags\*

Countries	2010	2011	2012	2013	2014	2015	2016	2017	Share in 2017 (%)
Brazil	33.167	33.806	28.549	31.662	36.429	37.018	34.267	30.638	26.07
Vietnam	14.229	17.717	22.920	19.718	26.097	20.655	27.568	23.209	19.75
Colombia	7.822	7.734	7.170	9.670	10.954	12.716	12.831	12.985	11.05
Indonesia	5.489	3.920	8.206	9.255	6.175	8.379	6.545	8.198	6.98
Honduras	3.349	3.947	5.508	4.185	4.252	5.030	5.306	7.341	6.25
India	4.647	5.414	5.044	5.033	5.131	5.262	6.086	6.542	5.57
Uganda	2.657	3.142	2.685	3.672	3.442	3.596	3.543	4.774	4.06
Peru	3.817	4.697	4.310	3.736	2.720	2.790	3.960	3.946	3.36
Ethiopia	3.324	2.675	3.203	2.870	3.117	2.985	3.001	3.773	3.21
Guatemala	3.468	3.697	3.750	3.575	3.043	2.961	2.991	3.383	2.88
World Total	97.067	102.210	108.507	108.647	114.547	114.541	119.320	117.499	100

\*ICO, 2018

Table 2. Scoring of coffee producing districts

Score	Districts
4	None
3	Gulmi, Kaski, Lalitpur, Lamjung, Nuwakot, Palpa, Syangja
2	Kavre, Panchther, Parbat, Rasuwa, Sindhupalchok
1	Arghakhachi, Baglung, Bhojpur, Dhading, Ilam, Khotang, Makwanpur, Myagdy, Pyuthan, Tanahun
0	Gorkha, Sankhuwasava

Table 3. Top five districts by Yield, Area, HH and Ha/HH

	Top five districts by Yield, Area, HH and Ha/HH
Yield	Pyuthan, Myagdi, Tanahun, Rasuwa, Makwanpur
Area	Syangja, Panchthar, Kavre, Nuwakot, Gulmi
HH	Kaski, Syangja, Kavre, Palpa, Parbat
Ha/HH	Panchthar, Lalitpur, Nuwakot, Rasuwa, Dhading

The policy has encouraged the participation of private and cooperative sectors for the overall development of the coffee sector. Likewise, it has explicitly prioritized the infrastructure supports – like road, electricity, irrigation and communication in the commercial coffee farming areas. Similarly, the exemption of landholding ceiling is an important policy option for commercial coffee farming. Moreover, a clear provision regarding offering government land for coffee production is a good

opportunity for commercial coffee growers. Nevertheless, it has not been realized yet in practice. In general, Nepal has not opened the Foreign Direct Investment (FDI) in agriculture. However, in the case of the coffee, the policy has welcomed the FDI in a joint venture for production and processing including manufacturing. Nonetheless, we could not confirm any FDI in the coffee sector till the date. The provision of a single logo for export coffee may create additional value

at the international market. The logo has been registered in the Department of Industry, the national authority for Intellectual Property Rights and allied issues, on 14th November 2010. According to the record in the Board, only three companies were awarded the logo. However, currently, there is no demand for the logo. Likewise, the Tea and Coffee Development Board is entrusted with several assignments including the provision of prior approval for export-import of coffee, domestic marketing and maintaining the list as a coffee producer. More exciting policy option for private sector is the provision of no need for Letter of Credit (L/C) for up to \$30,000 at once, which is not available for other commodities. Likewise, it has promoted entrepreneurs, cooperatives, farmers and the board itself to take part in different international exhibitions and fairs, including tour, study visit and advanced studies in the coffee sector. More importantly, the policy has encouraged the board to collaborate with international organizations regarding research, and technology development and transfer. Likewise, it has also clearly mentioned about the utilization of foreign missions of Nepal to promote Nepali coffee abroad. Furthermore, the provision of the coffee development fund has also strengthened the sector to accumulate funds specifically for the coffee sector. Unfortunately, the fund has been established but is not functional yet.

Among the different approaches of coffee production, the policy has promoted organic coffee production from the environment and market point of view. The policy has focused on the development of modern technologies, however, it has not focused on the development of special pockets for organic coffee (Tiwari, 2010).

Despite the specific National Coffee Policy, the government place coffee as priority crop in several plans including the Ninth (1997-2002) and the Tenth (2002-2007) Five Year Plans, the Three Year Interim Plan (2007-2010) and subsequent periodic plans (Tiwari, 2010). However, the Agriculture Perspective Plan (APP) (1994/95-2014/15) and the National Agriculture Policy, 2004 has not explicitly spell-out the coffee sector as a priority crop (Tiwari, 2010). Nevertheless, National Agriculture Policy, 2004 is an overall guiding policy for agriculture sector rather than sectoral or commodity-specific policy (GC and Ghimire, 2018).

Despite several good policy options, there is space for improvement in the coffee policy, 2003. Firstly, there is lacking a clear policy option to promote large-scale farming, albeit, exemption of landholding ceiling has been offered. Secondly, gender issue has not been addressed, which indeed has a significant impact on coffee production and marketing. Thirdly, climate change has not been internalized adequately. The climate change is important for coffee – especially due to cause and effect relationship (GC and Yeo, 2019). Being a part of agroforestry, it has mitigation function and is affecting by changing climatic variabilities (Coltri et al., 2019).

Fourthly, globalization and international trade have not been addressed. After becoming a member of the WTO, Nepali agriculture is facing challenges along with all other section (GC, 2019). Fifthly, it has promoted organic coffee farming. However, the appropriate level of consideration cannot be found regarding plant protection measures for organic coffee farming. As a result, many farmers are suffering from various disease-pest without reliable solutions.

### 3.4. Problems of the coffee industry in Nepal

In Nepal, most of the coffee growers are resource-poor and small-scale farmers. Farmers are growing coffee under the marginal and upland condition where productivity and soil fertility is poor (Shrestha et al., 2008). Some of the farmers are planting coffee for erosion control in marginal and sloppy areas instead of commercial cultivation (Tiwari, 2010). Although the value of Nepalese coffee is high, a low degree of quantity, as well as the quality of production, is attributed due to various disease pest and poor management (Panthi, 2014). A study conducted by NARC estimated that crop losses of 20% to 30% are due to pests in Kavre and Syangja districts of Nepal (NARC, CoOP, Helvetas, 2004). According to Acharya and Dhakal (2014), farmers of Palpa districts are critically affected by insects like red and white coffee borer. A similar case was reported by Agro Enterprise Center (AEC). The major problems of coffee production are lack of quality seedlings and pest attack in some district (ABTRACO, 2004). The major problem of organic coffee production in Gulmi district was the unavailability of skilled labour, unavailability of farmyard manure and insect pest ranked first, second and third respectively (Acharya and Dhakal, 2014).

Coffee stem borer is the major insect causing the huge loss in coffee production (Vossen et al., 2015; Bardner, 1978). Most of the coffee orchards are suffering from this problem critically. The epidemic of white stem borer (*Xylotrechus quadripes*) was the major problems reported in coffee (NARC, CoOP, Helvetas, 2004). Shrinking of coffee production areas in the major coffee production districts is resulting due to this problem. Regarding disease, coffee berry blotch is pronouncedly seen in Gulmi and other districts of Nepal. Due to this disease, inferior quality of bean is produced. The major diseases of coffee seen in Nepal are Leaf rust (*Hemilia vastatrix*), Black rot (*Koleroga noxia donk*), Pink disease (*Corticium salmonicolor*), Anthracnose (*Colletotrichum gloeosporioides*), root rot disease, Berry blotch, Cercospora leaf spot and collar rot or damping off (Panthi, 2014). The major insects affecting coffee production in Nepal are White stem borer (*Xylotrechus quadripes*), Coffee berry borer (*Hypothenemus coffeae*), Red borer (*Zeuzera coffeae*), Shot hole borer (*Xylosandrus compactus*), Coffee bean beetle (*Araecerus tasciculatus*) including other (Panthi, 2014).

In Asia and Africa, the most destructive pests in Arabica coffee is stem borers. Similarly, the coffee WSB

(*Xylotrechus quadripes*) is the devastating serious pest of Arabica coffee in India, Srilanka, China, Vietnam and Thailand (Jansen, 2005). In the case of India, destruction of more than nine million trees was estimated per year due to the attack of WSB (*Xylotrechus quadripes*) (Panthi, 2014). Other factors limiting the production of coffee might be lack of shade, low nutrients and poor management practices (Panthi, 2014; Avelino et al., 2004).

## 5. Conclusions

In the world, coffee is one of the most famous beverages. Therefore, coffee production is an important industry from an economic perspective as well as environmental perspective. It is an agro-forestry system. Although the mid-hills of Nepal are suitable for coffee production, large-scale production has not been achieved yet, since its global market share is still negligible. Despite the government's prioritization of coffee as one of the export potential commodities and establish a separate board to look after tea and coffee, it is still struggling with several issues ranging from small landholding to disease-pests. An extensive coffee mission in a suitable area is very urgent if Nepal wants to sustain coffee as a cash crop at the national and international arena. A little or no focus on mechanization in coffee is also a serious issue for limited commercialization in the industry. Likewise, the provision of safe food production and processing – the Good Agriculture Practices (GAP), Hazard Analysis Critical Control Point (HACCP) and Good Manufacturing Practice (GMP) will certainly add values to the coffee industry, which is still lacking. Therefore, despite the government, the private sector, and the cooperatives' effort on the commercialization of the coffee sector, it is still at an early growth stage with several unresolved issues. The policy reformation is deemed urgent to make the policy, which can address these unresolved issues including gender, climate change and globalization.

## Conflict of interest

The authors declare that there is no conflict of interest.

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