Detail Study of Self-Reliant Industrial Goods in Nepal

Final Report

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ABBREVIATION

ABC	Aerial Bundled Cable
ACSR	Aluminum Conductor Steel Re-enforced Cable
Al	Aluminum
BC	Before Christ
CEPHED	Centre for Public Health & Environmental Development
CGI	Corrugated Galvanized Iron
CPW	Chlorinated Paraffin Wax
CR	Cold Rolled
CTC	Crush-Tear-Curl
CTCF	Central Tea Cooperatives Federation
Cu	Copper
DOCSI	Department of Cottage and Small Industries
DOI	Department of Industry
DOP	Dioctyl Phthalate
ERP	Enterprise Resource Planning
ESR	Economic Self-Reliance
FGD	Focus Group Discussions
FMAN	Footwear Manufacturer Association of Nepal
GI	Galvanized Iron
GiZ	German Corporation for International Cooperation
GoN	Government of Nepal
ha	Hector
HACCP	Hazard Analysis & Critical Control Point
HDPE	High Density Poly Ethylene
HOTPA	Himalayan Orthodox Tea Producers' Association
ICB	International Competitive Bidding
ISO	International Organization for Standardization
KII	Key Informant Interviews

MT	Metric Tone
NBSM	Nepal Bureau of Standard & Metrology
NCB	National Competitive Bidding
NEAT	Nepal Economic Agriculture & Trade
NEEMA	Nepal Electrical and Electronics Manufacturer's Association
NGO	Non-Governmental Organization
NPMA	Nepal Paint Manufacturing Association
NS	Nepal Standard
NTCDB	National Tea and Coffee Development Board
NTDC	Nepal Tea Development Corporation
NTIS	Nepal Trade Integration Strategy
NTPA	Nepal Tea Planters' Association
PESTEL	Political, Economic, Social, Technological, Environmental & Legal
PVC	Poly Vinyl Chloride
QC	Quality Control
SNV	Foundation of Netherlands Volunteers
STAN	Specialty Tea Association of Nepal
SWOT	Strength, Weakness, Opportunity & Threat
TMT	Thermo-Mechanically Treated
UAE	United Arab Emirates
VOC	Volatile Organic Compounds
WTO	World Trade Organization
XLPE	Cross-Linked Poly Ethylene

CHAPTER I: INTRODUCTION

1.1 Background

There is often confusion about the distinction between self-sufficiency and self-reliance. Self-sufficiency of a country can be defined as production of all the required goods and services fully domestically without depending on imports. It is often called autarky. The self-reliance, on the other hand, can be defined as a condition of a country in which internal demand gap of domestically produced goods and services is fulfilled by corresponding foreign exchange earnings through exports. This means that based on a country's domestic resources and competitive strength, a country may for instance produce excess paddy for exports so as to earn foreign exchange for importing wheat which is either not produced domestically or produced less than domestically required. The whole trading and payment system, thus, beyond comparative trade theory arguments ensures that no external dependency of a country in the form of external assistance or loan arises. These are simply elaboration of literal meanings.

Some wider and relatively comprehensive definition of self-reliance was made back in 1985 by Galtung. He describes the basic rule of self-reliance as: produce what you need using your own resources, internalizing the challenges this involves, growing with the challenges, neither giving the most challenging task (positive externality) to somebody else on which you become dependent or export negative externalities to somebody else to whom you do damage (who may also become dependent on you). He further points out that nothing self-reliance is against trade provided it takes place according to the following two rules: (a) carry on the exchange so that the net balance of costs and benefits including externalities for the parties to the exchange is as equal as possible (b) production should be carried out in such a way that the country is at least tentatively self-sufficient and also produces basic necessities such as food, clothing, shelter and energy etc.

Some clarity on self-reliance development from individual's perspective is found in Johnson (2007). To justify self-reliant development, he argues that ineffective development models mean that real money is being granted, loaned, or invested without any real, sustainable return and hence the lives of billions are lived out in misery and despair because social justice is not being achieved and the talents and gifts of far too many lie fallow and undeveloped. He points out that economic self-reliance (ESR) represents a different way of thinking about the processes and outcomes of economic development. According to him ESR is an individual's ability to garner and hold economic resources in excess of their basic needs

To reduce the growing trade deficit in Nepal day by day, to increase production using indigenous raw materials, to meet domestic demand by importing raw materials from abroad and producing finished goods, to alleviate poverty by creating employment at home and to embody the national campaign of "Prosperous Nepal: Happy Nepali". It is also necessary to increase investment in the industrial sector.

Increasing domestic and foreign investment, increasing production, import substitution and export promotion, identifying self-sufficient commodities in Nepal, maintaining their production, consumption, quality and sustainable industrial production towards self-reliance, it is necessary to prepare a report after studying / analyzing the policy reforms to be done by the Government of Nepal in the coming days.

Self-reliant industry is any industry that produces goods that meet the demand within the country and those industries that even replace imports. Such industries play an important role in nation building. In the case of Nepal, according to the data of the last fiscal year, the country has a trade deficit of Rs. 10.99 trillion. Out of the country, goods worth Rs 87.83 billion were exported and goods worth Rs. 12.99 trillion were imported.

Encouraging Nepali industries, giving tax exemptions, tightening the import of self-reliant industrial goods in Nepal from abroad, allowing import of only raw materials used in industrial products produced here, self-reliant by giving incentives, concessions and facilities to indigenous raw material based industries. There is a need today to increase the production of goods.

We can easily become self-reliant in various fields by implementing the policy of advancing Nepali industry by making good use of the opportunities that we are capable of, If the technology, technical equipment and materials used in the industry are facilitated including customs exemption, the industry can also increase investment and production with confidence.

While the trade deficit is increasing due to insufficient production in the country, some industrial products have shown hope Nepal is said to be self-sufficient in sugar, cement, rods, iron rods, shoes, slippers, medicines, zinc sheets, tea, milk and meat products.

The self-reliant industrial items previously studied by the department and other agencies are sugar, cement and Teas. Hatchery and poultry farming industries are also considered as self-sufficient industries.

Similarly, milk, meat, fish, tea, flour (including flour / semolina), spices, dyes, iron, zinc sheets, wood, shoes, slippers, medicines, bricks, green vegetables, furniture, soap / surf, tobacco products, alcoholic beverages, wires and conductors, HDPE Pipe and GI Pipe, are claimed to be self-sufficient and self-reliant in Nepal based on production and consumption.

For the last time, Industrial Policy 2067, Industrial Business Act 2076 and Industrial Business Rules 2076 have been implemented to improve the industry sector. Therefore, there is no doubt that the prosperity of Nepal's industrial sector will be the main basis of the country's prosperity.

Under the approved annual program of the Department of Industry for 2077/78; "Detail Study of Self-Reliant Industrial Goods in Nepal", the study covers five items as follows:

1. Paint Manufacturing Industry
2. GI Corrugated Sheet Manufacturing Industry
3. Footwear Manufacturing Industry
4. Tea Manufacturing Industry
5. Electrical cables and conductors Manufacturing Industry

Constitution of Nepal, Clause 51 (d) Policies relating to economy, industry and commerce focus to enhance national economy through partnership and independent development of the public, private and cooperative sectors, to achieve economic prosperity by way of optimum mobilization of the available means and resources, while focusing on the role of private sector in economy, to promote the cooperative sector and mobilize it in national development to the maximum extent, to encourage and mobilize the economic sector in the overall national development, while providing for regulation to maintain fairness, accountability and competition in all of its activities, to make equitable distribution of the available means and resources and benefits of economic development, to diversify and expand markets for goods and services, while promoting exports through development and expansion of industries upon identifying areas of comparative advantage, to protect the interests of consumers by maintaining trade fairness and discipline by making national economy competitive, while ending activities such as creating black marketing, monopoly, artificial scarcity and restricting competition, to protect and promote domestic industries and resources and accord priority to domestic investment based on Nepalese labor, skills and raw materials for the development of national economy, to give priority to domestic investment for the development of national economy.

According to 15th Five Year Plan (2018-19 to 2023-24); country will provide investment facilitation and support for infrastructure development to promote industries based on

domestic raw materials including cement, sugar, footwear, medicines, juices, dairy, tea, pashmina, and handicrafts. Support and assistance will be provided towards the development of infrastructure and promotion of industries based on domestic raw materials including cement, sugar, footwear, medicine, juice, dairy, tea, cashmere, handicrafts.

In order to reduce trade deficit, there is an immediate need for export promotion and import management by identifying, developing, and increasing production. Additionally, the country needs to attain self-reliance in basic needs goods, including agriculture, fuel, and medicine.

The study, which was based on Nepal's input-output tables of 2010 and 2011, showed that Nepal was 47 percent self-reliant in the domestic demand of industrial productions. (New Business Age, 2015.11.27)

1.2 Objectives

To identify and analyze the current production status of selected self-reliant industrial products and their supply and demand conditions.

To identify and analyze the problems and solutions faced by the industries producing self-reliant industrial goods that have been selected

To give necessary suggestions regarding incentives, discounts, facilities and concessions to be given by the government for the sustainability of self-reliant oriented products.

1.3 Scope of the Study

The scope of the study covers the following area but not limited to these areas only where required:

- Annual Demand of selected Products and their import status.
- Industry Details of selected industries: (Name of industries, their detail address, production capacity, investment, number of employee, Consumption etc.)
- Capacity Utilization
- Demand Forecast
- Trend and status of products.
- Availability of Raw Materials/ import status of raw materials domestically for selected manufacturing industries for upcoming years.
- Technology adopted
- Challenges faced by those manufacturing Industries

- Financial position and area for improvement (Policy level, association level and industries level)
- Possible Suggestions

1.4 Limitations of the Study

- Few paint and tea industries did not provide the information and some provide partial information only. In such cases, secondary data has been used from sources like DOI, NPMA, HOTPA and NTCDC.
- Due to 2nd wave of Covid in Nepal, there was lockdown due to which it was difficult to visit the some of the industries physically, however data have been collected by mail, telephonic conversation virtually.
- There are many small tea and shoes industries operating in Nepal due to which it was very difficult to find out the details of all those small industries.
- There are 4 association of shoes manufacturing industries and traders; hence given data by these associations are different which may differ actual data slightly.
- Due to multi product of CGI Sheet manufacturing industry; electricity and employment data in total may differ slightly.

CHAPTER II: LITRATURE REVIEW

2.1 Tea

2.1.1 History of Tea in Nepal

Tea (*Camellia sinensis*) is popular all over the world. Tea has a very long history. It is said to have been originated in China in 2737 BC when the emperor Shen Nung used tea as medicine. The tea gained popularity as a hot beverage in the 6th century. In the 18th century, tea entered India from China through the activities of the East India Company. Tea cultivation started in Darjeeling in 1835, but a commercial nursery was established a decade later. (Krishna Poudel, The Third Pole, Vol.8-10, PP 34-42 2010)

During the 1800s and the early 1900s, Nepal was under the reign of a highly centralized autocracy, the Rana Dynasty, which acted as a monarchy; their policies resulted in the isolation of Nepal from the external world. Nepal's borders and governance were constantly under turmoil, both internally and externally. Unlike India, the policies helped Nepal retain its national independence from the British Colonial Rule, but insulated it from modernization and economic development. Thus the nascent Nepali tea industry was adversely affected compared with the nearby Darjeeling tea industry, which thrived under the British colonial rule.

It is believed that the first tea bushes in Nepal were grown from seeds which were given as a gift by the Chinese Emperor to the then Prime Minister of Nepal, Jang Bahadur Rana. Nevertheless, Nepal's tea industry owes its roots to the colonization of India, by the world's first multinational company, the “East India Company”, under the British Empire. Around 1863, within a time span of 10 years after the first tea plantation was set up in Darjeeling, hybrids of tea bushes were brought, and the Nepal's first tea plantation, Ilam Tea Estate was set up in Ilam District, at an altitude of 4,500-5,000 feet above the sea level. Visioning better future prospects of the tea industry in Nepal, two years later a second tea plantation, Soktim Tea Estate was set up in the Jhapa district. Later into the 1900s the Nepalese tea producers acted as suppliers to Darjeeling factories when tea bushes became old and yields decreased.

However, the nascent Tea industry of Nepal failed to grow. At a time period when the Darjeeling Tea industry was beginning to do very well in the global mercantilist market, the Tea industry of Nepal failed to provide even for the domestic consumption. The reason for the setback of the Nepal’s young Tea industry was mainly due to political turmoil and resulting economic policies of that period, under the reign of the Rana Dynasty.

After the democratic movement of 1950, floor was opened for investment in the industry. As a result, the stagnant Tea industry witnessed an inflow of public and private investment. First Tea Plantation at private Tea sector in Terai was established in 1959 and was registered with the name of Bhudhakaran Tea Estate.

Nepal Tea Development Corporation was established in 1966 by Government of Nepal to aid the development of Tea industry. Originally Tea leaves produced in Nepal were sold to factories in Darjeeling. Only in 1978 first factory was set up in Ilam for the processing of Tea leaves and a few years later another factory was set up in Soktim, Jhapa district.

From 1978 to the 1990s, various efforts were made by the Nepal Tea Development Corporation to encourage the participation of small and marginal farmers in the growth and production of Tea as a cash crop. Slowly, the stagnant Tea industry was evolving into a fully commercialized industry, benefitting the country's economic and socio-economic development. To further aid in the development of its Tea industry, in 1982, Government of Nepal under the reign of the then King Birendra Bir Bikram Shah Dev, declared five districts - Jhapa, Ilam, Panchthar, Dhankuta and Terhathum as Tea Zones of Nepal.

Since Nepal Tea Development Corporation was a profit-oriented organisation, for the further development of Tea industry, need of non-profit public organization was felt. And hence National Tea and Coffee Development Board was formed by Government of Nepal.

From 1987 to 1993, some of today's notable institutions were incorporated to further aid the Nepal Tea Development Corporation in the development of a century old stagnant tea industry, like – National Tea and Coffee Development Board (NTCDB), Nepal Tea Planters' Association (NTPA) and Himalayan Orthodox Tea Producers' Association (HOTPA). In 1997, Nepal's tea industry saw a major transformation towards privatization, with the privatization of the plantations and factories under the Nepal Tea Development Corporation (NTDC).

Since the late 1990s and into the early 2000s, an array of international non-governmental organizations (Like Winrock, SNV, GiZ etc.) have become involved with the stakeholders of Nepal's tea industry, because the tea industry in Nepal also played a significant role in the eradication of poverty, especially in the rural areas where the tea plantations were concentrated. By the 21st century the stagnant tea industry had transformed into a fully commercialized industry, yet it had not yet developed a strong brand in the global market, lacking efficiently integrated production and marketing systems.

Hence, in 2000 as per the provisions of the National Tea and Coffee Development Board Act of 1992, the Government of Nepal ratified the National Tea Policy.

2.1.2 Consumption and Demand of Tea in Nepal

According to the Nepal living standards survey data, per capita consumption of tea in Nepal is nearly 0.5 kg per annum in the mid 1990's. With a population of 23 million, this results into total household consumption of about 12000 tons per year. With the following assumptions about some parameters, the total demand for tea is estimated to grow at a rate of 4.9% per year: population growth rate of 3% per year (including the effect of increasing number of tea users); income growth rate of 2.5 to 4.0%; fairly high expenditure elasticity of demand for tea (0.51); and constant real price of tea (Thapa, 2003). This amounts to some 27 000 to 32 000 tons by 2020, plus an additional 4 000 tons estimated to be consumed outside the household, e.g. in restaurants and teashops. In other words, total demand is projected to outstrip total production by several folds. The demand is expected to exceed even the production targets set in Tenth Plan and Nepal Tea Policy. This means imports are expected to be both substantial and growing fast. While this is the case under a constant price scenario, the demand growth will be moderated somewhat if relative price of tea rises, since the price elasticity of demand for tea is estimated to be high (about -0.92). These estimates underscore the need to consider rapid expansion of tea area and production as a matter of strategy.

2.1.3 Details of Tea Manufacturing Industries

According to statistical data of Department of Industry (DOI), there are 101 tea manufacturers and processors in Nepal, almost are in Province No. 1. Teas are growing in 10 Districts and there are 12 districts where teas are growing and processing and 50% manufacturers and processors are in Jhapa Districts, about 25% in Ilam Districts, about 10% in Dhankuta and rest in other districts.

Few Tea Industries are registered under Department of Cottage and Small Industries (DOCSI), Nepal.

There are four associations/organizations of Tea Producers and Processors in Nepal registered in NTCDB. They are:

i. Himalayan Orthodox Tea Producer's Organization (HOTPA- Nepal)
ii. Nepal Tea Producer's Association
iii. Nepal Tea Association
iv. Central Tea Cooperatives Federation (CTCF)

There are 20 Orthodox tea producers associated with HOTPA-Nepal. There are 23 CTC Tea Producers of Jhapa District associated in Nepal Tea Producer's Association. Similarly, there are 30 Tea packers and traders and 5 producers and processors associated in the Nepal Tea

Association and there are 5 District Tea Cooperatives Federations (Ilam – 38 Cooperatives, Panchthar-13 Cooperatives, Terhthum-9 Cooperatives, Dhankuta-9 Cooperatives and Lalitpur-10 Cooperatives) associated in CTCF.

Similarly, Specialty Tea Association of Nepal (STAN) was formed in 2012 as NGO is the umbrella organization of 46 farmer owned small tea processors of Nepal who produces green and specialty teas.

2.1.4 Capacity Utilization of Tea Manufacturing Industries

A study of Nepal Orthodox Tea: Analysis of Industries, Production and Market Potential by Rudra Bahadur Baral 2019 revealed that the results of the financial analysis found positive returns of investment and increasing returns to scale. However, the average capacity utilization of the tea processing firms is found to be 33 percent. A Cobb-Douglas production function was used to estimate production potential and the result depicted that a one percent increase in the investment in capital, labor and raw material could increase revenue by 0.20 percent, 0.12 percent and 0.68 percent respectively. Thus, this study revealed that the processing firms can decrease processing costs and increase profits by expanding production. The total factor productivity is found to be 3.67 which is the growth of real output not explained by the increase in capital and labor used in the production.

The global tea market is growing at the annual compound growth rate of 3.4 percent by volume, 5.7 percent by price and 9.3 percent by value. About 79 percent of the consumers who purchased Nepalese tea rated it excellent.

2.1.5 Import and Export Status of Tea

According to statistical data of National Tea & Coffee Development Board, 343 MT Tea was imported in the year 2018/19 from 13 countries mainly from India, China, Malaysia, Sri Lanka and Thailand, worth Nepali Rupees 117 million. The government has launched a novel project to promote Nepal's tea in the international market and improve its quality by using a system that tracks the product along the entire supply chain.

The Sustainable Export Promotion Project of Nepali Tea follows the implementation of the trademark Nepal Tea Quality from the Himalayas last September. The effort is expected to further enhance the quality of Nepali tea and enlarge worldwide sales, according to officials promoting tea cultivation. (The Kathmandu Post, Feb, 10, 2021)

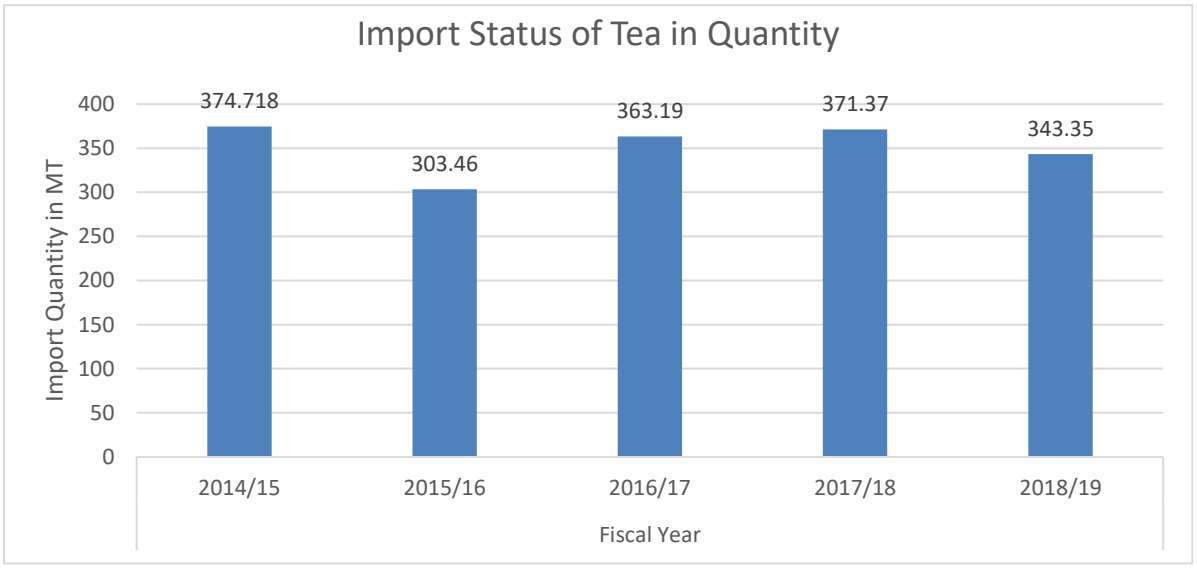
Table 2 1: Import Status of Tea for Five Fiscal Years

SN	Description	Fiscal Year				
		2014/15	2015/16	2016/17	2017/18	2018/19
1	Import Quantity, MT	374.718	303.46	363.19	371.37	343.35
2	Import Value, NRs.,000	93618	67992	90670	120907	117732.3

(Source: Tea Import Status, NTCDB)

From the above table of five fiscal year data, the trend of tea imported volume was seen decreasing stage but the value was stable.

Figure 2. 1 Import Status of Tea for Five Fiscal Years



According to National Tea & Coffee Development Board, there was 15000MT tea exported in 2018/19 to 30 countries mainly to the India, Germany, Japan, Russia and America.

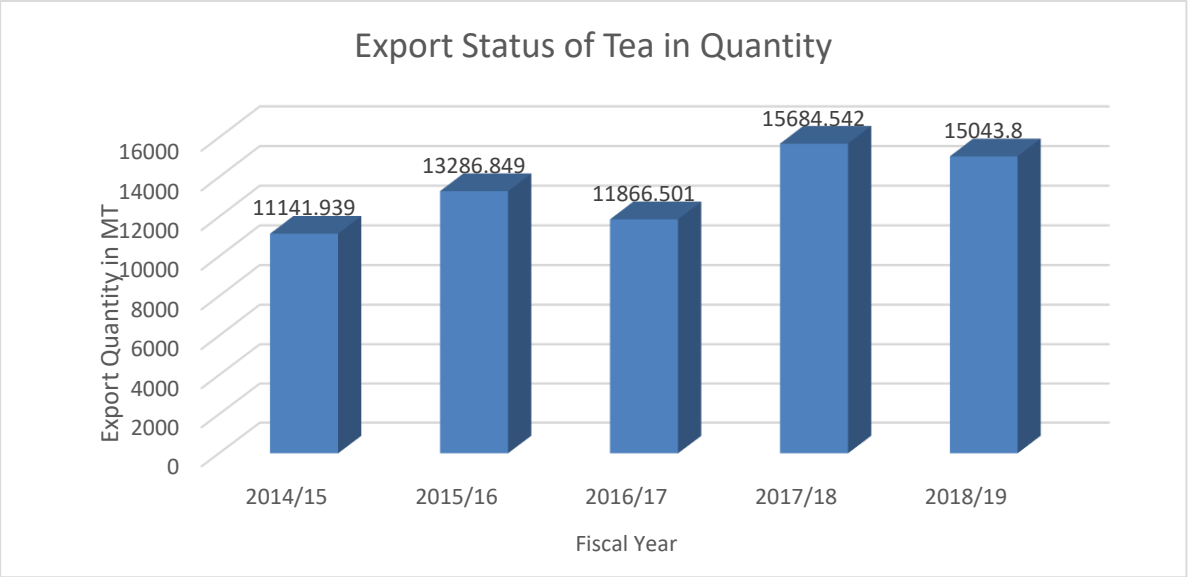
It worth Nepali Rupees 3200 million. According to data of fiscal year 2072/73, the export share of tea was 90% orthodox tea and 50% CTC tea of total national production.

Table 2 2: Export Status of Tea for Five Fiscal Years

SN	Description	Fiscal Year				
		2014/15	2015/16	2016/17	2017/18	2018/19
1	Export Quantity, MT	11141.939	13286.849	11866.501	15684.542	15043.8
2	Export Value, NRs. ,000	2004475	2398965	2533884.92	3251686.38	3203904

(Source: Tea Export Status, NTCDB)

Figure 2. 2 Export Status of Tea for Five Fiscal Years



2.1.6 Production and Raw Materials for Tea in Nepal

Government of Nepal and Nepal Trade Integration Strategy (NTIS) have recognized tea as high-value commodity with export potential (National Planning Commission Secretariat, 2004). Cultivation of tea had been expanding over central and western regions. Agriculture sector profile prepared by Government of Nepal had projected a possibility of expansion of total tea cultivating area of 62,800 hectares within the next 15 years (Investment Board Nepal, 2017).

Nepali tea is a beverage made from the leaves of tea plants (*Camellia sinensis*) grown in Nepal. They are distinctive in appearance, aroma and taste, but are similar in many ways to tea produced in Darjeeling tea, perhaps because the eastern zones of Nepal have geography and topography similar to Darjeeling.

Nepal's teas fall into following types:

i. **Black Tea:** This type of tea is fermented tea. In which after rolling in the air for some time of oxidation is left for. Under this, it has CTC and Orthodox tea.

   a. **CTC tea:** It is a method of processing Assam variety (*Camellia sinensis var. assamica*), which grows in the lower altitude, hot and humid plains of Nepal, primarily in Jhapa district. It accounts for almost 95% of the domestic consumption, owing to its lower cost of production compared with orthodox tea.

   b. **Orthodox tea:** It is made from the Chinese Variety of the tea plant (*C. sinensis* var. sinensis). The tea is hand or machine rolled. In Nepal, orthodox tea is

produced and processed in the mountainous regions of Nepal at an altitude ranging from 3,000 to 7,000 feet above the sea level. There are six major districts, primarily in the eastern regions of Nepal that are known for producing quality orthodox tea, which are Ilam, Panchthar, Dhankuta, Trrhathum, Sindhupalchok and Kaski.

ii. **Green Tea:** It is made from the Chinese Variety of the tea plant (*C. sinensis* var. sinensis). This type of tea is non-fermented tea. In which the enzymes in the leaves are inactivated as soon as possible and the chemical substances in the leaves are preserved as they are without any chemical reaction. This tea tastes slightly bitter. This tea is drunk more for health.

iii. **Oolong Tea:** It is also made from the Chinese Variety of the tea plant (*C. sinensis* var. sinensis). This type of tea is semi-fermented tea. It uses some fermentation process. The taste of tea is softer than black tea and harder than green tea.

iv. **Specialty Tea:** It is also made from the Chinese Variety of the tea plant (*C. sinensis* var. sinensis). This includes valuable teas made from different leaves in different ways. Such as - White Tea, Silver Needle, Golden Tea, Yellow Tea etc.

In Nepal, tea is produced mainly in the eastern part of the country. The total area of tea production is more than 28000 ha land area and producing more than 25000 MT different types of tea in Nepal. There are more than 15000 small farmers, cooperatives and tea estates involved in the tea production, processing and trading of tea in Nepal. Estates (tea gardens) accounted for 54.5 percent and small farmers for 45.5 percent of the total area under cultivation. The former contribute 61.6 percent and the small farmers 38.4 percent to total national production.

Table 2 3: Yield per hector of tea production in Nepal (NTCDB)

S.N.	Description	2014/15	2015/16	2016/17	2017/18	2018/19
1	Production, MT	23186.726	24263.71	24409.29	24803.567	25205.86
2	Plantation Area, ha	26165	27688	28241	28595	28732
3	Yield (MT/ha)	0.89	0.88	0.86	0.87	0.88

(Source: Yield per hector of tea production in Nepal, NTCDB)

CTC has 11443 ha (40 percent) and Orthodox has 17289 ha (60 percent) total coverage under tea where the CTC contributes 19108 MT (76 percent) and Orthodox contributes only 6097.8 MT (24 percent) of the total tea production. (NTCDB Statistic 2018/19)

Global tea production is ever increasing. The reason for the growth in world output is the considerable increase in production in the major tea-producing countries, China and India, and also in the two largest tea-exporting countries, Kenya and Sri Lanka. China continues to be the largest tea-producing country with an output of around 2.3 million tons, accounting for more than 43% of the world total. (Cogen Food and Agriculture, Vol. 6, 2020)

2.1.7 Technology adaption by Tea Manufacturing Industries in Nepal

Although each type of tea has a different taste, smell, and visual appearance, tea processing for all tea types consists of a very similar set of methods with only minor variations. Following are the common processing techniques of tea:

i. Plucking of leaf (2 leaves and one bud)
ii. Wilting/Withering
iii. Maceration/CTC
iv. Oxidation/Fermentation
v. Drying
vi. Sorting/Grading
vii. Packing

The full meaning of CTC is Cutting, Tearing and Curl (battering). When a sharp roller with two teeth rotates in different directions, the tea leaf inside it is inside the cross, tear and curl roller at the same time and it is ready as soon as it passes through the tea roller.

The name of the tea is CTC based on the work of the machine. The inventor of this CTC machine is MC Cursor. He was the superintendent of Amguri Tea Estate in Assam and he made it in 1930.

The term ‘Orthodox’ refers to a method of producing tea in India, by which the leaves are partially dried and then allowed to ferment to produce black tea as opposed to green tea which is not fermented. But in a broader sense, ‘Orthodox’ also refers to ‘traditional’ or ‘hand-processed’ tea. Orthodox tea is produced by a special process in which only the top two leaves and bud from each branch (Two leaves and one bud) are picked at the precise moment when they are budding.

2.1.8 Challenge faced by Tea Manufacturing Industries

Strength, weakness, opportunity, and threat associated with production and marketing of orthodox Tea are presented in Table below:

Table 2 4: SWOT Analysis of Orthodox Tea

Strength	Weakness	Opportunity	Threat
Production • Favorable topography and climatic condition • Virgin lands • Environmental friendly crop	Production • Low productivity (274 kg/ha) yield • Difficulty to obtain inputs, high use of pesticides and insecticides and incorrect application cycles	Production • Greater scope of expansion of tea plantation area	Production • Shortage of labor • Limited financing for farmers
Marketing • Good aroma • International certification	Marketing • Inadequate market information system, lack of auction facility • Absence of central warehouses • Inconsistent quality and high maximum residue limits (MRLs)	Marketing • Increasing recognition of Nepal tea brand • Increasing world demand	Marketing • Heavy reliance in Indian market • Inconsistent Indian import policy • Loss of potential markets due to poor and inconsistent quality

(Source: NEAT, 2011)

Other issues and challenges are:

***Expansion of tea area*:** the current area under tea is only a fraction of the potential total area suitable for tea – as low as less than one percent in the current "tea zone" of Nepal.

Lack of sufficient credit: for reaching the production capacity of 90000 tonnes, credit requirements come at around Rs3.2 billion per year over a decade, in contrast to the current credit delivery rate of Rs80 million per year.

***Institutions*:** One suggestion for consideration is that the NTCDB Act may need to be amended in order to ensure that the composition of its leadership is depoliticized and business-led.

Tariff and effective protection: Nepal's tea sector enjoys relatively high nominal tariff (25-30%) and relatively high level of effective protection (ERP).

Competitiveness and export potential: All the main indicators of competitiveness, namely revealed comparative advantage, domestic resource cost and net value addition criterion, show that Nepalese tea is competitive in the international market.

Tea auction center: The Nepal's tea sector would benefit considerably with a tea auction center in Nepal itself.

WTO-related issues: WTO Agreements could affect current policies and practices in the tea sector.

Identity and standards: There is a need to protect tea plant varieties and harmonize standards for tea products in export markets. Experts hold that Nepalese tea provides a unique blend of aroma/aroma of the Chinese tea and the colour/liquor of the Indian tea.

2.1.9 Financial position of Tea Manufacturing Industries in Nepal

According to industrial enterprises act 2016, the fixed capital up to 100 million rupees is categorize as small industry, capital of 100 to 250 million rupees is medium scale and above 250 million rupees is large scale industries.

According to the financial position mentioned during the company registration and industry registration, almost of the tea manufacturers and processors are small (84%) having total capital up to 100 million rupees and few are medium scale (15%) having 100-250 million rupees and remaining are large (2%) having more than 250 million rupees total capitals.

According to the registration list of 101 tea manufacturing industries in DOI, total investment is approx. 8.5 billion rupees.

2.1.10 Certification

As per Specialty Tea Association of Nepal (STAN), twelve tea processing industries had received the certificate to use the national logo of orthodox tea “Nepal Tea Quality From Himalayas”. This initiation of government is hoped to enhance quality of Nepal tea together with branding and marketing globally.

Few had got Organic Tea Certification and about 20-25 industries had certified with food safety management system/HACCP certification.

2.2 Electrical Cables and Conductors

2.2.1 History of Cable & Conductors in Nepal

Lumbini Vidyut Udhyog was established in the year 1977 for production and distribution of ACSR conductors as first registered cable and conductor industry in Department of Industry (DOI), Nepal. In the year 1980, Swadeshi Cable Industry (Now Janta Cable Industries Pvt. Ltd.) was registered as first cable industry. Since then there are about 26 cables and conductors manufacturing small and medium size industries and they are producing different types of electrical wires, cables and conductors like ACSR conductors, house wire cables/multi

strands cables, power cables, concentric cables, telecommunication cables, ABC cables, auto cables, etc.

2.2.2 Consumption and Demand of Cable and Conductors in Nepal

According to the Nepal Electrical and Electronics Manufacturer's Association (NEEMA), following are the annual demand and capacity of cables and conductors:

Table 2 5: Annual Demand and Production Capacity of Cables & Conductor

S. N.	Product	HS Code	Sizes	Cables & Conductors	Annual Demand	Annual Capacity	Capacity Utilization*
1	ACSR Conductors	76141000	20 Sq mm – 100 Sq mm	Weasel/ Rabbit/Dog up to 11KVA	60000 KM	200000 KM	30%
2	ACSR Conductors	76141000	150 Sq mm – 500 Sq mm	Wolf/ Bear/ Bison/ Cardinal / Moose 66-400KVA	5000 KM	20000 KM	25%
3	ABC Cables	85446000	25 Sq mm – 120 Sq mm		6000 KM	10000 KM	60%
4	XLPE covered Cables	85446000	25 Sq mm – 250 Sq mm	AAAC/ ACSR With Insulation	1500 KM	3000 KM	50%
5	Power & Control Cables	85446000	25 Sq mm – 250 Sq mm		9000 KM	12000 KM	75%
6	House Wire/ Multistrand Wires	85444900	5 Sq mm – 16 Sq mm		3000000 coils	4000000 coils	75%

(Source: NEEMA)

* capacity utilization is calculated based on the all annual demand of individual cables & Conductors within country. If any cables and conductors imported the capacity utilization will further decreases.

2.2.3 Details of Cable and Conductors Manufacturing Industries

According to NEEMA, 22 electrical cables and conductor industries are associated with them. Similarly, 22 industries are certified with NS standards (NS 344 and NS 259) according to the list provided by the NBSM, 2077. But as per our initial study, there are 26 wires and cables industry in Nepal. The lists are attached in Chapter III of this report.

2.2.4 Capacity Utilization of Cable and Conductor Manufacturing Industries

According to Chairman of NEEMA, Mr. Asish Sigdel, there is only 40 percent capacity utilization in average of cable and conductor industries in Nepal.

2.2.5 Import and Export Status of Cable & Conductor

According to Annual Foreign Trade Statistic 2076/77, the import and export status of electrical cables and conductors are:

Table 2 6: Import and Export Data of Cables and Conductor in Nepal, 2076/77

S. N.	HS Code	Cables & Conductors	Unit	Import	Export
1	76141000	ACSR Conductors..	Kg	6444115	
2	76149000	ACSR Conductors…	Kg	1018530	
3	85441100	Cu Winding Wires..	Mtr	2858389	
4	85441900	Enameled Wire..	Mtr	10459306	
5	85442000	Co-axial Cables…	Mtr	9920492	
6	85444200	Co-axial Cables…	Pcs	721764	
7	85444900	Electric Conductors, nes..	Pcs	5759639	8504
8	85446000	Electric Conductors, nes..	Pcs	1918698	14

(Source: Annual Foreign Trade Statistic 2076/77)

As per above data, export of cable & conductors is almost nil.

2.2.6 Raw Materials for Cables and Conductor in Nepal

The major raw materials used for the production of cables and conductors are Copper and Aluminum rods and purchased from India and third country. According to Chairman of NEEMA, the rods are imported by the most of the industries from UAE, South Korea, India, Russia, Japan, China etc.

Another major raw material is insulation items like PVC Compound and XLPE. These materials are purchased from Singapore, Malaysia, UAE and India. Few Industries have capacity to manufacture PVC Compound at their own places from PVC Resins and other mixing chemicals like One Pack, Calcium, Wax, DOP, CPW etc.

According to Annual Foreign Trade Statistic 2076/77, the annual copper wire and rod imported from different countries are 5866.6 MT. The major suppliers are UAE, India and China. Similarly, the annual aluminum wires and rods imported from different countries are 8775.9 MT and the major supplier is India.

Insulated materials used for cables and conductors were 21548 MT and purchased from Thailand, South Korea, Taiwan, Germany etc. on the year 2076/77.

Besides these materials few materials like GI Wires and strips are purchased locally.

2.2.7 Technology Adaption by Cable & Conductors Manufacturing Industries in Nepal

The major processes for the cable and conductor manufacturing are:

i. Wire Drawing (Cu/Al)
ii. Annealing
iii. Bunching/Twisting
iv. Insulation (Extruder)
v. Laying
vi. Inner sheathing
vii. Armouring
viii. Outer sheathing
ix. Braiding (Co-axial cable)
x. Coiling
xi. Packing

Technology used for manufacturing of cables and conductors in Nepal are of Indian, Germany, UK and China. Processes are semi auto and manual. Nowadays, pot annealing is replaced with on line annealing system in few industries.

2.2.8 Challenge faced by Cable and Conductors Manufacturing Industries

According to NEEMA, custom duty for importing raw materials are high which need to be decreased by 10-15 % so that cost of product will be competitive with foreign suppliers.
Uninterruptible power supply is another challenge for the cable & conductors manufacturing industry.
National and International Competitive Bidding (NCB/ICB) procurement: Nepalese manufacturer are unable to qualify due to supply record constraint in tender documents. In pre-qualification certificate, they ask for double quantity of previous supply. Due to which they cannot bid tender to NEA.
No separate NCB procurements for Nepalese manufacturers for ABC cables, ACSR conductors, XLPE covered conductors and power cables.
Under invoicing of raw materials and finished goods import by trading company making domestic manufacturing industries difficult for competing.

2.2.9 Financial position of Cable & Conductor Manufacturing Industries in Nepal

According to DOI Industrial Information System, most of the cable and conductors manufacturing industries are of medium scale. In total around 5 billion Nepali Rupees are invested.

2.2.10 Certification

There is mandatory product standard for PVC insulated wires (house wiring cables) i.e. NS 344 in Nepal. NS 259 for ACSR conductors though not mandatory, customer like NEA and other projects ask for this products certification.

Most of the cable & conductors manufacturing industries are certified with management system certification like ISO 9001 and ISO 14001.

2.3 Footwear

2.3.1 History of Footwear in Nepal

The footwear sector in Nepal was enlarged and emerged after the privatization of the Government of Nepal (GoN)- owned Bansbari Shoes Factory. Currently, 1,500 companies are manufacturing 30 million pairs of different types of footwear annually. This sector is providing employment to 60,000 persons, 30 per cent of whom are women and among them 20 percent of women are in administrative jobs.

Footwear technology is traditional and originates from India. In the past, all processes were manual. The establishment of Bansbari Leather Factory in 1966 with technical assistance from China led to the replacement of many manual operations with machines. However, not all industries have been able to cope with new processing technology. Some continue to depend on manual processes. Producers have been slow to realize the importance of innovative product development and quality control. Most industries now have in-house designers and QC inspectors.

2.3.2 Consumption and Demand of Footwear in Nepal

The demand for domestic footwear which was 35-40 percent a few years ago has increased to 55-60 percent now. But that does not mean domestically Nepali manufacturers have no problems: they have to compete with cheap imported shoes that come in through the open border.

According to FMAN, as part of the strategy, the association had aimed to increase annual footwear production up to 45 million and export annual volume over 12 million pairs by 2020

by narrowing the trade deficit of footwear up to 60 percent in terms of volume and 240 percent in terms of value. The strategy also aimed to cover the domestic market by 80 percent. The demand for footwear stands at 80 million pairs annually in the country currently. According to FMAN, out of the total demand, domestic companies produce 40 million pairs of footwear.

Currently, domestic footwear has been fulfilling 65 percent of the total demand in the country. The demand for domestic footwear which was 35-40 percent a few years ago has increased to 55-60 percent. The global footwear market has been steadily increasing, with production reaching 22 billion pairs in 2013 and new importers rapidly entering the global market.

One of the primary actors in the footwear value chain are the input (raw material) suppliers. In Nepal, 22 companies are producing raw materials, whereas 58 companies are importing them. Similarly, marketing of footwear is being done by wholesale and retail traders, foreign dealers or export agents. Altogether 71.36 per cent of the final consumers are Nepalese, while 28.64 per cent are international consumers. Of the international consumers, 28.62 per cent are Indian consumers and 0.02 per cent are consumers of countries other than India.

2.3.3 Details of Footwear Manufacturing Industries

In recent years, the footwear sector has seen increasing production as well as promising export performance. Many footwear producing companies already exist and new investment is responding to increasing demand. Some of the highly mechanized companies are targeting export markets due to decreased domestic demand after the earthquake. The footwear sector is labour intensive and provides good employment opportunities. The sector is also conducive to female workers and has minimum environmental impact that is easy to manage. According to the Value Chain Analysis of GIZ (2017), footwear producing companies are classified as follows:

Large manufacturers: There are six large manufacturers with an estimated daily production capacity of more than 10,000 pairs. For example Kiran Shoe Manufacturers producing its sports footwear with fully computer controlled automatic machines being well known in Nepal and India for its Gold Star brand.

Another example of a large Nepalese manufacturer with a high reputation is Shikhar Shoe Industries producing sports footwear, slippers, leather footwear and a variety of specialized footwear including police and army boots.

Medium manufacturers: There are 15 medium manufacturers with daily production capacity of more than 500 pairs of footwear.

Small manufacturers: There are around 300 small manufacturers all over the country that have daily production capacity of approximately 100 pairs of footwear. Comfort Felt & Craft is a good example of a young artisanal company specialized in indoor footwear made of felt.

Micro-level manufacturers: There are around 1,200 micro-level manufacturers all over the country which produce 500 to 6,000 pairs of footwear annually. This group includes manufacturers of leather footwear, slippers as well as natural fiber- and felt-based shoes. (Foot wear from Nepal; market analysis and market entry strategy in ten selected markets, 2017)

In Nepal, there are around 75 footwear products manufacturing organizations associated with FMAN and more than 850 un-organized small scale industries, among them few are branded in Nepali market like: Goldstar, Coseli, Shikhar, Fit Rite, Royal, Black Horse, Magic, Utsav etc.

As per the cottage and small scale industries, there are 850 registered footwear industries in Nepal. (New Business Age, Nov 6, 2016)

According to FMAN, there are around 1,500 footwear businesses operating in the Nepal including non-registered companies.

Nepal Chappal Jutta Udhyog Byabasahi Sangh has 93 small industries producing mostly ladies footwear, Nepal Jutta Utpadak Sangh has 33 small industries producing mostly gents footwear and about 100 small industries are not associated in any association.

SWOT Analysis of Nepalese Footwear Manufacturing Industries

Strengths

- Significant number of footwear manufacturers in the sector
- High employment opportunity due to labor intensive nature
- Low labor cost
- Good quality
- Female workers friendly
- Skill development opportunities for youths in short period of time (three to six months)

Weaknesses

- Higher import tariffs on some of the raw materials compared to import taxes on finished products
- Low investment in machinery, equipment due to high costs

- Lack of common facility center for some machines like imported leather measuring machine, logo embroidery machine, lasting machine, several stitching machine and quality test lab

Opportunities

- Increasing demand in global market
- Growing use of diversified footwear products in the market
- Growing domestic market with potential of expansion
- Growing awareness of domestic consumers for cheap, durable and good quality Nepalese footwear
- Easy access to raw material (approximately 20 percent domestic and 80 percent from India and China)

Threats

- Competition due to price, quality, and volume from China and India
- Insufficient control over imported pirated brand
- Shortage of trained labor due to outmigration
- High dependency on imported raw material

2.3.4 Capacity Utilization of Footwear Manufacturing Industries

With increasing choices, growing fashion consciousness and rising health awareness, the global demand for footwear has been increasing. The global footwear market has been steadily increasing, with production reaching 22 billion pairs in 2013 and new importers rapidly entering the global market.

Nepal-made footwear products are on the cusp of losing a big chunk of share in the growing domestic footwear market, as smuggled products, under-invoicing of imported products and lack of incentives for manufacturers have started eroding their competitive edge.

Nepal now sees sales of around Rs. 30 billion worth of footwear, including shoes, sandals and slippers, per year. This market is growing at the rate of around 20 percent per year.

As the market is growing, the contribution of locally-made footwear in the domestic shoe market is also increasing. In the fiscal year 2015-16, 1,501 shoe factories, established at a cost of around Rs. 20 billion, manufactured almost 44 million pairs of shoes, sandals and slippers.

With this, the contribution of Nepal-made footwear products has surged to 50 percent in the domestic footwear market, as against 20 percent seven years ago. (Source: kathmandupost.com, 2017/07/17)

The association opined that the production of quality and attractive designs footwear has led to decline in the import of foreign footwear. Domestic footwear which occupied only 25-30 percent Nepali market before some years has now occupied 65 percent of the market. The remaining 35 percent is still occupied by foreign footwear. (Source: New Business Age, Nov 6, 2016)

As part of the strategy, the footwear association had aimed to increase annual footwear production up to 45 million and export annual volume over 12 million pairs by 2020 by narrowing the trade deficit of footwear up to 60 percent in terms of volume and 240 percent in terms of value. The strategy also aimed to cover the domestic market by 80 percent.

According to FMAN, the annual production is approximately 40.5 million to 50 million pairs of footwear.

2.3.5 Import and Export Status of Footwear

According to Annual Foreign Trade Statistics 2075/76 (2018/19), total footwear imported from Nepal is 3.19 million pairs in quantity and 0.92 billion Rs in value, however export of footwear in the same year is 3.59 million pairs in quantity and 7.51 billion Rs in value. The value was Rs1.23 billion in the previous fiscal year. Export value was Rs 2.36 billion in the fiscal year 2014-15, the number yet declined to Rs 767 million in the fiscal year 2019-20, a decline by 15.19 percent as compare with 2018/19.

Country's footwear export has declined by 67.51 percent in the last five years due to competitive prices in the international market, lack of technology and skilled manpower and event due to the Indian government's decision to enforce policies that promote its own footwear brands, discouraging imported footwear. Decline in export is increasing since local manufacturers have been focusing on expanding their domestic market share while putting the low focus on export also. The spread of coronavirus in China during 2019/20, the footwear industry has been struggling to import raw materials, as most of the raw material is being imported from China. This has not only impacted the production and market domestically but also the country's export. The pandemic has hit the country's shoemakers, who were already struggling in a market dominated. Nepal has been exporting footwear to countries like India, the US, the UK, Denmark, Switzerland, Germany, Japan, Australia and Bhutan.

Of the domestic market, 42 per cent is covered by Nepalese footwear, whereas the remaining 58 percent is covered by imported footwear. Export of footwear increased by 198.54 per cent in terms of value and 135.72 per cent in terms of volume in five years (2011/12–2014/15). This sector is contributing towards narrowing down the trade deficit of the country. (Source: The value chain Analysis-Footwear by GiZ)

Despite being listed in the Nepal Trade Integration Strategy, a strategy created by the government in 2016 to develop national trade, footwear has not been able to create comparative increment in the export year on year due to many factors.

As for imports, the country imported footwear of Rs 5.28 billion in the last fiscal year while the figures stood at Rs7.51 billion in the previous fiscal year. China and India are major footwear exporters for Nepal. Shoes are also imported from Thailand, Vietnam and Indonesia.

Figure 2. 3 Footwear Trade import Export

In the fiscal year 2015-16, for instance, the average value of per pair of footwear product imported into the country stood at Rs 88, a surprisingly low price. In contrast, the average value of per pair of footwear product exported from Nepal in the same year hovered around Rs 283.

Because of the price difference, many retail shoe stores have started replacing Nepal-made shoes with smuggled goods or imported products to earn better profits, according to Rabin Kumar Shrestha, president of the Footwear Manufacturers Association of Nepal (FMAN).

This is creating an uneven playing field for domestic shoe manufacturers, who have made huge investment to set up factories and have provided jobs to an estimated 50,000 people. (Source: Kathmandu Post)

The import of footwear has nearly doubled to Rs. 7.51 billion in the fiscal year 2075/76. In the previous fiscal year, footwear imports were Rs. 4 billion.

Import has risen as the growing middle class of Nepal prefer foreign goods to domestic goods and also due to updated shoe fashion. The domestic footwears are not able to compete with low-priced products from India and China in the international market.

Footwear is mainly imported from China and India among other countries while India is major footwear market for Nepal. Nepal has been importing sports and leather shoes majorly from China.

According to FMAN, the country has been importing 70-75 percent of raw materials from India.

2.3.6 Production and Raw Materials for Footwear in Nepal

Raw materials like leather, Rexene, lining, inter-lining, PVC sole, nylon net, rubber, elastic, lace and chemicals are imported from China and are necessary for footwear production.

Imported raw materials are 100 per cent costlier than the factory price. Buffalo leather is exported to India in wet blue stage without any value addition, which is afterwards imported with quality tanning.

2.3.7 Technology adaption by Footwear Manufacturing Industries in Nepal

Half of the production process of the Nepalese footwear is manual and consumes minimal amount of electricity.

The following steps are adopted for the production of Nepalese footwear:

1. Raw Material Management
2. Finalizing Design
3. Cutting
4. Upper Stitching
5. Lasting
6. Pasting Sole
7. Finishing (Polishing)
8. Price Tagging
9. Packaging
10. Marketing

Steps are mixed of machine and manual. The technology used for cutting of raw material (Upper parts), stitching and pasting of sole are semi-automatic to automatic by using high skilled manpower in few large organizations.

2.3.8 Challenge faced by Footwear Manufacturing Industries

The GoN has not yet identified the nature of raw materials for this sector. The import taxes on some of the raw materials are higher than the cost of the finished product, which is affecting the cost of production and global competition.

Generally, there is a high competition in the quality of export footwear of synthetic, nylon and some leather-based raw materials, with 20 per cent cost in labour charge in Nepalese footwear production process. So, strong GoN support is required.

Nepalese footwear industries have to compete with cheap imported shoes that come in through the open border. With increasing choices, growing fashion consciousness and rising health awareness, the global demand for footwear has been increasing.

Lack of modern technology in the footwear has been the key reason behind the drop in production. High-interest rate on loan has discouraged the industry from expanding. The rising cost of production is another factor which has made the industry struggle and rise in the workers' wages have increased the production costs as well.

Other Challenges are;

- Shortage and sustenance of skilled labour with upper stitching and lasting skills and designers is a key issue.
- Development of footwear zones has not materialized.
- As per GoN rules, there should be a security post wherever over 500 workers are employed, but it has not happened, and there are some industries with as many as 2,500 workers.
- Imported raw materials are 100 per cent costlier than the factory price. Buffalo leather is exported to India in wet blue stage without any value addition, which is afterwards imported with quality tanning.
- The investment capacity of manufacturers in this sector differs widely. Some have invested millions and some have invested low amount. Because of this, they are not able to invest in productive hi-tech machines and equipment. So, lack of well-equipped common facility centers is hampering the quality and quantity of footwear production.
- To meet international standards, quality test laboratories are required, but not all manufacturers can invest in such laboratories. At the same time, felt-based manufacturers are facing problems in measuring the size of footwear as per European standards.
- Supply of substandard raw materials by importers.
- More tariff rate on import of some raw materials compared to finished products.

- The raw materials imported for trading, manufacturing and for importers' consumption in their industries are subject to similar tariff.
- A number of foreign importers are coming forward for contract manufacturing, but because of lack of strict labour laws like those in garment industry in Bangladesh, Nepalese footwear manufacturers hesitate to take the risk of contract manufacturing.

2.3.9 Financial position of Footwear Manufacturing Industries in Nepal

According to Footwear Manufactures Association of Nepal, more than Rs 12 billion is invested in Nepali footwear industry. Given that the footwear factories produce quality products, the investment in the sector will further increases. The footwear industries are providing employment opportunity to more than 50,000 people directly and near about 250,000 people indirectly. Total transaction from all the footwear related products in a fiscal year is about 300 million.

Nepali footwear industry contributes one percent to the GDP of the country. The government should create favorable environment to foster the growth of footwear industries. (Source: New Business Age, Nov 6, 2016)

2.3.10 Certification

For footwear manufacturing industry, there is no mandatory product certification in Nepal. Some customers ask for ISO 9001 certification and testing of footwear products. Few industries are certified with ISO 9001:2015.

2.4 Paint Manufacturing Industries

2.4.1 History of Paint industry in Nepal

Paint is any pigmented liquid, liquefiable, or solid mastic composition that, after application to a substrate in a thin layer, converts to a solid film. It is most commonly used to protect, color, or provide texture to objects. Paint can be made or purchased in many colors and in many different types, such as watercolor or synthetic. Paint is typically stored, sold, and applied as a liquid, but most types dry into a solid. Most paints are either oil-based or water-based and each have distinct characteristics.

Paint was one of the earliest inventions of humanity. Some cave paintings drawn with red or yellow ochre, hematite, manganese oxide, and charcoal may have been made by early Homo sapiens as long as 40,000 years ago. Paint may be even older. In 2003 and 2004, South African archeologists reported finds in Blombos Cave of a 100,000-year-old human-made ochre-based mixture that could have been used like paint.[4][5] Further excavation in the

same cave resulted in the 2011 report of a complete toolkit for grinding pigments and making a primitive paint-like substance.

Ancient colored walls at Dendera, Egypt, which were exposed for years to the elements, still possess their brilliant color, as vivid as when they were painted about 2,000 years ago. The Egyptians mixed their colors with a gummy substance and applied them separately from each other without any blending or mixture. They appear to have used six colors: white, black, blue, red, yellow, and green. They first covered the area entirely with white, then traced the design in black, leaving out the lights of the ground color. They used minimum for red, generally of a dark tinge. (Source: Wikipedia)

By the proper onset of the Industrial Revolution, in the mid-18th century, paint was being ground in steam-powered mills, and an alternative to lead-based pigments had been found in a white derivative of zinc oxide. Interior house painting increasingly became the norm as the 19th century progressed, both for decorative reasons and because the paint was effective in preventing the walls rotting from damp. Linseed oil was also increasingly used as an inexpensive binder.

In 1866, Sherwin-Williams in the United States opened as a large paint-maker and invented a paint that could be used from the tin without preparation.

It was not until the stimulus of World War II created a shortage of linseed oil in the supply market that artificial resins, or alkyds, were invented. Cheap and easy to make, they also held the color well and lasted for a long time.

Pashupati Paints Pvt. Ltd. is the first paints manufacturing company in Nepal established in 1984 at Sunsari District. Within a short period of time, from 1984 to this day it has emerged as a benchmark for the paint industry in Nepal. It has a prestigious name in paints and is the first unit to get N.S. (Nepal Standard) mark in Nepal. However Asian Paints (Nepal) Pvt. Ltd. started its operation in 1983 but was a subsidiary company of Asian Paints Ltd., India. It is the largest paint company in Nepal with its manufacturing facility located at Hetauda Industrial Estate.

Products:

- **Distemper** is a decorative paint and a historical medium for painting pictures, and contrasted with tempera. The binder may be glues of vegetable or animal origin (excluding egg).
- **Primer** is a preparatory coating put on materials before applying the paint itself. The primed surface ensures better adhesion of the paint, thereby increasing the durability of

the paint and providing improved protection for the painted surface. Suitable primers also may block and seal stains, or hide a color that is to be painted over.

- **Emulsion paints** are water-based paints in which the paint material is dispersed in a liquid that consists mainly of water. For suitable purposes this has advantages in fast drying, low toxicity, low cost, easier application, and easier cleaning of equipment, among other factors.
- **Varnish** and **shellac** are in effect paints without pigment; they provide a protective coating without substantially changing the color of the surface, though they can emphasize the colour of the material.
- **Wood stain** is a type of paint that is formulated to be very "thin", meaning low in viscosity, so that the pigment soaks into a material such as wood rather than remaining in a film on the surface. Stain is mainly dispersed pigment or dissolved dye plus binder material in solvent. It is designed to add color without providing a surface coating.
- **Lacquer** is a solvent-based paint or varnish that produces an especially hard, durable finish. Usually it is a rapidly drying formulation.
- **Enamel paint** is formulated to give an especially hard, usually glossy, finish. Some enamel paints contain fine glass powder or metal flake instead of the color pigments in standard oil-based paints. Enamel paint sometimes is mixed with varnish or urethane to improve its shine and hardness.

Production and Quality Control Process:

- Pigment manufacturers send bags of fine grain pigments to paint plants. There, the pigment is premixed with resin (a wetting agent that assists in moistening the pigment), one or more solvents, and additives to form a paste.
- The paste mixture for most industrial and some consumer paints is now routed into a sand mill, a large cylinder that agitates tiny particles of sand or silica to grind the pigment particles, making them smaller and dispersing them throughout the mixture. The mixture is then filtered to remove the sand particles.
- Instead of being processed in sand mills, up to 90 percent of the water-based latex paints designed for use by individual homeowners are instead processed in a high-speed dispersion tank. There, the premixed paste is subjected to high-speed agitation by a circular, toothed blade attached to a rotating shaft. This process blends the pigment into the solvent.
- Whether created by a sand mill or a dispersion tank, the paste must now be thinned to produce the final product. Transferred to large kettles, it is agitated with the proper amount of solvent for the type of paint desired.

- The finished paint product is then pumped into the canning room. For the standard 8 pint (3.78 liter) paint can available to consumers, empty cans are first rolled horizontally onto labels, then set upright so that the paint can be pumped into them. A machine places lids onto the filled cans, and a second machine presses on the lids to seal them. From wire that is fed into it from coils, a bailometer cuts and shapes the handles before hooking them into holes precut in the cans. A certain number of cans (usually four) are then boxed and stacked before being sent to the warehouse.

Paint manufacturers utilize an extensive array of quality control measures. The ingredients and the manufacturing process undergo stringent tests, and the finished product is checked to insure that it is of high quality. A finished paint is inspected for its density, fineness of grind, dispersion, and viscosity. Paint is then applied to a surface and studied for bleed resistance, rate of drying, and texture. (Source: http://www.madehow.com/Volume-1/Paint.)

2.4.2 Demand and Consumption

Asian Paints Pvt. Ltd, KNP Japan Pvt. Ltd. and Berger Jenson & Nicholson (Nepal) Pvt. Ltd. are major market players of paint in Nepal which covers around 80% of the market. Basically water based and oil based paints are used. Water based paints covers around 80% and oil based paints covered only 20% market share. Current market of Nepalese paint industries is approximately around 20 billion rupees as per Nepalese Paint Manufacturing Association (NPMA). Import of paint is only 1.6 billion Rupees.

2.4.3 Details of Paints Manufacturing Industries in Nepal:

According to Nepal Paint Manufacturing Association (NPMA), 19 paint manufacturing industries are associated with it. However, 137 small paint and rosin manufacturing industries are registered under Department of Cottage and Small Industry, Nepal, but the industries name are not available. (Source: Statistical data of DOCSI 2075/76). Only 12 small and medium scale paint industries are registered under Department of Industry (DOI).

We have collected 40 paint industries with the help of secondary data and personal contact with experts in this field. They are listed in Chapter III of this report.

2.4.4 Production and Capacity Utilization

In Nepal; current production and sales of paint is around 20 billion rupees (which covers both water based and oil based paints) as per Nepalese Paint Manufacturing Association (NPMA). Capacity utilization of Nepalese Paint Manufacturing Industries in average is 50% only.

2.4.5 Export and Import of Paint in Nepal:

According to Annual Foreign Trade Statistics 2076/77 (2019/20), 9448.8 MT paint and paint related materials are imported in Nepal compare to export in trace quantity. It amounts 1.62 billion Nepali currency in import. Major suppliers of paints are India, China, Germany, France etc.

2.4.6 Production and Raw Materials Availability for Paint:

A paint is composed of pigments, solvents, resins, and various additives. The pigments give the paint color; solvents make it easier to apply; resins help it dry; and additives serve as everything from fillers to anti-fungicidal agents. The basic white pigment is titanium dioxide, selected for its excellent concealing properties, and black pigment is commonly made from carbon black. Other pigments used to make paint include iron oxide and cadmium sulfide for reds, metallic salts for yellows and oranges, and iron blue and chrome yellows for blues and greens. (Source: http://www.madehow.com/Volume-1/Paint.)

2.4.7 Technology

Success in the paint and coatings industry relies heavily on innovation and the continual advancement of science and technology into new frontiers. As such, strategies for the adoption of new technologies directly impact the performance of companies involved in all aspects of the paint and coatings value chain.

As manufacturers look to enhance their position and fill gaps in their portfolios by picking up companies with complementary products, they also augment or synergize their R&D capabilities, allowing them to introduce new technologies and expand into niche areas.

For paint manufacturers, the goal is to reduce volatile organic compounds (VOCs) in automotive coatings without compromising the appearance and the coating's durability. Consumer demand, and advances in technology led to the development of low-VOC and zero-VOC paints and finishes. These new paints are widely available in the international market and meet or exceed the old high-VOC products in performance and cost-effectiveness while having significantly less impact on human and environmental health.

The latest advancements in the industry are pushing the boundaries further still. Greater technology is able to allow for the preparation and application of paints in a manner of different ways.

Technological innovations in paint are leading to coatings that are faster and easier to apply, last longer, and perform new functions, such as warding off disease and saving energy.

2.4.8 Challenges:

Although the festive season was considered to be the prime time for the paint industries, they had no shine on the festive season on 2016. Already affected by devastating April earthquake, the domestic paint industry was further contracted due to the political instability. As the real estate sector was facing problems, the paint market had not only lost its year on year growth of 15 per cent but also suffered a decline of five per cent. On the top of that, the short supply of raw materials had barred the industry from operating at full production capacity. The paint industries were unable to perform on the year 2015 & 2016, as the devastating earthquake and Tarai unrest had badly affected both industry and market. (Source: The Himalayan Times on Oct. 10, 2015)

Lead content in paint & enamel is another challenges in Paint Industries. According to a study carried out on June, 2015 by Centre for Public Health & Environmental Development (CEPHED), nearly 9 out 10 (89 percent) of paints in the study exceed Nepal's recently gazette standard of 90 ppm.

PESTLE analysis regarding paint industry: (Source: Google)

Political Factors - The political situation is more or less stable in nature now.

Economy Factors - Market based economy and Introduction of FDI in paint sectors by government.

Social Factors - Rise in price of raw material – Import of raw material

Technology Factors - Emerging of IT sector, Modernization of paint like (waterproof paints, Teflon coating, creating colors shops etc.) and Lead free paints

Environment Factors - Impact of volatile organic compounds (VOCs), Lead free paints, Season and climate changes

Legal Factors - Pollution Control Law, Health and Safety Law and Environmental Law

Other challenges are:

Increasing level of income and education: The increasing proportion of young population along with increasing disposable incomes is leading to a change in consumer habits.

Educated consumers are more brand conscious and seek value in what they consume. Thus, paint companies offering value-added features like non-toxicity, weather protection, texture, eco-friendly production, etc. will attract more demand.

Increasing Urbanization: Urbanization is leading to a shift from temporary houses to permanent houses. Urban houses are well-designed in its interior as well as exterior aspect.

Increasing share of organized sector: Decrease in taxes on key raw materials will improve the position of the organized players. The Organized sector is expanding its distribution network and adopting the installation of tinting machines at retail outlets.

Development of the Real estate, Automobile and Infrastructure sector: The growth of the paint industry is largely dependent on the development of the real-estate and housing sector, as decorative segment generates about 70% of the total paint demand from this sector. The Automobile segment generates more than two-third of the demand for Industrial paints, and hence is the growth driver for Industrial Paints.

The growth potential in the above 3 sectors is immense, the paint industry being dependent on these 3 sectors is expected to grow along with them.

- Availability of financing options: Easier housing finance and auto finance is expected to favour more people to buy houses and travel in personal vehicles.
- Increasing Penetration in the Rural Markets: Paint usage in rural areas is generally in the distemper segment, hence dominated by the unorganized players. Demand in rural areas is dependent on agriculture, which is dependent on the monsoons.

2.4.9 Financial Position

According to statistical data of Department of Industry (DOI), more than Rs. 5 billion is invested in Paint manufacturing Industries. Current yearly sales turnover in total is about 20 billion rupees. Import of around 1.6 billion rupees of paint in fiscal year 2076/77 is seen.

2.4.10 Certification

Though product standard (NS) for paint is not mandatory in Nepal, 11 industries have been received product standard (NS 85, NS 112, NS 117, NS 161). Few big industries like Asian Paint, Pashupati Paint, Berger J&N (Nepal) etc. have been certified with Management Systems i.e. ISO 9001, ISO 14001 and they are aware of Quality, Environment, Health and Safety.

In Nepal, the Government of Nepal gazette a new mandatory lead paint standard of 90 ppm in December 2014 to protect children's health by eliminating hazardous level of lead in paint. It was promulgated through notification in Nepal Gazette (Khand 64, Number 30, Part 5, Notice No.3 dated December 22, 2014) by Government of Nepal, Ministry of Science, Technology and Environment as per the Rule 15 of Environment Protection Regulation 1997 and takes effect after 181 days (June 20, 2015).

2.5 GI Sheet Manufacturing Industries (JASTA PATA)

2.5.1 History of CGI Sheet industry in Nepal

In 1983, Hulas Steel Industries was first Industry registered in Nepal for manufacturing of Corrugated Galvanized Iron (CGI) sheets in Bara District. First color coating line was added on that plant in 1989. Further on 2012, continuous galvanizing line with color coating has been added.

CGI Sheets are one of the most preferred cladding materials, especially for roofing. Panchasakti CGI sheets are manufactured by Panchakanya Group. These sheets are available in various designs and profiles to enhance the aesthetic properties of your building. The sheets have high tensile strength and excellent corrosion resistance properties. These sheets are also available in "H-SPAN" and "TILE PROFILE" allowing minimum wastage and an attractive design.

In the rural areas of the eastern hilly districts including Morang, it used to be difficult to find sheet roofing houses like 8/10 years ago. However, due to the improvement in the economic situation along with the increase in the number of people going for foreign employment, the trend of sheet roof house is on the rise.

At one time, a house with a sheet of GI was considered a symbol of financial prosperity. In the village, only wealthy moneylenders used to wear sheets and build houses.

CGI are very popular in all parts of the country, except in the high mountains. Galvanized Iron or Steel sheets are used as roofing material are now different design and color. They are plain and corrugated and plain and color. Corrugations, such as waves, considerably increase the strength and stiffness of the lightweight material. Indeed, without these waves, the metal sheets are fragile and highly deformable. The steel used is mild steel for forming, which is galvanized to increase the durability of the metal sheets, and consequently allowing them to better withstand the weather.

Table 2 7: Quality specification of Corrugated GI Sheet (As per NS 141:2043)

Quality Parameters	Specification (as per NS)	Remarks
Minimum Thickness	0.35 mm	
Zinc Coating	Min 120 g/m²	Hot dip galvanization with zinc on each side of sheet.
Approximately Weight per bundle	55 kg	
Nominal Depth of Corrugation	18 mm	(Tolerance +/- 1.5 mm)
Nominal Pitch of Corrugation	76.2 mm	(Tolerance +/- 2 mm)
No of Corrugation	½ + 10 + ½	
Width of Sheet	875 mm	(Tolerance +/- 10 mm)
Length per bundle (ft.) Approximately	72 feet.	Depending on the length of sheet CGI bundles are sold as follows: 12 sheets of 6 ft.; 10 sheets of 7 ft.; 9 sheets of 8 ft. long: 8 sheets of 9 ft. (recommended by GoN); 7 sheets 10 ft.; 6 sheets 12 ft
Estimated Price per Bundle	6,000 - 6,700 Nepali Rupee	(60 - 67 USD), depending on quality

(Source: Shelter Cluster Nepal, August, 2015)

A decade ago, 30 percent of consumers used colored sheets, while 70 percent used plain sheets. Today, about 60 percent buy colored sheets, and only 40 percent buy plain sheets. Sheets like cheap and low quality have caused problems for Nepali industry. It has become difficult for Nepali industry to sell its products.

2.5.2 Demand and Consumption of CGI Sheet in Nepal

According to industrialist, the annual demand of CGI Sheet is around 200000 MT. Almost all demand is fulfilled by domestic manufacturers, since only 2700 MT of corrugated sheet has been imported on the year 2076/77.

2.5.3 Details of CGI Sheet Manufacturing Industries in Nepal:

The total registered CGI Sheet Manufacturing Industries are 7 where, Bhagwati Steels has stopped its production. Among them 2 industries have got NS Product standard, they are Hulas Steel Industries Limited and Aarti Strips Pvt. Ltd. A company from Shanker Group is under installation for production of CGI Sheet. The list is attached in Chapter III of this report.

2.5.4 Production and Capacity Utilization

The annual production capacity of CGI Sheet is around 285000 MT in Nepal where capacity utilization of major two industries i.e. Hulas Steel Industries and Aarti Strips is around 50-60%. The production capacity of four major producers in 2015 is as below:

Table 2 8: Production Capacity of four Major CGI Sheet Manufacturer

S. N.	Producer	Production Per Day (MT)	Production Per Month (MT)	Annual Production (MT)
1	Hulas Steel Industries Ltd.	350-400	8750	105000
2	Aarti Strips Pvt. Ltd.	350	8750	105000
3	Rajesh Metal Craft Pvt. Ltd.	150	3750	45000
4	Bhagwati Steel Pvt. Ltd.	100	2500	30000
Total MT		950	23,750	285,000
Total Est. Bundles		14,600	353,000	4,384,600

(Source: Shelter Cluster Nepal, 11 Aug, 2015)

Among them Bhagwati Steel has stopped its production since 2019. Narayani Strips Pvt. Ltd has been established and start the production of CGI Sheet in the year 2019 with the annual capacity of about 80000 MT. Panchakanya SS Pvt. Ltd. is also registered in DOI but it is not fully operated.

2.5.5 Export and Import:

According to Annual Foreign Trade Statistics 2075/76 (2018/19), 2759.44 MT sheet was imported from India accounts for 99.9 million Nepali rupees, while previous year they were 1632.7 MT and 105.4 million rupees respectively.

Compare to import data, export of CGI Sheet in 2076/77 was nil and in previous year it was trace amount.

2.5.6 Production and Raw Materials Availability for Jasta Pata:

The raw materials used for manufacturing of roofing iron sheet are CR Sheet, Zinc and Paint which are imported from India. More than 90 % of the national demand is fulfilled by domestic industries i.e. Hulas Steel Industries, Aarti Strips, Narayani Strips and Rajesh Metal Craft.

2.5.7 Technology

All the production technology of roofing iron sheet in Nepal are continuous. In 1983, Hulas Steel Industries commissioned the first sheet galvanizing line in Nepal using Japanese Technology. Now another line has been expanded by Hulas Steel Industries of world renowned technology “Galvalum” from China.

2.5.8 Challenges:

As most demand of Nepal for CGI Sheet is fulfilled by existing four domestic Industries, Nepal is almost self-reliant on CGI Sheet at current. However, an industry of big group is almost

installed and forecast for starting production on April 2021, the capacity utilization of the industries would be decreased.

Nowadays, GI sheet used in roofing are being replace with attractive and light plastic and fiber sheet and tile due to which demand of GI Sheet is being affected.

After massive earthquake of 2072, traditional houses in rural areas are being replaced with concrete house. Thus the demand of GI Sheet is decreased.

2.5.9 Financial Position

According to statistical data of Department of Industry (DOI), more than Rs. 2.5 billion is invested in CGI Sheet Industries (Nepali Jasta Pata Udhyog).

2.5.10 Certification

Product standard (NS) for CGI Sheet is mandatory in Nepal, however only 2 big industries have got NS 141 and other are in under processing because it was not mandatory in few years ago. Almost all industries have been certified with Management Systems i.e. ISO 9001 and ISO 14001.

CHAPTER III: METHODOLOGY

3.1 Conceptualization

Depending upon the scope of study, both qualitative and quantitative data are required. While general quantitative data are mostly available through secondary sources, the specific quantitative data as well as qualitative data can be obtained from direct interviews, focus group discussions (FGD) and key informant interviews (KII). Therefore, a mixed research method has to be adopted. Thus, the questions asked will be both open- or closed-ended according to the scope of study. Semi-structured method is often preceded by observation, informal and unstructured interviewing in order to allow the researchers to develop a keen understanding of the topic of interest necessary for developing relevant and meaningful semi-structured questions. The aim of this research will be to explore more unknown thoughts and ideas from the respondent and semi-structure method is best for such type of study.

3.2 Sample Universe

The scope of the study is to analyze the present situation, identify gap between supply and demand, and analyze trends of Self-Reliant Goods (Tea, Footwear, Cable & Conductor, Paint and Corrugated Galvanized Iron Sheet) manufacturing industries in Nepal. For that reason, every Self-Reliant (Tea, Footwear, Cable & Conductor, Paint and Corrugated Galvanized Iron Sheet) manufacturing industry will be sample universe of this research purpose.

The research scope majorly focuses on the Association listed operating industries and Industries from NS Certified Products. From the list of industries, maximum industries as per TOR of DOI from each sector will be selected for study. Out of total 219 industries as sample universe, 75 (34.24% from each sector industries) are selected as shown in table 3.13 for Tea, Table 3.14 for Footwear, Table 3.15 for Cables & Conductor, Table 3.16 for Paint and Table 3.17 for CGI Sheet.

Table 3. 1 List of Tea Industry (DOI)

S. N.	Tea Industry	Province	District
1.	Gurans Tea Estate Pvt. Ltd.	1	Dhankuta
2.	Paudyal Bandhu Tea Estate Pvt. Ltd.	1	Jhapa
3.	Dhungana Tea Estate Pvt. Ltd.	1	Ilam
4.	Snow Due Tea Company Pvt. Ltd.	1	Ilam
5.	Makalu Krishi Firm Pvt. Ltd.	1	Dhankuta
6.	Padma Tea Estate Pvt. Ltd.	1	Jhapa
7.	Pathivara Kankai Tea State Pvt. Ltd.	1	Jhapa
8.	Nepal Apple Tea Producers Ltd.	1	Jhapa
9.	Indra Phalphool Udyog	1	Dhankuta
10.	Shree Singh Devi Tea State Pvt. Ltd.	1	Ilam
11.	Siddhi Devi Tea Estate Pvt. Ltd.	1	Ilam
12.	Mahabharat Tea Estate Pvt. Ltd.	1	Jhapa
13.	Nulung Chiya Alainchi Udyog Pvt. Ltd.	1	Bhojpur
14.	Najj Tea Estate	1	Jhapa
15.	Danfe Tea Processing Pvt. Ltd.	1	Jhapa
16.	Aalokati Company Pvt. Ltd.	1	Ilam
17.	Prem Estate	1	Jhapa
18.	Sureka Agro Product Pvt. Ltd.	1	Jhapa
19.	Khusbu Tea Estate Pvt. Ltd.	1	Jhapa
20.	Cover Tea Esate Pvt. Ltd.	1	Jhapa
21.	North Nepal Tea Estate Pvt. Ltd.	1	Panchathar
22.	Shiva Laxman Tea Estate Pvt. Ltd.	1	Ilam
23.	Asia Tea Estate Pvt. Ltd.	1	Jhapa
24.	Ravi Sengchelengma Chiya Bagan Pvt. Ltd.	1	Panchathar
25.	Suryodaya Tea Estate Pvt. Ltd.	1	Jhapa
26.	Kalika Tea Estate Pvt. Ltd.	1	Jhapa
27.	Tribeni Tea Estate Pvt. Ltd.	1	Panchathar
28.	Manorama Tea Estate	1	Jhapa
29.	Gorkha Tea Estate Pvt. Ltd.	1	Ilam
30.	Kaji Kothi Tea Estate Pvt. Ltd.	1	Ilam
31.	Gopal Tea Estate Pvt. Ltd.	1	Jhapa
32.	Krishna Tea Garden & Farming Pvt. Ltd..	1	Jhapa
33.	Elesi Pathibhara Chiya Bagan Pvt. Ltd.	1	Jhapa

34.	Gupta Tea Estate Pvt. Ltd.	1	Jhapa
35.	Haleshi Pathivara Chiya Bagan Pvt. Ltd.	1	Jhapa
36.	Dewan Tea Garden Pvt. Ltd.	1	Dhankuta
37.	Acme Tea Estate Pvt. Ltd.	1	Jhapa
38.	Sachi Pathivara Tea Estate Pvt. Ltd.	1	Ilam
39.	Dhaje Deurali Tea Estate Pvt. Ltd.	1	Dhankuta
40.	Faktaklung Chiya Bagan Pvt. Ltd.	1	Panchathar
41.	Buddhabari Tea Processing Pvt. Ltd.	1	Jhapa
42.	Ghumne Pani Krishi Firm Pvt. Ltd.	1	Solukhumbu
43.	Eastern Tea Inds. Pvt. Ltd.	1	Morang
44.	Piramid Vally Pvt. Ltd	1	Solukhumbu
45.	Sanu Bhai Tea Estate Pvt. Ltd.	1	Ilam
46.	Aroma Tea Estate	1	Jhapa
47.	Mount Everest Tea Estate Pvt. Ltd.	1	Jhapa
48.	Hadiya Real Tea Estate Pvt. Ltd.	1	Jhapa
49.	Aroma Tea Estate Pvt. Ltd.	1	Jhapa
50.	Antu Chiya Udyog Pvt. Ltd.	1	Ilam
51.	M.D. Multy Processing Pvt. Ltd.	1	Jhapa
52.	North Nepal Tea Estate Pvt. Ltd.	1	Panchathar
53.	Ilam Tea Producers Pvt. Ltd.	1	Ilam
54.	Manglung Chiya Bagan Ltd	1	Ilam
55.	Mudhe Khola Tea Estate Pvt. Ltd.	1	Ilam
56.	Dakshankali Tea Estate Pvt. Ltd.	1	Jhapa
57.	Mangaldham Tea State Pvt. Ltd.	1	Jhapa
58.	Maibeni Chiya Bagan Pvt. Ltd.	1	Ilam
59.	Jhapa Tea State Pvt. Ltd.	1	Jhapa
60.	Chinari Tea State	1	Jhapa
61.	Hariyali Tea Garden Pvt. Ltd.	1	Tehrathum
62.	Saurav Chiya Udhyog Pvt. Ltd.	1	Jhapa
63.	The Horizon View Tea Garden Pvt. Ltd.	1	Jhapa
64.	Sunkoshi Chiya Bagan Pvt. Ltd.	1	Jhapa
65.	Sunkoshi Chiya Bagan Pvt. Ltd.	1	Jhapa
66.	Himalayan Yeti Tea Estste Pvt. Ltd.	1	Ilam
67.	H & S Chhangden Tea Estate Pvt. Ltd.	1	Jhapa
68.	Ram Krishna Chiya Bagan Pvt. Ltd.	1	Dhankuta
69.	Shree Ram Krishna Chiya Bagan Pvt. Ltd.	1	Dhankuta

70.	Narayani East Tea Pvt. Ltd.	1	Dhankuta
71.	Makalu Tea Estate Pvt. Ltd.	1	Dhankuta
72.	Mb Tea Estate Pvt. Ltd.	1	Jhapa
73.	Purbanchal Tea & Muga Pakhribas Kafi Pvt	1	Dhankuta
74.	Sonali Tea Ind. Pvt. Ltd.	1	Ilam
75.	Pancha Kanya Eastern Tea Estate Pvt. Ltd	1	Jhapa
76.	Modern Tea Ind. Pvt. Ltd.	1	Jhapa
77.	Tripura Tea Pvt. Ltd.	1	Ilam
78.	Selang R. S. Tea Industries Pvt. Ltd.	3	Sindhupalchowk
79.	Jagadamba Tea Processing Pvt. Ltd.	1	Jhapa
80.	Shanti Nagar Tea Estate Pvt. Ltd.	1	Jhapa
81.	Krishna Tea Ind. Pvt. Ltd.	1	Jhapa
82.	Harati Tea Estate Pvt. Ltd.	1	Dhankuta
83.	Sunkoshi Tea Industries Pvt. Ltd.	1	Jhapa
84.	Star Tea Industries Pvt. Ltd.	1	Jhapa
85.	Siddhi Binayak Tea Industries Pvt. Ltd.	1	Ilam
86.	Samal Valley Tea Estate Pvt. Ltd.	1	Ilam
87.	Dharti Tea State Pvt. Ltd.	1	Ilam
88.	Tara Gaun Tea Estate Pvt. Ltd.	1	Ilam
89.	Kanyam Tea Farming & Processing Ind. Pvt. Ltd.	1	Jhapa
90.	Himalayan Tea And Agro Nepal Pvt. Ltd.	1	Ilam
91.	Arjundhara Tea Processing Pvt. Ltd.	1	Jhapa
92.	Himalaya Tea Estate Siranchok Gorkha Pvt. Ltd.	4	Gorkha
93.	Nature Himalaya Tea Industries Pvt. Ltd.	1	Jhapa
94.	Parajuli Tea Industries Pvt. Ltd.	1	Jhapa
95.	Classic Terai Tea Industries Pvt. Ltd.	1	Jhapa
96.	Nepa Tea Industries Pvt. Ltd.	1	Jhapa
97.	Gargi Agriculture Pvt. Ltd.	1	Jhapa
98.	Trimurti Industries Pvt. Ltd. Branch Unit 1	5	Rupandehi
99.	Everest Tea Factory Pvt. Ltd. Branch Unit 1	3	Kathmandu
100.	Nayabazaar Krishi Farm Pvt. Ltd.	1	Ilam
101.	Mangalam Tea Estate Pvt. Ltd.	1	Jhapa

Table 3. 2 List of Tea Industry (NTPA)

S.N.	Name of Industry	Province	Address
1.	Mittal Tea Estate	1	Bhadrapur-8
2.	Kankai Tea Processing	1	Bhadrapur-7
3.	Star Tea Industries	1	Bhadrapur-5
4.	Kuwadidevi Tea Estate	1	Kumarkhod
5.	Khusbu Tea Estate	1	Bhadrapur
6.	Kalika Tea Estate	1	Bhadrapur
7.	Parajuli Tea Estate	1	Bhadrapur
8.	Budhakaran & Sons Tea Co. Pvt. Ltd	1	Bhadrapur
9.	Buttabari Tea Estate	1	Birtamod
10.	Samser & Gangadevi Co. Pvt. Ltd.	1	Birtamod
11.	Raj Tea Estate	1	Jyamirgadhi
12.	Satighatta Tea Estate	1	Bhadrapur
13.	Haldibari Tea Processing	1	Haldibari
14.	Daphe Tea Processing	1	Bhadrapur
15.	Jagadamba Tea Industries	1	Bhadrapur
16.	Mahalaxmi Tea Processing	1	Bhadrapur
17.	Tirupati Tea Industries	1	Prithivinagar
18.	Bhaibhav Tea Estate	1	Jyamirgadhi
19.	Rakura Tea Industries	1	Haldibari
20.	Rara Tea Processing Industries	1	Garamani
21.	Model Tea Industries	1	Bhadrapur
22.	Nepal Tea Development Corporation	1	Birtamod
23.	Chandragadhi Tea Estate	1	Chandragadhi
24.	Arjundhara Tea Industries	1	Shaniarjun
25.	Nature Himalaya Tea Industries	1	Jyamirgadhi
26.	Jhapa Tea Estate	1	Jyamirgadhi

Table 3. 3 List of Tea Producers (HOTPA)

S. N.	Name of Tea Producers	Province	District
1.	Everest Tea Estate Pvt. Ltd.	1	Sindhupalchok
2.	Gorkha Tea Estate Pvt. Ltd.	1	Ilam
3.	Himalayan Range Tea Industries Pvt. Ltd.	1	Ilam
4.	Himalayan Shangri-La Tea Producers Pvt. Ltd.	1	Ilam
5.	Ilam Chiyabari Pvt. Ltd.	1	Ilam
6.	Ilam Tea Producers Pvt. Ltd.	1	Ilam
7.	Jun Chiyabari Pvt. Ltd.(Organic certified)	1	Dhankuta
8.	Kanchanjanga Tea Estate Pvt. Ltd. (Organic certified)	1	Panchthar
9.	Kuwapani Tea Plantation Pvt. Ltd.	1	Dhankuta
10.	Mai-Tea Company Pvt. Ltd.	1	Panchthar
11.	Mist Valley Tea Industry Pvt. Ltd.	1	Ilam
12.	Nava Arya Tara Tea Pvt. Ltd.	1	Ilam
13.	Nepal Small Tea Producers Ltd.	1	Ilam
14.	Nepal Tea Development Corporation Ltd.	1	Ilam/Jhapa
15.	North Nepal Tea Estate Pvt. Ltd.	1	Panchthar
16.	Sagarmatha Tea Estate Pvt. Ltd	1	Sankhuwasabha
17.	Sakhejung Hill Range Tea Processing Ind. Pvt. Ltd.	1	Ilam
18.	Sandakphu Tea Processors Pvt. Ltd.	1	Ilam
19.	Shree Antu Tea Industries Pvt. Ltd.	1	Ilam
20.	Siddhi Binayak Tea Industries Pvt. Ltd.	1	Ilam
21.	Nulung Chiya Alainchi Udyog Pvt. Ltd.	1	Bhojpur
22.	Ravi Sengchelengma Chiya Bagan Pvt. Ltd.	1	Panchathar
23.	Pathibhara Tea Estate	1	Panchthar

Table 3. 4 List of Cable and Conductor Manufacturing Industries in Nepal

S. N.	Name of Industry	Province	District
1	Janta Cable Industries Pvt. Ltd.	1	Morang
2	Mahalaxmi Wire and Cable Ind. Pvt. Ltd.	1	Morang
3	Prime Cable Ind. Pvt. Ltd.	1	Morang
4	Pioneer Electro Cable Pvt. Ltd.	1	Morang
5	Primers Wires Pvt. Ltd.	1	Morang
6	Annapurna Cables Pvt. Ltd.	1	Morang
7	Annapurna Winding Wire	1	Morang
8	Reliance Cable & Wire Ind. Pvt. Ltd.	2	Dhanusa
9	Janaki Cable Industries	2	Dhanusa
10	Everest Wire Industries	2	Dhanusa
11	K.B Elex Pvt. Ltd.	2	Dhanusa
12	Alpha Wires Pvt. Ltd.	2	Dhanusa
13	Nepal Wire and Cable Pvt. Ltd.	2	Bara
14	United Wires and Cable Ind. Pvt. Ltd.	3	Chitwan
15	Trishakti Cable Ind. Pvt. Ltd.	3	Nawalparasi
16	Tripureswor Conductor Udyog Pvt. Ltd	3	Nawalparasi
17	Vishal Plastocab Ind. Pvt. Ltd.	3	Kathmandu
18	Prakash Cable Ind. Pvt. Ltd.	3	Kathmandu
19	Havells Nepal Pvt. Ltd.	3	Kathmandu
20	Global Cable Industries Pvt. Ltd.	4	Pokhara
21	National Cable and Wires Pvt. Ltd.	4	Pokhara
22	Lumbini Vidyut Udhyog Pvt. Ltd.	5	Rupandehi
23	Lumbini Cable Ind. Pvt. Ltd.		Rupandehi
24	Bhusal Cable Ind. Pvt. Ltd.	5	Rupandehi
25	Shikhar Cable Ind. Pvt. Ltd.	5	Banke
26	Mega Electric Cable Ind. Pvt. Ltd.	5	Banke

Table 3. 5 List of NS Certified Cable and Conductor Manufacturing Industries in Nepal (NBSM)

S. N.	Name of Industry	Province	District
1	Janta Cable Industry Pvt. Ltd.	1	Morang
2	Mahalaxmi Wire and Cable Ind. Pvt. Ltd.	1	Morang
3	Prime Cable Ind. Pvt. Ltd.	1	Morang
4	Pioneer Electro Cable Pvt. Ltd.	1	Morang
5	Primers Wires Pvt. Ltd.	1	Morang
6	Annapurna Cables Pvt. Ltd.	1	Morang
7	Reliance Cable & Wire Ind. Pvt. Ltd.	2	Dhanusa
8	Janaki Cable Industries	2	Dhanusa
9	Everest Wire Industries	2	Dhanusa
10	Alpha Wires Pvt. Ltd.	2	Dhanusa
11	Nepal Wire and Cable Industries Pvt. Ltd.	2	Bara
12	United Wires and Cable Ind. Pvt. Ltd.	3	Chitwan
13	Trishakti Cable Ind. Pvt. Ltd.	3	Nawalparasi
14	Vishal Plastocab Ind. Pvt. Ltd.	3	Kathmandu
15	Prakash Cable Ind. Pvt. Ltd.	3	Kathmandu
16	Havells Nepal Pvt. Ltd.	3	Kathmandu
17	Global Cable Indutries Pvt. Ltd.	4	Pokhara
18	National Cable and Wires Pvt. Ltd.	4	Pokhara
19	Lumbini Vidyut Udhyog Pvt. Ltd.	5	Rupandehi
20	Bhusal Cable Ind. Pvt. Ltd.	5	Rupandehi
21	Shikhar Cable Ind. Pvt. Ltd.	5	Banke
22	Megha Electric Cable Ind. Pvt. Ltd.	5	Banke

Table 3. 6 List of Cable and Conductor Manufacturing Industries (NEEMA)

S. N.	Name of Industry	Province	District
1	Janta Cable Industries Pvt. Ltd.	1	Morang
2	Mahalaxmi Wire and Cable Ind. Pvt. Ltd.	1	Morang
3	Prime Cable Ind. Pvt. Ltd.	1	Morang
4	Pioneer Electro Cable Pvt. Ltd.	1	Morang
5	Primers Wires Pvt. Ltd.	1	Morang
6	Annapurna Cables Pvt. Ltd.	1	Morang
7	Annapurna Winding Wire	1	Morang
8	Everest Wire Industries	2	Dhanusha
9	Nepal Wire & Cable Pvt. Ltd.	2	Bara
10	United Wires and Cable Ind. Pvt. Ltd.	3	Chitwan
11	Trishakti Cable Industries Pvt. Ltd.	3	Nawalparasi
12	Tripureswor Conductor Udyog Pvt. Ltd	3	Nawalparasi
13	Vishal Plastocab Ind. Pvt. Ltd.	3	Kathmandu
14	Prakash Cable Ind. Pvt. Ltd.	3	Kathmandu
15	Havells Nepal Pvt. Ltd.	3	Kathmandu
16	Global Cable Industries Pvt. Ltd.	4	Pokhara
17	National Cable & Wires Pvt. Ltd.	4	Pokhara
18	Lumbini Vidyut Udhyog Pvt. Ltd.	5	Rupandehi
19	Lumbini Cable Ind. Pvt. Ltd.	5	Rupandehi
20	Bhusal Cable Ind. Pvt. Ltd.	5	Rupandehi
21	Shikhar Cable Ind. Pvt. Ltd.	5	Banke
22	Megha Electric Cable Ind. Pvt. Ltd.	5	Banke

Table 3. 7 List of Paint Manufacturing Industries in Nepal

S. N.	Name of Industry	Province	District
1.	Baba Paints Pvt. Ltd.	1	Morang
2.	Maruti Paint Industries	1	Morang
3.	Pashupati Paint Pvt. Ltd.	1	Sunsari
4.	Rose Paints Pvt. Ltd.	1	Jhapa
5.	Kansai Nerolac Paints Pvt. Ltd.	2	Parsa
6.	KNP Japan Pvt. Ltd.	2	Parsa
7.	Asian Paint Pvt. Ltd.	3	Hetauda
8.	Berger Jenson & Nicholson (Nepal)Pvt. Ltd. II Unit	3	Hetauda
9.	Surya Paints and Chemical Pvt. Ltd.	3	Hetauda
10.	Yeti Paints Pvt. Ltd.	3	Hetauda
11.	Berger Jenson & Nicholson (Nepal)Pvt. Ltd.	3	Bhaktapur
12.	Mahalaxmi Paint Industries	3	Bhaktapur
13.	Nepal Paint Ind. Pvt. Ltd.	3	Bhaktapur
14.	Reliance Paint Ind. Pvt. Ltd.	3	Kathmandu
15.	Indigo Paints Ind. Pvt. Ltd.	3	Kathmandu
16.	Jenish Paints and Chemical Industries	3	Kathmandu
17.	Imperio Paints Pvt. Ltd.	3	Kathmandu
18.	Rukmini Chemical Ind. Pvt. Ltd.	3	Kathmandu
19.	Gauri Shankar Paint Industries	3	Kathmandu
20.	Tirupati Balaji Paints	3	Kathmandu
21.	National Paints Pvt. Ltd.	3	Kathmandu
22.	Shree Ganapati Paints	3	Kathmandu
23.	Altas Paints Plus Industries Pvt. Ltd.	3	Kathmandu
24.	Kings Paints Industries	3	Kathmandu
25.	Himal Paints Industries	3	Kathmandu
26.	Sky Paints Industries	3	Kathmandu
27.	Trishakti Paints Industries	3	Lalitpur

28.	Shree Jaykali Paints	3	Lalitpur
29.	Tata paints and Chemical Ind. Pvt. Ltd.	3	Chitwan
30.	Tirupati Paints Pvt. Ltd.	3	Chitwan
31.	Biraj Paints Pvt. Ltd.	3	Chitwan
32.	Jasmin Paints Pvt. Ltd.	3	Chitwan
33.	Rainbow Paints Pvt. Ltd	3	Chitwan
34.	Apollo Paints Pvt. Ltd.	3	Chitwan
35.	Royal Paints Nepal Pvt. Ltd.	3	Chitwan
36.	Euro Paints Industries	3	Chitwan
37.	Everest Color Pvt. Ltd.	3	Chitwan
38.	American Paints Pvt. Ltd.	3	Chitwan
39.	Dolphin Paints Industries	3	Chitwan
40.	Suryodaya Paints Industries	3	Chitwan
41.	Nepal national Paints Pvt. Ltd.	3	Chitwan
42.	Rupa Paint Industries	4	Pokhara
43.	Asian Buddha paints	5	Rupandehi
44.	Dalmiya Paints Industries	5	Rupandehi
45.	Galaxy Paints Industries	5	Rupandehi
46.	Ashirbad Paint Pvt. Ltd.	5	Banke
47.	Sarbottam Paints Industries Pvt. Ltd.	7	Kailali

Table 3. 8 List of Paint Manufacturing Industries (NPMA)

S.N.	Name of Industry	Province	District
1	Pashupati Paint Pvt. Ltd.	1	Sunsari
2	Kansai Nerolac Paints Pvt. Ltd.	2	Parsa
3	KNP Japan Pvt. Ltd.	2	Parsa
4	Asian Paints Pvt. Ltd.	3	Hetauda
5	Surya Paints and Chemical Pvt. Ltd.	3	Hetauda
6	Yeti Paints Pvt. Ltd.	3	Hetauda
7	Tirupati Paints Pvt. Ltd.	3	Chitwan
8	Apollo Paints Pvt. Ltd.	3	Chitwan
9	Jasmin Paints Pvt. Ltd.	3	Chitwan
10	Berger Jenson & Nicholson (Nepal) Pvt. Ltd.	3	Bhaktapur
11	Nepal Paint Ind. Pvt. Ltd.	3	Bhaktapur
12	Mahalaxmi Paint Industries	3	Bhaktapur
13	Reliance Paint Ind. Pvt. Ltd.	3	Kathmandu
14	Gauri Shankar Paint Industries	3	Kathmandu
15	Indigo Paints Ind. Pvt. Ltd.	3	Kathmandu
16	Jenish Paints and Chemical Industries	3	Kathmandu
17	Imperio Paints Pvt. Ltd.	3	Kathmandu
18	Ashirbad Paint Pvt. Ltd.	5	Banke
19	Sarbottam Paints Industries Pvt. Ltd.	7	Kailali

Table 3. 9 List of NS Certified Paint Manufacturing Industries in Nepal (NBSM)

S. N.	Name of Industry	Province	District
1	Pashupati Paint Pvt. Ltd.	1	Sunsari
2	Baba Paints Pvt. Ltd.	1	Morang
3	Asian Paint Pvt. Ltd.	3	Hetauda
4	Surya Paints and Chemical Pvt. Ltd.	3	Hetauda
5	Berger Jenson & Nicholson (Nepal) Pvt. Ltd. Unit II	3	Hetauda
6	Berger Jenson & Nicholson (Nepal) Pvt. Ltd.	3	Bhaktapur
7	Reliance Paint Ind. Pvt. Ltd.	3	Kathmandu
8	Rukmini Chemical Ind. Pvt. Ltd.	3	Kathmandu
9	Tirupati Paints Pvt. Ltd.	3	Chitwan
10	Apollo Paints Pvt. Ltd.	3	Chitwan
11	Jasmin Paints Pvt. Ltd.	3	Chitwan

Table 3. 10 List of Jasta Pata (GI Corrugated, Plain & Color Sheet) Manufacturing Industries in Nepal

S.No	Name of Industry	Province	District	Remarks
1	Aarti Strips Pvt. Ltd.	1	Morang	
2	Narayani Strips Pvt. Ltd.	2	Parsa	
3	Hulas Steel Industries Ltd.	2	Bara	
4	Jagdamba Steel Pvt. Ltd.	2	Bara	Product not in Market
5	Rajesh Metal Craft Pvt. Ltd.	2	Bara	
6	Panchakanya S.S. Pvt. Ltd.	5	Rupandehi	
7	Bhagwati Steel Pvt. Ltd.	2	Bara	Stopped production

Table 3. 11 List of NS Certified Jasta Pata (GI Corrugated, Plain & Color Sheet) Manufacturing Industries in Nepal (NBSM)

S. No	Name of Industry	Province	District	Remarks
1	Aarti Strips Pvt. Ltd.	1	Morang	
2	Hulas Steel Industries Ltd.	2	Bara	

Table 3. 12 List of Footwear Manufacturing Industries in Nepal (FMAN)

S. N.	Name of Industries	Province	District
1	Jay Shree polymers Pvt. Ltd. (Magic)	1	Morang
2	Utsav Overseas Pvt. Ltd.	1	Morang
3	B. K. Footwear	3	Kathmandu
4	Bajra Footwear Industries Pvt. Ltd.	3	Kathmandu
5	Base Footwear Pvt. Ltd.	3	Kathmandu
6	Birat Shoe Company Pvt. Ltd.	3	Kathmandu
7	Black Horse Industries Pvt. Ltd.	3	Kathmandu
8	Boss Shoe Industries Pvt. Ltd	3	Kathmandu
9	Comfort Felt and Craft Pvt. Ltd.	3	Kathmandu
10	Coseli Chhala Jutta Udhog Pvt. Ltd.	3	Kathmandu
11	Fit Well Shoes Pvt. Ltd.	3	Kathmandu
12	Foot Step Shoes Industries	3	Kathmandu
13	Kiran Shoe Manufacturers	3	Kathmandu
14	Coral Shoes Pvt. Ltd.	3	Kathmandu
15	Laliguransh Footwear	3	Kathmandu
16	Makalu Footwear Pvt. Ltd.	3	Kathmandu
17	Max Shoes Industries Pvt. Ltd.	3	Kathmandu
18	Nepal Footwear Industries	3	Kathmandu
19	New Famous Shoes Centre Pvt. Ltd.	3	Kathmandu
20	Royal Footwear Industries Pvt. Ltd.	3	Kathmandu
21	Run Shoe Industries Pvt. Ltd.	3	Kathmandu
22	Sagarmatha Footwear	3	Kathmandu
23	Samrat Shoes Pvt. Ltd.	3	Kathmandu
24	Shikhar Shoe Industries Pvt. Ltd.	3	Kathmandu
25	Sky Shoes Industry Pvt. Ltd.	3	Kathmandu
26	Smart Shoes Industries Pvt. Ltd.	3	Kathmandu
27	Style Shoes Industries Pvt. Ltd.	3	Kathmandu
28	Sunrise Footwear Pvt. Ltd.	3	Kathmandu
29	The Right Shoes Pvt. Ltd.	3	Kathmandu
30	Yeti Footwear Pvt. Ltd.	3	Kathmandu

3.3 Sample Method

The research scope majorly focuses on the Association listed operating industries and Industries from NS Certified Products. The industries selected as sample universe are as listed

below. From the list of industries, maximum industries as per TOR of DOI from each sector will be selected for study.

Table 3. 13 Industries Selection for Study

S. N.	Sector	No. of Industries	TOR of DOI	Selected
1	Tea	101 (DOI)	10-15	15
2	Footwear	79 (FMAN)	20-30	30
3	Cable & Conductors	22 (NBSM)	5-10	13
4	Paint	11 (NBSM)	5-10	11
5	CGI Sheet	6 (Operation)	5-10	6
Total		**219**	45-75	75

Out of total 219 industries as sample universe, 75 (34.24% from each sector industries) are selected as shown in table 3.13 for Tea, Table 3.14 for Footwear, Table 3.15 for Cables & Conductor, Table 3.16 for Paint and Table 3.17 for CGI Sheet.

Table 3. 14 List of Selected Industries for study from Tea Industry

S.N.	Name of Industries	Province	District
1.	Mittal Tea Estate	1	Jhapa
2.	Kankai Tea Processing	1	Jhapa
3.	Star Tea Industries	1	Jhapa
4.	Khusbu Tea Estate	1	Jhapa
5.	Budhakaran & Sons Tea Co. Pvt. Ltd	1	Jhapa
6.	Samser &Gangadevi Co. Pvt. Ltd.	1	Jhapa
7.	Daphe Tea Processing	1	Jhapa
8.	Jagadamba Tea Industries	1	Jhapa
9.	Mahalaxmi Tea Processing	1	Jhapa
10.	Tirupati Tea Industries	1	Jhapa
11.	Nepal Tea Development Corporation	1	Jhapa
12.	Ilam Tea Producers Pvt. Ltd.	1	Ilam
13.	Siddhi Binayak Tea Industries Pvt. Ltd.	1	Ilam
14.	Gurans Tea Estate Pvt. Ltd.	1	Dhankuta
15.	Makalu Tea Estate Pvt. Ltd.	1	Dhankuta

Table 3. 15 List of Selected Industries for study from Footwear Industry

S. N.	Name of Industries	Province	District
1.	Jay Shree polymers Pvt. Ltd. (Magic)	1	Morang
2.	Utsav Overseas Pvt. Ltd.	1	Morang
3.	B. K. Footwear	3	Kathmandu
4.	Bajra Footwear Industries Pvt. Ltd.	3	Kathmandu
5.	Base Footwear Pvt. Ltd.	3	Kathmandu
6.	Birat Shoe Company Pvt. Ltd.	3	Kathmandu
7.	Black Horse Industries Pvt. Ltd.	3	Kathmandu
8.	Boss Shoe Industries Pvt. Ltd	3	Kathmandu
9.	Comfort Felt and Craft Pvt. Ltd.	3	Kathmandu
10.	Coseli Chhala Jutta Udhog Pvt. Ltd.	3	Kathmandu
11.	Fit Well Shoes Pvt. Ltd.	3	Kathmandu
12.	Foot Step Shoes Industries	3	Kathmandu
13.	Kiran Shoe Manufacturers	3	Kathmandu
14.	Coral Shoes Pvt. Ltd.	3	Kathmandu
15.	Laliguransh Footwear	3	Kathmandu
16.	Makalu Footwear Pvt. Ltd.	3	Kathmandu
17.	Max Shoes Industries Pvt. Ltd.	3	Kathmandu
18.	Nepal Footwear Industries	3	Kathmandu
19.	New Famous Shoes Centre Pvt. Ltd.	3	Kathmandu
20.	Royal Footwear Industries Pvt. Ltd.	3	Kathmandu
21.	Run Shoe Industries Pvt. Ltd.	3	Kathmandu
22.	Sagarmatha Footwear	3	Kathmandu
23.	Samrat Shoes Pvt. Ltd.	3	Kathmandu
24.	Shikhar Shoe Industries Pvt. Ltd.	3	Kathmandu
25.	Sky Shoes Industry Pvt. Ltd.	3	Kathmandu
26.	Smart Shoes Industries Pvt. Ltd.	3	Kathmandu
27.	Style Shoes Industries Pvt. Ltd.	3	Kathmandu
28.	Sunrise Footwear Pvt. Ltd.	3	Kathmandu
29.	The Right Shoes Pvt. Ltd.	3	Kathmandu
30.	Yeti Footwear Pvt. Ltd.	3	Kathmandu

Table 3. 16 List of Selected Industries for study from Cable & Conductor Industry

S.N.	Name of Industries	Province	District
1.	Janta Cable Industries Pvt. Ltd.	1	Morang
2.	Mahalaxmi Wire and Cable Ind. Pvt. Ltd.	1	Morang
3.	Prime Cable Industries Pvt. Ltd.	1	Morang
4.	Pioneer Electro Cable Pvt. Ltd.	1	Morang
5.	Janaki Cable Industries	2	Dhanusa
6.	Nepal Wire and Cable Industries Pvt. Ltd.	2	Bara
7.	United Wires and Cable Ind. Pvt. Ltd.	3	Chitwan
8.	Trishakti Cable Industries Pvt. Ltd.	3	Nawalparasi
9.	Vishal Plastocab Industries Pvt. Ltd.	3	Kathmandu
10.	Prakash Cable Industries Pvt. Ltd.	3	Kathmandu
11.	Havells Nepal Pvt. Ltd.	3	Kathmandu
12.	Lumbini Vidyut Udyog Pvt. Ltd.	5	Rupandehi
13.	Mega Electric Cable Industries Pvt. Ltd.	5	Banke

Table 3. 17 List of Selected Industries for study from Paint Industry

S.N.	Name of Industries	Province	District
1.	Pashupati Paint Pvt. Ltd.	1	Sunsari
2.	Kansai Nerolac Paints Pvt. Ltd.	2	Parsa
3.	KNP Japan Pvt. Ltd.	2	Parsa
4.	Asian Paints Pvt. Ltd.	3	Hetauda
5.	Surya Paints and Chemical Pvt. Ltd.	3	Hetauda
6.	Berger Jenson & Nicholson (Nepal) Pvt. Ltd.	3	Hetauda
7.	Reliance Paint Ind. Pvt. Ltd.	3	Kathmandu
8.	Rukmini Chemical Ind. Pvt. Ltd.	3	Kathmandu
9.	Tirupati Paints Pvt. Ltd.	3	Chitwan
10.	Applo Paints Pvt. Ltd.	3	Chitwan
11.	Jasmin Paints Pvt. Ltd.	3	Chitwan

Table 3. 18 List of Selected Industries for study from GI Sheet Industry

S.No	Name of Industry	Province	District
1	Aarati Strips Pvt. Ltd.	1	Morang
2	Narayani Strips Pvt. Ltd.	2	Parsa
3	Hulas Steel Industries Ltd.	2	Bara
4	Jagdamba Steel Pvt. Ltd.	2	Bara
5	Rajesh Metal Craft Pvt. Ltd.	2	Bara
6	Panchakanya S.S. Pvt. Ltd.	5	Rupandehi

3.4 Tools

The tools that will be used for study purpose are as follows:

- Questionnaire survey
- Stakeholders' Discussion (Direct interviews and KII)
- Statistics and Data Analysis (pie chart, bar chart, histogram)
- Trends analysis

3.5 Methods

The methods will be used for the data collection

- Interview to focused persons
- Observation of Industries
- Discussions and review of documents and data
- Data collection through structured questionnaire from concerned stakeholders

3.6 Expected Output

Upon the completion of the study a comprehensive "Detail Study of Self-Reliant Industrial Goods in Nepal" and draft and final reports will be submitted.

3.7 Sources of Information

The major sources of data used in the report are:

Primary Sources

- List of Five Self Reliant Goods (Tea, Footwear, Paint, Cable & Conductor and CGI Sheet) Industries
- Department of Industry (DoI)

- Nepal Tea & Coffee Development Board (NTCDB)
- Himalayan Orthodox Tea Producers Association (HOTPA)
- Nepal Tea Producers Association (NTPA)
- Footwear Manufacturer Association of Nepal (FMAN)
- Nepal Electric & Electronics Manufacturer Association (NEEMA)
- Nepal Paint Manufacturer Association (NPMA)
- Federation of Nepalese Chamber of Commerce & Industries (FNCCI)
- Confederation of Nepalese Industries (CNI)
- Department of Custom
- Experts view of study industries

Secondary Sources

- Publications of different Government agencies, semi government and private sectors
- Document analysis and review of past journals and articles related to subject
- The papers, seminar papers, approach papers produced by consultants and experts
- Other published Statistical Data

3.8 Activities

The following activities will be done for the completion of the assigned project within the given time period:

- Desk review
- Accessing and coordinating with different stakeholders (policy makers, officials from Ministry of Industry, representative of respective manufacturing industries, officials from selected line ministries and experts)
- Field Visit of the selected industries and their head office
- Review of relevant past journals and articles.

CHAPTER IV: RESULT AND DISCUSSION

4.1 TEA INDUSTRY

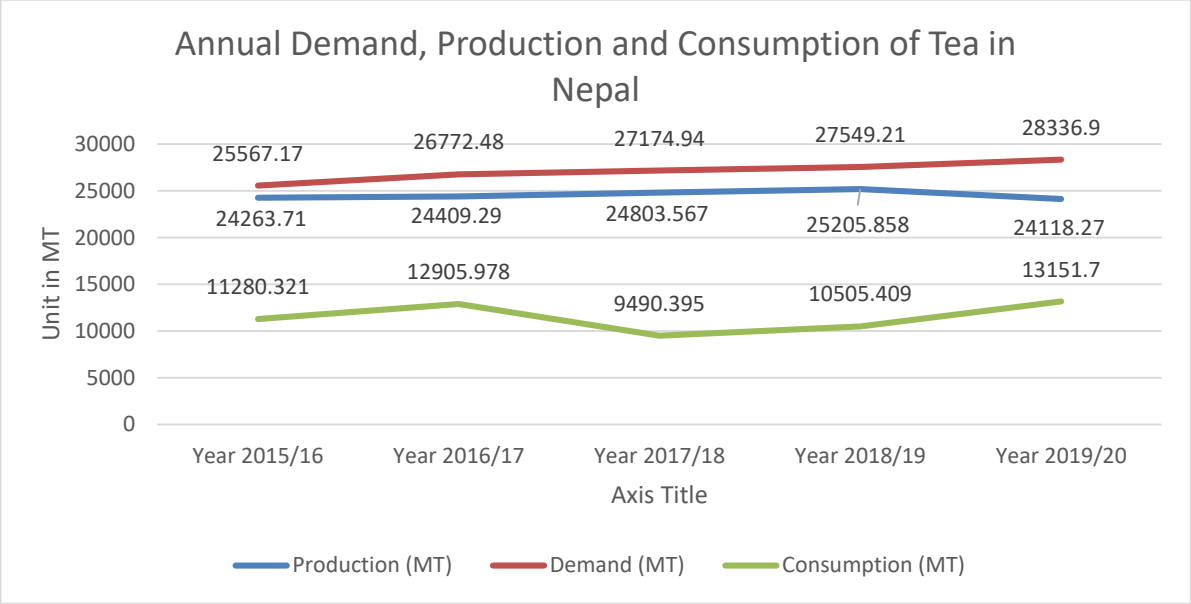
4.1.1 Annual Demand and Supply (Consumption) of Tea in Nepal

Table 4. 1 Five Years Annual Production, Demand and Consumption of Tea in Nepal

Year	Production (MT)	Actual Demand (MT)	Consumption (MT)
2015/16	24263.710	25567.17	11280.321
2016/17	24409.290	26772.48	12905.978
2017/18	24803.567	27174.94	9490.395
2018/19	25205.858	27549.21	10505.409
2019/20	24118.270	28336.9	13151.700

(Source: Survey Data, 2020 & NTCDB, 2020)

Figure 4. 1 Five Years Annual Production, Demand and Consumption of Tea in Nepal



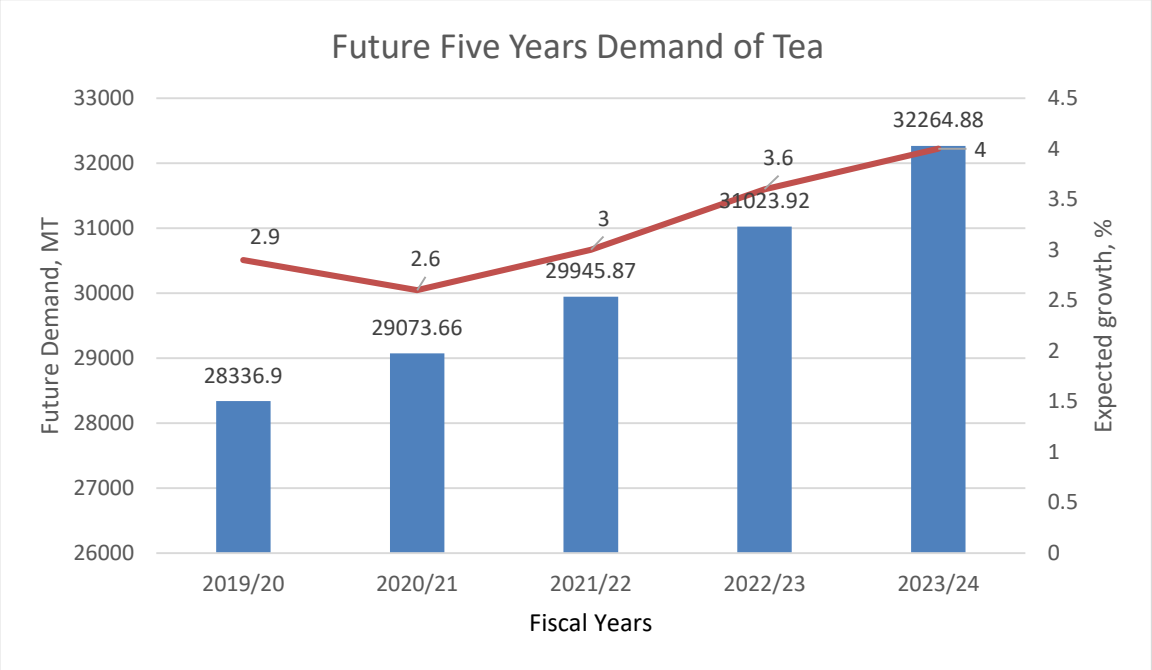
According to above figure, the actual total demand of tea is higher than production. This is due to the large volume of export quantity and little volume of import quantity. The actual domestic consumption of tea was higher in the year 2016/17 i.e. 48.20%, however, in quantity it was higher in the year 2019/20 i.e. 13151.7 MT. the actual domestic consumption in percentage and quantity both was lower in the year 207/18 i.e. 34.92% and 9490.39 MT. The average growth of demand of last five years is 2.61%.

Table 4. 2 Future Five Years Demand of Tea

S. N.	Fiscal Year	Future Demand in MT	Expected Growth, %
1.	2019/20	28336.90	2.9
2.	2020/21	29073.66	2.6
3.	2021/22	29945.87	3.0
4.	2022/23	31023.92	3.6
5.	2023/24	32264.88	4.0

(Source: Survey Data, 2021)

Figure 4. 2 Future Five Years Demand of Tea



According to the survey feedback collected from HOTPA & NTPA, five years future demand of tea is shown in the above figure. Annual demand of tea will be increased by 2.6 % to 4.0 % from the Year 2019/20 to 2023/24 and average annual increment will be 3.2 %.

4.1.1 Import Status of Tea in Nepal

Table 4. 3 Import status of Tea in the Year 2019/20 by major 10 countries

S. N.	Country	Quantity (kg)	Value in NRs. (,000)	% Contribution
1	India	198198	69854	90.65
2	China	13927	2861	6.37
3	Sri Lanka	2002	2319	0.92
4	Turkey	1315	348	0.60
5	Thailand	1255	399	0.57
6	Malaysia	857	345	0.39

7	United Arab Emirates	270	918	0.12
8	Italy	116.4	174	0.05
9	Bangladesh	60	2	0.03
10	Not Specified/Other	633.05	180.65	0.29
Total	--	218633.45	77400.65	100

(Source: NTCDB, 2020)

Tea is imported mostly from India in Nepal in the year 2019/20, i.e. about 91% (198 MT) and china followed by 6.37% (14 MT). Other countries are Sri Lanka, Turkey, Thailand, Malaysia, UAE, Italy and Bangladesh etc. which have contributed very less amount (i.e. less than 3%, 6.5 MT) for the import of tea in Nepal.

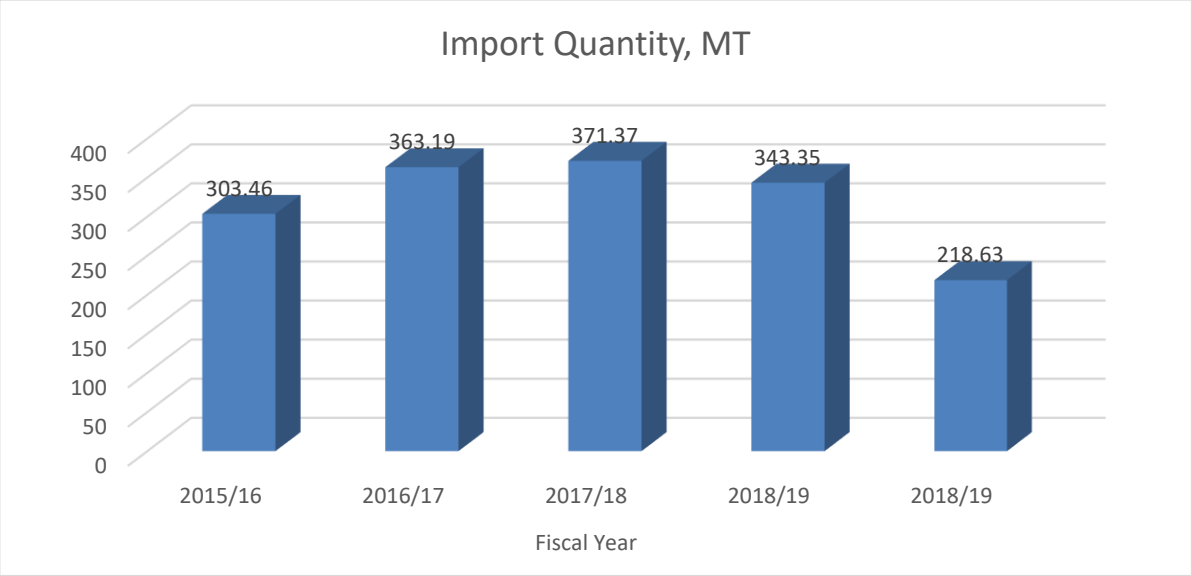
Table 4. 4 Import Status of Tea for Five Fiscal Years

SN	Description	Fiscal Year				
		2015/16	2016/17	2017/18	2018/19	2019/20
1	Import Quantity, MT	303.46	363.19	371.37	343.35	218.63
2	Import Value, NRs.,000	67992	90670	120907	117732.30	77400.65

(Source: Tea Import Status, NTCDB)

From the above table of five fiscal year data, the trend of tea imported volume was seen decreasing stage but the value was stable.

Figure 4. 3 Import Status of Tea for Five Fiscal Years



4.1.2 Industry Details of Selected Industries

Table 4. 5 Industry Details of Selected Industries

S.N.	Name Of Industries	Address
1	Mittal Tea Estate	Bhadrapur-8, Jhapa
2	Kankai Tea Processing	Bhadrapur-7, Jhapa
3	Star Tea Industries	Bhadrapur-5, Jhapa
4	Khusbu Tea Estate	Bhadrapur-, Jhapa
5	Budhakaran & Sons Tea Co. Pvt. Ltd	Bhadrapur-, Jhapa
6	Samser & Gangadevi Co. Pvt. Ltd.	Birtamod, Jhapa
7	Daphe Tea Processing	Bhadrapur-, Jhapa
8	Jagadamba Tea Industries	Bhadrapur-, Jhapa
9	Mahalaxmi Tea Processing	Bhadrapur-, Jhapa
10	Tirupati Tea Industries	Prithvinagar, Jhapa
11	Nepal Tea Development Corporation	Birtamod, Jhapa
12	Ilam Tea Producers Pvt. Ltd.	Ilam
13	Siddhi Binayak Tea Industries Pvt. Ltd.	Ilam
14	Gurans Tea Estate Pvt. Ltd.	Dhankuta
15	Makalu Tea Estate Pvt. Ltd.	Dhankuta

(Source: Survey Data 2021)

There are major two types of tea producers in Nepal i.e. CTC and Orthodox Tea. CTC tea is produced mostly in Jhapa District and Orthodox Tea in hilly region mostly in Ilam, Panchthar Dhankuta, Terhathum, Taplejung and Sankhuwasabha District. There are 146 tea estate and 14014 small tea farmers in Nepal and planted in 16905 hector area.

4.1.3 Production and Capacity Utilization of Tea Industry in Nepal

Table 4. 6 Tea Production in Fiscal Year 2019/20

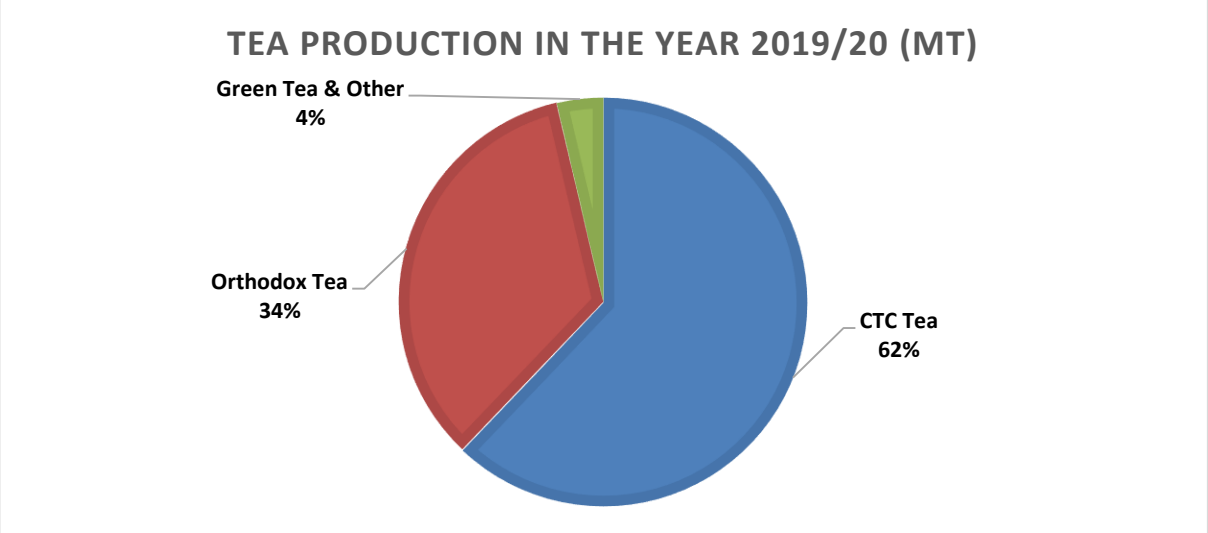
Parameters	CTC	Orthodox	Total
No. of Estates	70	76	146
Total Estate Plantation Area, ha	7339	9566	16905
Small Farmers (No.)	1993	12021	14014
Small Farmers Plantation Area, ha	3277	6568	9845
Estate tea plantation area, ha	4062	2998	7060
Production, MT	14977.30	8251.30	23228.6
Green Tea and other production, MT	-	-	889.67
Production Capacity, MT	25000	18400 MT	43400
Capacity Utilization, %	59.90	44.84	55.57

(SOURCE: NTCDB, 2020)

In the fiscal year 2019/20, there are 146 tea estates in Nepal producing 24118.27 MT (CTC-62.09%, Orthodox tea – 34.21% and green tea and other – 3.6%) of tea in total from 16905 ha (Tea estates-41.76% and small farmers – 58.24%) plantation area.

The average capacity utilization of the selected tea Industry is about 60 percent for CTC and the orthodox tea is 45 percent.

Figure 4. 4 Tea Production in Fiscal Year 2019/20



From the above figure, the total tea production in the year 2019/20 was about 24 thousand metric tons, where CTC tea production contributes about 62%, Orthodox tea is 34% and green and other tea is 4%.

4.1.4 Export Status of Tea in Nepal

Table 4. 7 Export Status of Tea in Nepal

S. N.	Country	Quantity (kg)	Value in NRs. (,000)	% Contribution
1	India	10816381	2492299	96.70
2	Russia	204528	71812	1.83
3	Germany	51584	79168	0.46
4	United States of America	31153	26511	0.28
5	Japan	26709	27501	0.24
6	Czech Republic	20805	31499	0.19
7	China	7395	5926	0.07
8	Singapore	7040	2205	0.06
9	Australia	3509	2469	0.03
10	Other	16097	43456	0.14
Total	--	11185201	2782846	100

(Source: NTCDB, 2020)

Nepal has exported tea to India as a major contribution in the year 2019/20, i.e. 96.7% (10816.3 MT) and 1.8% (204.5 MT) in Russia. Other countries were very less contribution (i.e. less than 1.4%, 164 MT) for the export of tea from Nepal. Other countries are Germany, USA, Japan, Czech Republic, China, Singapore and Australia etc.

In comparison to import of tea in Nepal, export was 50 times more and half of the tea production mostly orthodox tea was exported to India and other countries in the year 2019/20.

Table 4. 8 Export Status of Tea for Five Fiscal Years

SN	Description	Fiscal Year				
		2015/16	2016/17	2017/18	2018/19	2019/20
1	Export Quantity, MT	13286.85	11866.50	15684.54	15043.80	11185.20
2	Export Value, NRs. ,000	2398965	2533884.92	3251686.38	3203904	2782846

(Source: Tea Export Status, NTCDB)

Figure 4. 5 Export Status of Tea for Five Fiscal Years

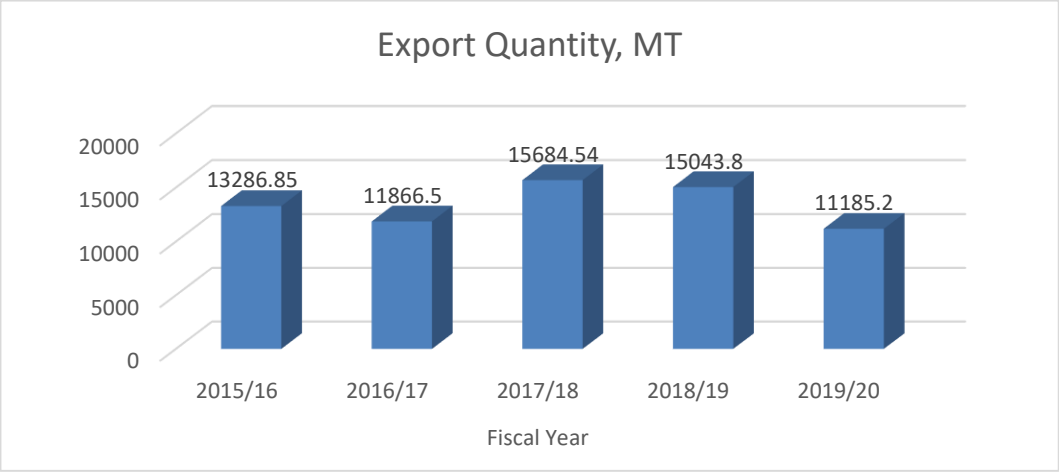
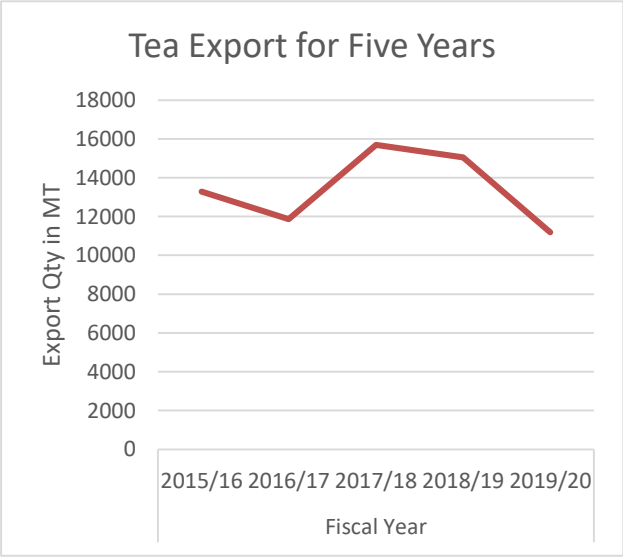
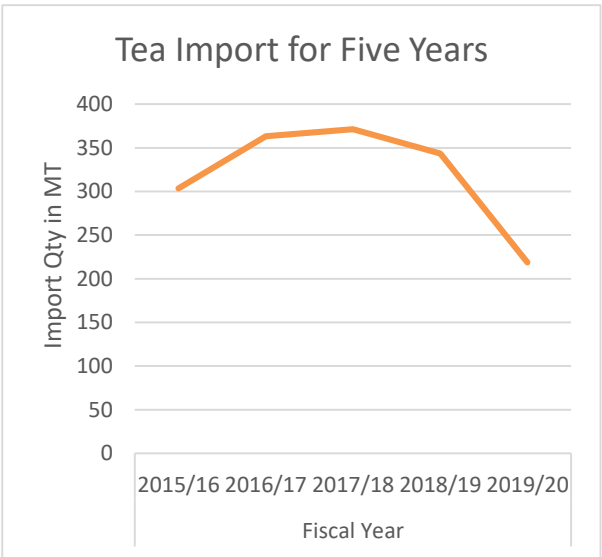


Figure 4. 6 Tea Export & Import for Five Years





4.1.5 Status of Raw Material Availability for Tea Production

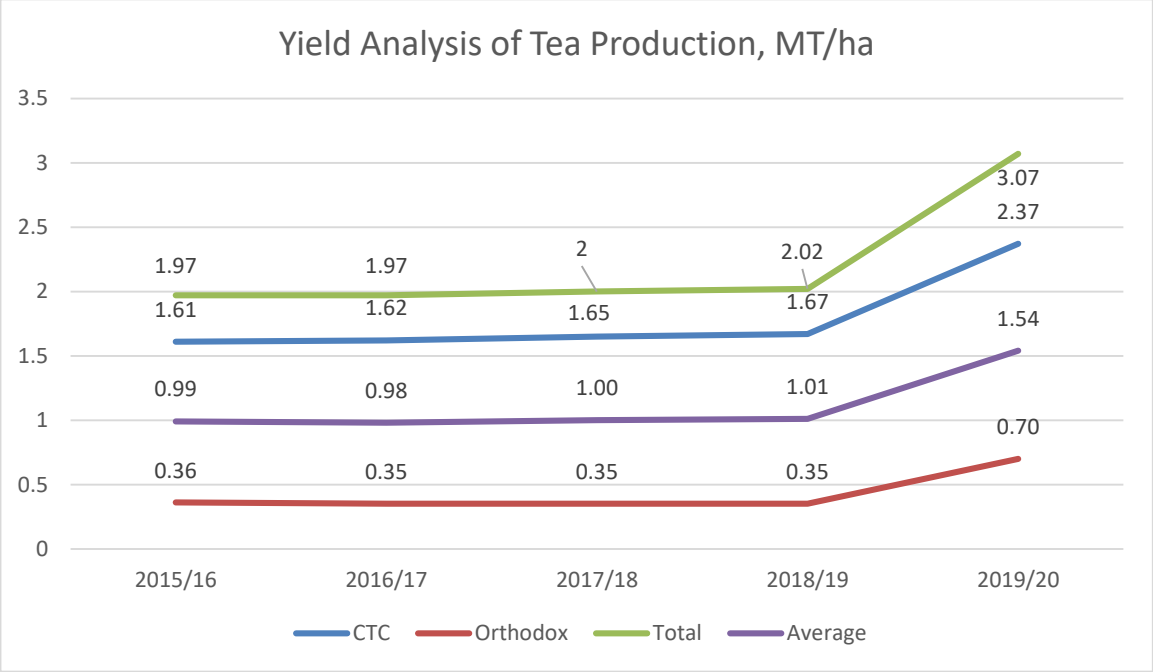
The raw material for the finished tea is only the leaves of tea plant grown in local tea estates and small farms. Nepali tea is a beverage made from the leaves of tea plants (*Camellia sinensis*) grown in the eastern zone of Nepal. CTC tea is made from *variety assamica* and orthodox from *variety sinensis*. Generally, only the upper leaf bud and the next two leaves, the youngest ones of a spout ("two leaves and a bud") are plucked mostly from women workers. The average plucking capacity amounts to approximately 16 - 24 kg of green leaves per day per person. This amount yields 4 - 5 kg of finished tea. Materials used for packaging of finished tea i.e. plastic and plastic laminated paper bags/boxes are purchased mostly from India due to reasonable price.

Table 4. 9 Yield per hector of tea production in Nepal (NTCDB)

Year	Tea Yield (MT/ha)			
	CTC	Orthodox	Total (CTC & Orthodox)	Average
2015/16	1.61	0.36	1.97	0.99
2016/17	1.62	0.35	1.97	0.98
2017/18	1.65	0.35	2.00	1.00
2018/19	1.67	0.35	2.02	1.01
2019/20	2.37	0.70	3.07	1.54

(Source: Yield per hector of tea production in Nepal, NTCDB)

Figure 4. 7 Yield per hector of tea production in Nepal (NTCDB)



It is found from the above data that, the average yield of the tea production in the year 2019/20 is increased by 52%, although there was less plantation hector by 41% than past years. Similarly, yield of CTC, Orthodox and total tea production are increased by 42, 100 and 62% respectively. The reason of increasing yield in the year 2019/20 was that; due to covid-19, green leaves were directly not sold to nearby tea estate outside country and maximum used for the tea production domestically.

4.1.6 Technology Adoption in Tea Production

There are mainly two type of tea technology in Nepal i.e. CTC and Orthodox. There is technology developed for CTC tea processing but the technology used for orthodox tea is skill of the workers i.e. manual or workmanship. The fundamental technology for the processing are similar for two teas, CTC is fermented and orthodox is oxidized only.

The full meaning of CTC is Cutting, Tearing and Curl (battering). When a sharp roller with two teeth rotates in different directions, the tea leaf inside it is crush, tear and curl roller at the same time and it is ready as soon as it passes through the tea roller. After CTC, leaves are left for fermentation, then drying and grading.

The name of the tea is CTC based on the work of the machine. The inventor of this CTC machine is MC Cursor. He was the superintendent of Amguri Tea Estate in Assam, India and he made it in 1930.

Most specialty, teas like green tea, oolong tea, white tea and hand rolled tea fall under the category of orthodox tea. The orthodox tea is produced and processed in the mountainous regions of Nepal at an altitude ranging from 3,000 to 7,000 feet above the sea level. There are six major districts, primarily in the eastern regions of Nepal that are known for producing quality orthodox tea, which are Ilam, Panchthar, Dhankuta, Terhathum, Taplejung, Udaypur, Bhojpur and Sindhupalchowk.

4.1.7 Employment in Tea Industry

Tea is also one of the major export-oriented agricultural cash crops that provides high levels of employment and earning opportunities for a large number of rural individual tea farmers in Nepal. Over the past two-decade tea has emerged as an important sector in this regards ranking high on several socioeconomic goals including employment in both remote mountain areas and urban centers, ranging from low-skilled – majority of whom are women – to highly skilled human resources. The tea sector employs approximately 70,000 people directly and indirectly. About 30,000 employees are in full-time equivalent jobs in both remote mountain areas and urban centers, ranging from low-skilled workers – a majority of whom are women –

to technical workers and engineers. Women are approximately 60% of the total labor involved, although mainly in the low-skilled work of leaf picking. Wages are low, which is challenging for the sector in terms of retaining skilled workers.

4.1.8 Electricity Demand and Supply to Tea Industry

Electricity demand supplied by NEA is sufficient for current situation. Those industries having DG of smaller capacity, uses for other purpose than operation of plant. Total electricity demand by 146 tea estates is about 25 MW which is being supplied sufficiently.

4.1.9 Quality Related

Generally, only the upper leaf bud and the next two leaves, the youngest ones of a spout ("two leaves and a bud") are plucked. Further, i.e. older leaves than these generally have a negative influence on the quality of the finished tea. In the higher up, cooler regions, the tea naturally grows slower. This enables the particularly fine, automatic character to enfold. The harvesting time also has a significant influence on the quality of the tea. The plucking requires a large amount of care as well as skill and is often done by women. Two to three times a day, the green leaves are transported to the factory on the plantation. The green, fresh leaves are still entirely neutral in scent and first have to be treated in the tea factory, passing through various production steps, in order to create an aromatic tea.

For the past two decades, the private sector has been marketing Nepal's orthodox tea but efforts have not been successful. The attractive market for Nepali tea is being high-income consumers in countries like Europe, North America and Japan. In addition to quality to that class of consumers, Food Safety Measures are required. ISO 22000 and HACCP certification has become mandatory in the Tea industry.

Twelve tea processing industries had received the certificate to use the national logo of orthodox tea “Nepal Tea Quality From Himalayas” by Nepal government which is to enhance the quality of Nepal tea together with branding and marketing globally.

Few had got Organic Tea Certification and about 23 industries had certified with food safety management system/HACCP certification.

4.1.10 Financial

According to the financial position mentioned during the company registration and industry registration for 2076/77, almost of the tea manufacturers and processors are small (84%) having total capital up to 100 million rupees and few are medium scale (15%) having 100-250 million rupees and remaining are large (2%) having more than 250 million rupees total capitals. Total investment in tea industries is approx. 8.5 billion rupees.

4.1.11 Challenges Faced by Tea Manufacturing Industries

4.1.11.1 Internal Challenge

- Many small producers are relatives having lack of experience in the tea processing business.
- Supply-side issues affect production capacity and include challenges in areas such as availability of appropriate skills and competencies, diversification capacity, technology and low value addition in the sector's products.
- Business environment constraints are those that influence transaction costs, such as regulatory environment, administrative procedures and documentation, infrastructure bottlenecks, certification costs, Internet access and cost of support services.
- Social and economic concerns include poverty reduction, gender equity, youth development, environmental sustainability and regional integration.

4.1.11.2 External Challenge

- The Tea Policy needs to be reviewed to integrate the new challenges faced by the tea sector to be more competitive and diversify its export markets.
- exports are overly dependent on Indian tea traders, limiting the willingness of sector stakeholders to collaborate.
- the sector faces serious constraints to increasing overseas exports in terms of quality consistency and compliance difficulties with maximum residue levels (MRLs) of agrochemicals.
- while the sector has strong political backing, technical support lacks financial resources and the private sector relies heavily on foreign technical expertise to improve production quality and branding.
- Market entry constraints are essentially external to the country (but may also be manifested internally), such as market access, market development, market diversification and export promotion.

4.1.12 Expectations from Government Bodies

- Tariff to be competitive
- Promoting export
- Financial support for sustainability
- Long term plan & policy

4.1.13 Suggestions/Area for Improvements

- Participatory Auction Research

    - Research for selection of suitable species
    - Scientific quality research
- Human resource preparation related to technical skill development
- Establishment of organic certification body
- Brand promotion and strong marketing and value addition
- Produce as much tea as availability of green leaves rather than directly selling to nearby tea industries.

4.2 ELECTRICAL CABLE & CONDUCTORS

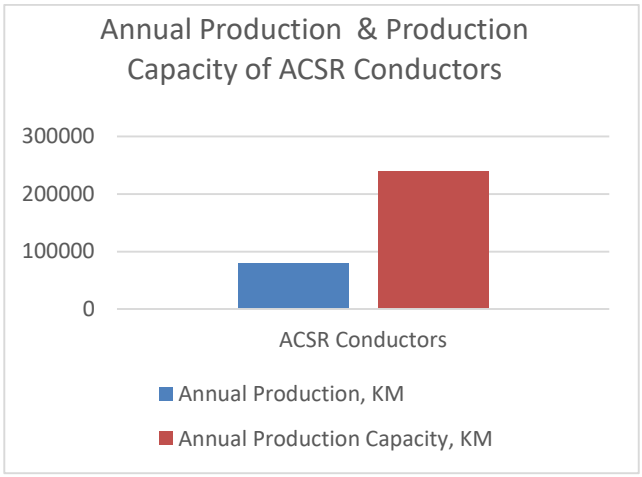
4.2.1 Annual Production and Capacity Utilization of Cable & Conductors in Nepal

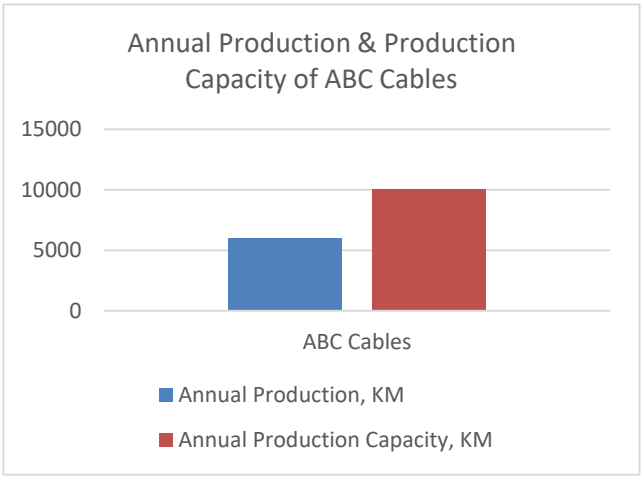
Table 4. 10 Annual production and capacity utilization in the year 2076/77

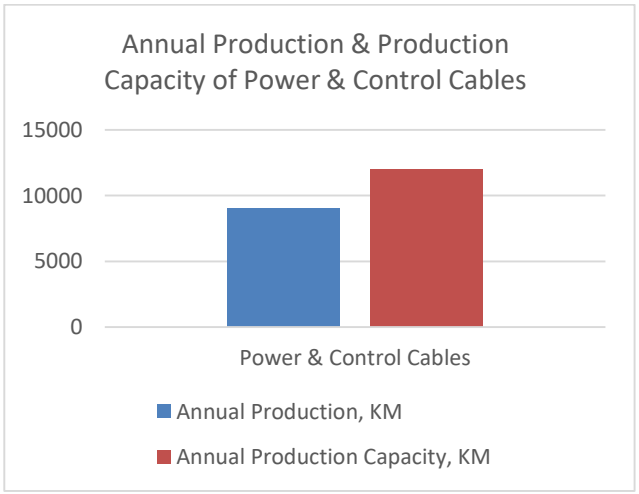
S. N.	Product	Annual Production Capacity, KM	Annual Production, KM	Capacity Utilization
1	ACSR Conductors	240000	80000	33%
2	ABC Cables	10000	6000	60%
3	XLPE covered Cables	20000	5000	25%
4	Power & Control Cables	12000	9000	75%
5	House Wire/ Multi-strand Wires	1000000	400000	40%

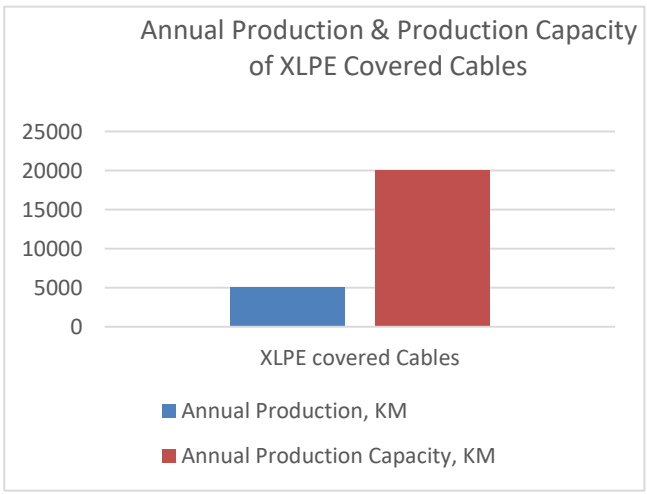
(Source: Survey Data, 2021 & NEEMA, 2076/77)

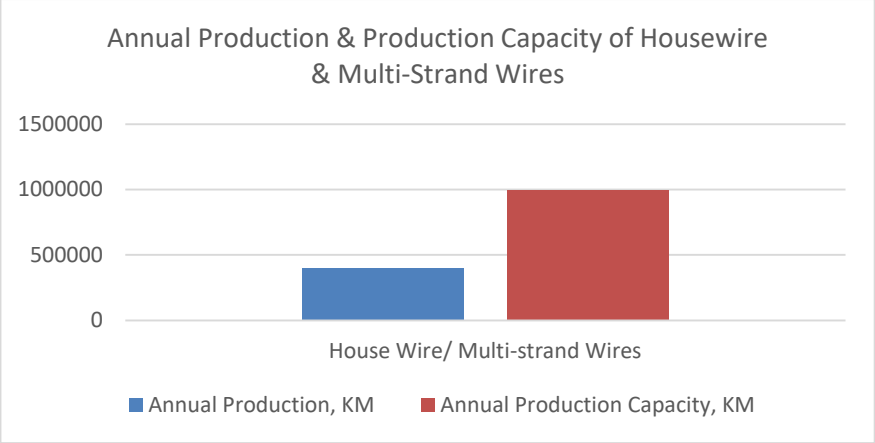
Figure 4. 8 Annual production and capacity utilization in the year 2076/77





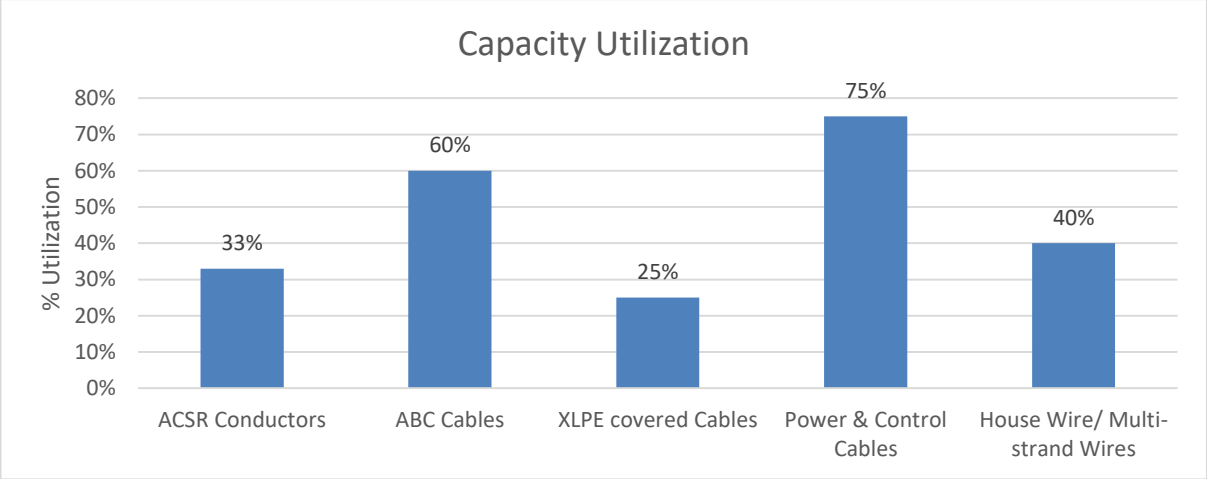






According to Survey statistical data, 2021 and NEEMA, 2076/77, the actual demands of ACSR conductors, ABC Cables, XLPE covered cables, Power Cables and House Wire / Multi-Strands Wires are 12000, 6000, 1500, 9000 and 270000 KM respectively which are quite lower than production capacity i.e. 40000, 10000, 3000, 12000 and 360000 KM respectively.

Figure 4. 9 Capacity utilization



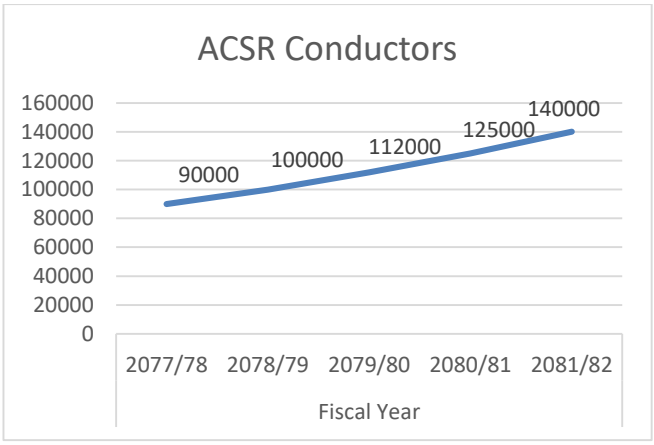
The capacity utilization of the five major cables and conductors for the year 2076/77 are 30%, 60%, 50%, 75% and 75% for ACSR Conductors, ABC Cables, XPLE Covered Cables, Power Cables and House Wire/Multi-Strands Wires respectively. Average capacity utilization of 25 cable and conductors is 40% including above five and other remaining products.

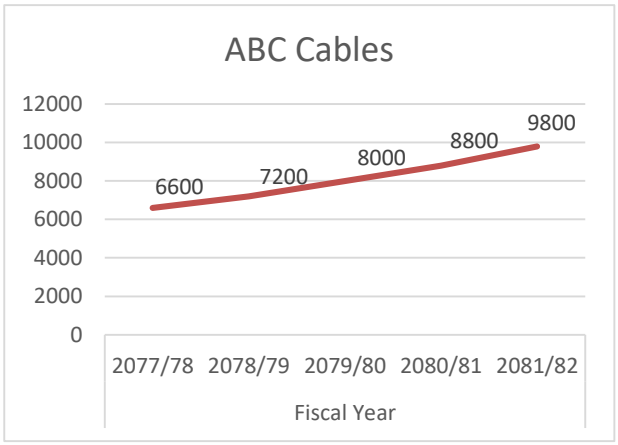
Table 4. 11 Future Five Years Demand of Cables & Conductors

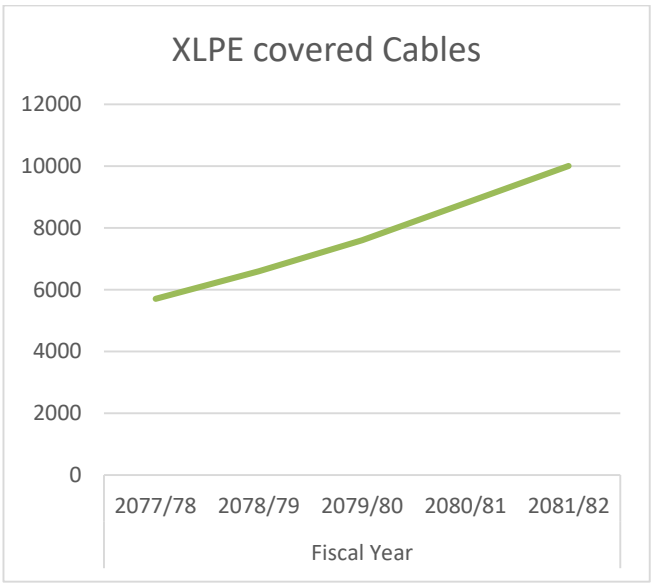
S. N.	Fiscal Year	Future Demand, KM				
		2077/78	2078/79	2079/80	2080/81	2081/82
6.	**ACSR Conductors**	90000	100000	112000	125000	140000
7.	**ABC Cables**	6600	7200	8000	8800	9800
8.	**XLPE Covered Cables**	5700	6600	7600	8800	10000
9.	**Power Cables**	10000	11000	12500	14000	16000
10.	**House Wire**	460000	530000	600000	700000	825000

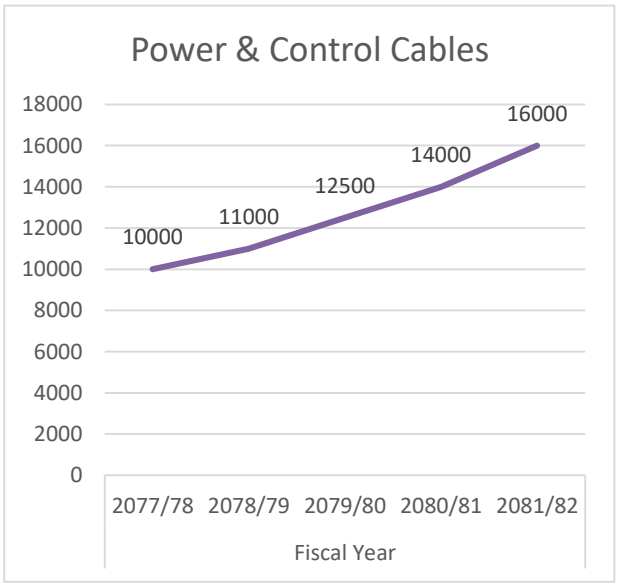
(Source: Survey Data, 2021, NEEMA, 2076/77)

Figure 4. 10 Future Five Years Demand of Cables & Conductors









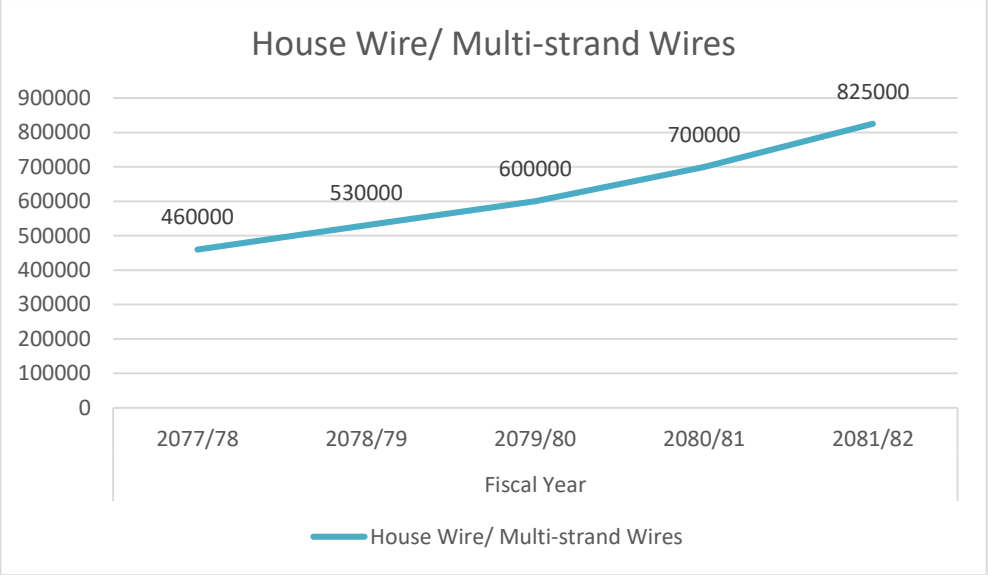
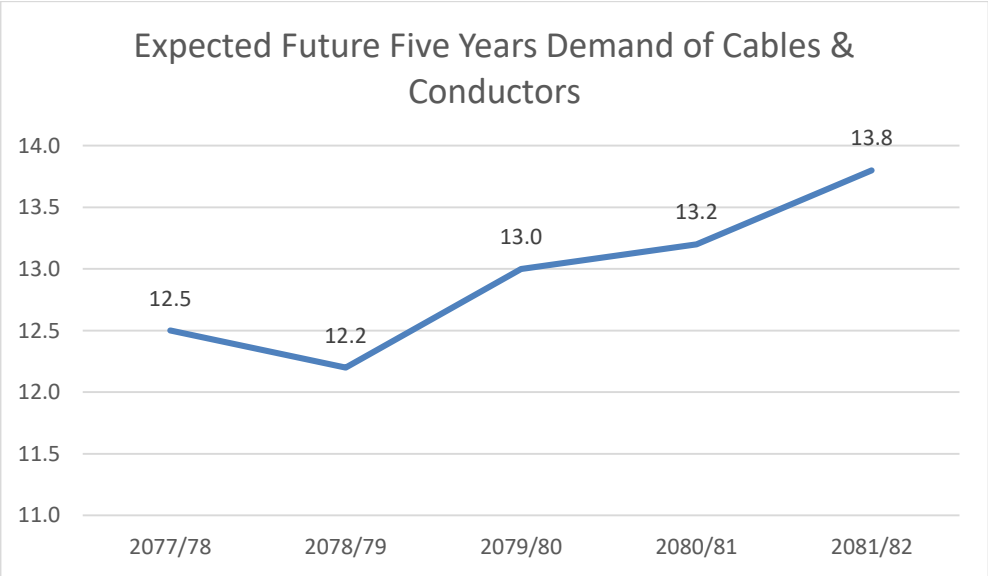


Figure 4. 11 Expected future five year demand of cable and conductors



According to the survey feedback collected from NEEMA, five-years future demand of electrical cables and conductors is shown in the above figure. Average annual demand of ACSR conductors will be increased by 12.5%, ABC Cables by 12.2%, XLPE covered cables by 13%, Power cables by 13.2% and House wires by 13.8% from the Year 2077/78 to 2081/82 and average annual increment will be about 13 %.

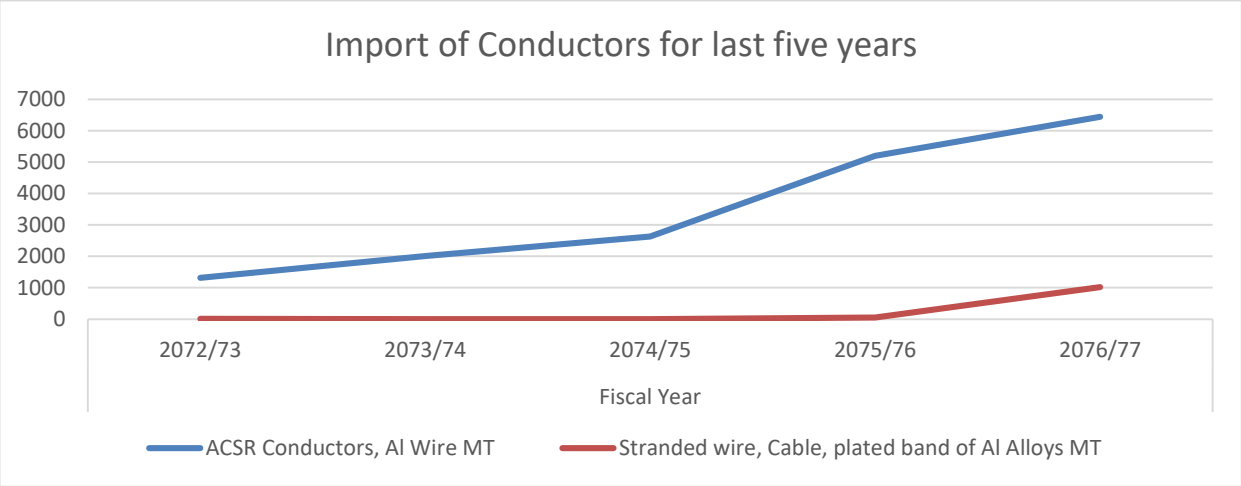
4.2.2 Import Status of Cables and Conductors in Nepal

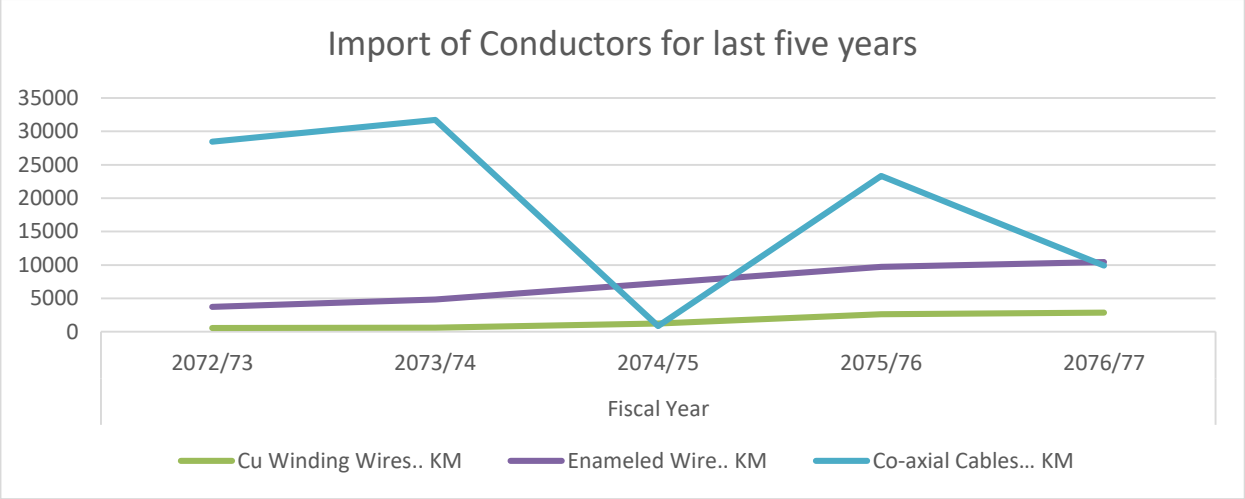
Table 4. 12 Import status of Cables and Conductors in the Year 2076/77 in Nepal

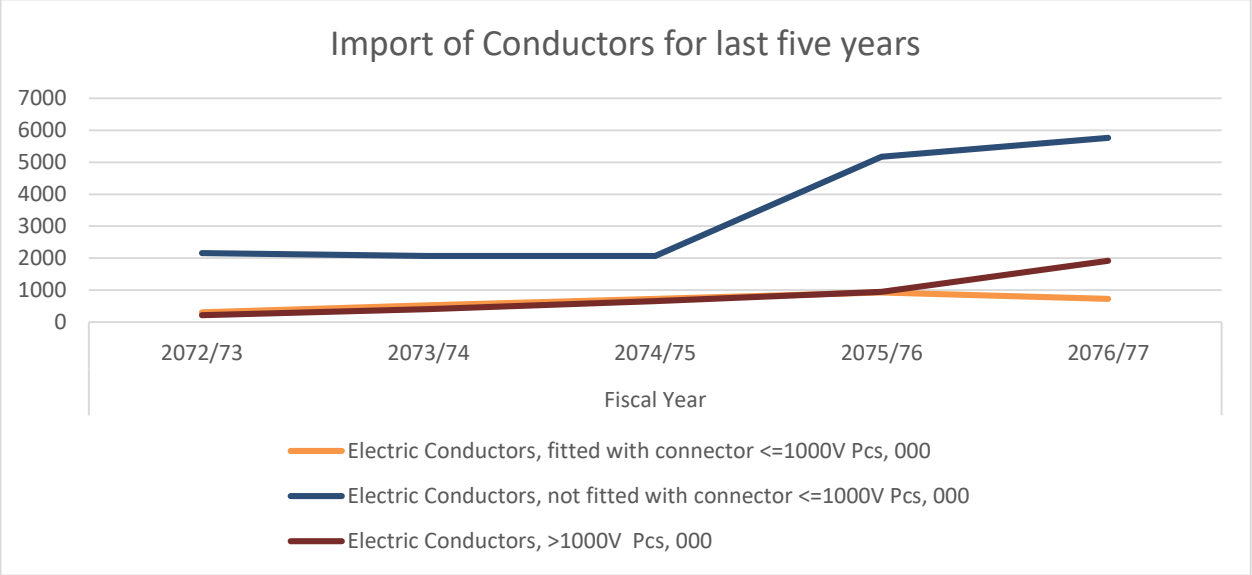
S. N.	HS Code	Cables & Conductors	Unit	Fiscal Year				
				2072/73	2073/74	2074/75	2075/76	2076/77
1	76141000	ACSR Conductors, Al Wire	Kg	1318098	2008140	2625711	5198478	6444115
2	76149000	Stranded wire, Cable, plated band of Al Alloys	Kg	6233	1369	152	53761	1018530
3	85441100	Cu Winding Wires..	Mtr	591242	607941	1219356	2617700	2858389
4	85441900	Enameled Wire..	Mtr	3709805	4852041	7275870	9739608	10459306
5	85442000	Co-axial Cables…	Mtr	28479938	31718039	874540	23335192	9920492
6	85444200	Electric Conductors, fitted with connector <=1000V	Pcs	305085	525504	721764	930328	721764
7	85444900	Electric Conductors, not fitted with connector <=1000V	Pcs	2159099	2072190	2063597	5173865	5759639
8	85446000	Electric Conductors, >1000V	Pcs	217663	408315	656630	942458	1918698

(Source: Department of Custom)

Figure 4. 12 Import status of cable and conductors for last five years







ACSR Conductors imported mostly from India and China found continuously increasing in trend since 2072/73 (1318 MT) to 20776/77 (6444 MT) by 388%. Similarly, Copper winding wires (591 MT in 2072/73 to 2858 MT in 2076/77, by 383%) and electric conductors >1000V (217663 pieces in 2072/73 to 1918698 pieces in 2076/77, by 781%) import status are found similar to ACSR Conductors. The import status of all the cables and conductors were found increased except Co-axial cables.

4.2.3 Industry Details of Selected Industries

Table 4. 13 Industry Details of Selected Industries

S.N.	Name Of Industries	District	Province
1	Janta Cable Industries Pvt. Ltd.	Sunsari	1
2	Mahalaxmi Wire and Cable Ind. Pvt. Ltd.	Morang	1
3	Prime Cable Industries Pvt. Ltd.	Morang	1
4	Pioneer Electro Cable Pvt. Ltd.	Morang	1

5	Janaki Cable Industries	Dhanusha	2
6	Nepal Wire and Cable Industries Pvt. Ltd.	Bara	2
7	United Wires and Cable Ind. Pvt. Ltd.	Chitwan	3
8	Trishakti Cable Industries Pvt. Ltd.	Nawalparasi	4
9	Vishal Plastocab Industries Pvt. Ltd.	Kathmandu	3
10	Prakash Cable Industries Pvt. Ltd.	Kathmandu	3
11	Havells Nepal Pvt. Ltd.	Kathmandu	3
12	Lumbini Vidyut Udyog Pvt. Ltd.	Rupandehi	5
13	Mega Electric Cable Industries Pvt. Ltd.	Banke	5

(Source: Survey Data 2021)

There are 13 industries selected for the study out of 25 registered industries in Nepal, among them four cable and conductor industries in province-1, two from province-2, four from Bagmati province, one from Gandaki province and two from Lumbini province.

4.2.4 Export Status of Cables & Conductors in Nepal

Table 4. 14 Export Status of Cables & Conductors in Nepal

S. N.	HS Code	Cables & Conductors	Unit	Fiscal Year				
				2072/73	2073/74	2074/75	2075/76	2076/77
3	85441100	Cu Winding Wires..	Mtr	38676	27077	509465	36963465	Nil
4	85441900	Enameled Wire..	Mtr	5814	180	45	123	Nil
5	85442000	Co-axial Cables…	Mtr	Nil	150	2000	1	Nil
7	85444900	Electric Conductors, not fitted with connector <=1000V	Pcs	Nil	Nil	Nil	Nil	8504
8	85446000	Electric Conductors, >1000V	Pcs	Nil	Nil	Nil	2	14

(Source: Department of Custom)

Cables and conductors has been exported in very less quantity and irregular in different fiscal years as compared to import. Only Copper winding wires are found increased export remarkably (from 38 KM in 2072/73 to 36963 KM in 2075/76) in the past four fiscal years, but it was not exported in the previous year (2076/77).

4.2.5 Status of Raw Material Availability for Cables and Conductors Production

According to Annual Foreign Trade Statistic 2076/77, the annual copper wire and rod imported from different countries are 5866.6 MT. The major suppliers are UAE, India and China. Similarly, the annual aluminum wires and rods imported from different countries are 8775.9 MT and the major supplier is India.

Insulated materials used for cables and conductors were 21548 MT and purchased from Thailand, South Korea, Taiwan, Germany etc. on the year 2076/77.

Besides these materials few materials like GI Wires and strips are purchased locally.

4.2.6 Technology Adoption in Cable & Conductors Production

Technology used for manufacturing of cables and conductors in Nepal are of Indian, Germany, UK and China. Processes are semi auto and manual. Nowadays, pot annealing is replaced with on line annealing system in few industries.

4.2.7 Employment in Cable and Conductor Industry

Twenty-five Cable and conductor industries generate approximately 1000 direct and 5000 indirect employments. Among them, approximately 50% are skilled and semiskilled manpower, 10% are technical and rest are administrative and marketing manpower.

4.2.8 Electricity Demand and Supply to Cable & Conductors Industry

Total electricity demand by 25 cable and conductor industries is about 5 MW which is being supplied sufficiently but the quality of electricity supplied is not as good as expected. Almost industries having DG of smaller capacity, uses for other purpose than operation of plant.

4.2.9 Quality Related

There is mandatory product standard for PVC insulated wires (house wiring cables) i.e. NS 344 in Nepal. NS 259 for ACSR conductors though not mandatory, customer like NEA and other projects ask for this products certification.

Most of the cable & conductors manufacturing industries are certified with management system certification like ISO 9001 and ISO 14001.

4.2.10 Financial

According to the financial position mentioned during the company registration and industry registration for 2076/77, almost of the Cable & Conductors manufacturers and processors are small (84%) having total capital up to 100 million rupees and few are medium scale (15%) having 100-250 million rupees and remaining are large (2%) having more than 250 million rupees total capitals.

According to the registration list of 25 Cable & Conductors manufacturing industries in DOI, total investment is approx. 8.5 billion rupees.

4.2.11 Challenges Faced by Cable & Conductors Manufacturing Industries

- According to NEEMA, custom duty for importing raw materials are high which need to be decreased by 10-15 % so that cost of product will be competitive with foreign suppliers.
- Uninterruptible power supply is another challenge for the cable & conductors manufacturing industry.
- National and International Competitive Bidding (NCB/ICB) procurement: Nepalese manufacturer are unable to qualify due to supply record constraint in tender documents. In pre-qualification certificate, they ask for double quantity of previous supply. Due to which they cannot bid tender to NEA.
- No separate NCB procurements for Nepalese manufacturers for ABC cables, ACSR conductors, XLPE covered conductors and power cables.

4.2.12 Expectations from Government Bodies

- Tariff for raw materials need to be reviewed so that final product could be available at competitive price
- Make necessary plans/policies for export of cables & conductors
- Tender requirements of NEA need to be reviewed so that domestic industries
- Long term plan & policy for sustainability of cable and conductor industries

4.2.13 Suggestions and Area for Improvements

- Tender competition from local industries for government and projects.
- Support for raw materials import from third countries

4.3 FOOTWEAR INDUSTRY

4.3.1 Production Capacity, Annual Production & Capacity Utilization of Footwear in Nepal

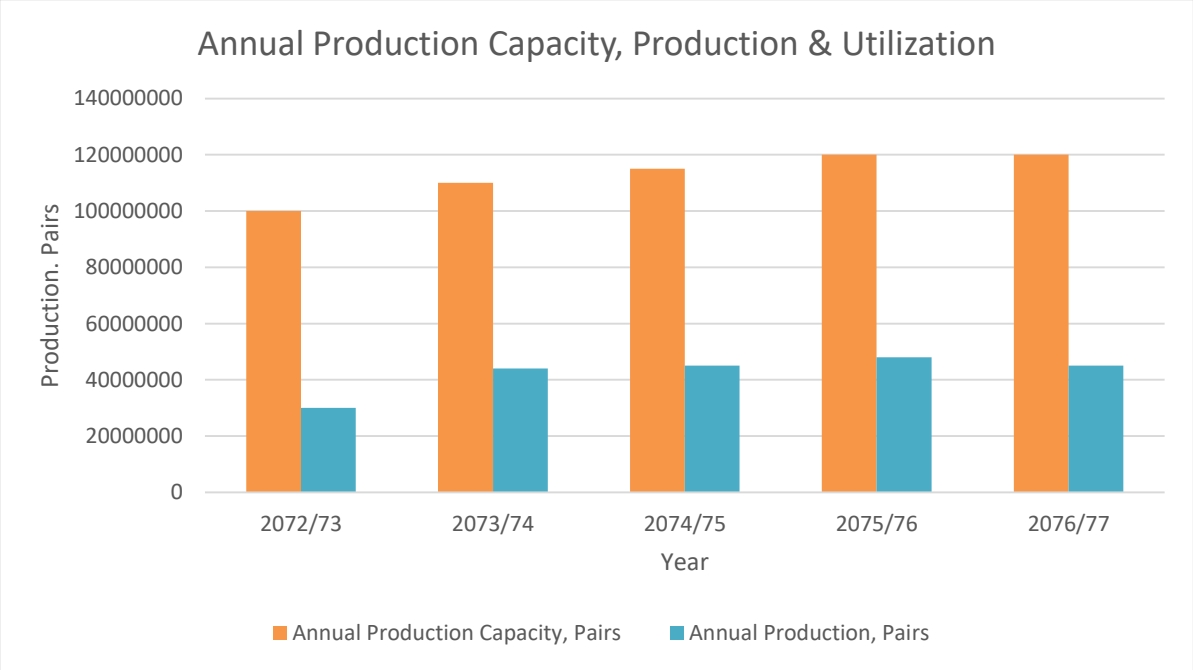
Table 4. 15 Production capacity, Production and capacity utilization of Footwear in Nepal

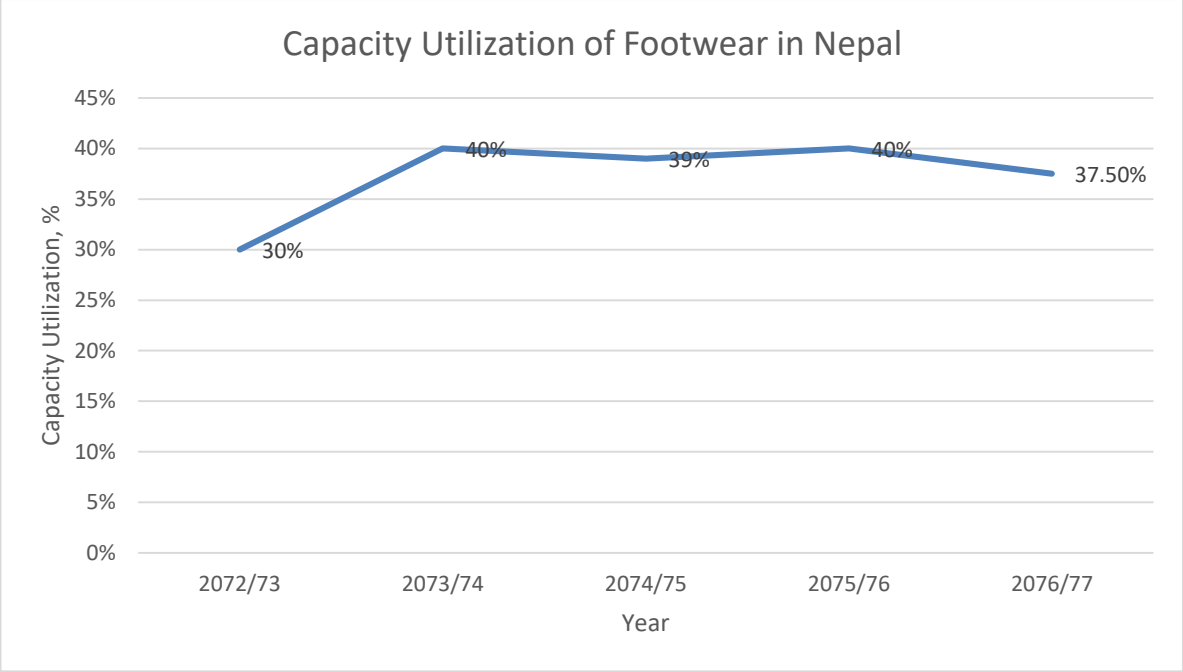
S. N.	Product	Annual Production Capacity, Pairs	Annual Production, Pairs	Capacity Utilization
1	Footwear in 2072/73	100000000	30000000	30%
2	Footwear in 2073/74	110000000	44000000	40%
3	Footwear in 2074/75	115000000	45000000	39%
4	Footwear in 2075/76	120000000	48000000	40%
5	Footwear in 2076/77	120000000	45000000	37.5%

(Source: Survey Data, 2021 & FMAN, 2076/77)

Annual footwear production has been increased gradually while analyzing last five fiscal years data. In the fiscal year 2072/73, it was 30 million pairs and in the year 2075/76 reached to 48 million pairs however decreased somehow in the year 2076/77 to 45 million pairs. The capacity utilization in the year 2076/77 is 37.5% and maximum in the year 75/76 and 73/74 i.e 40%.

Figure 4. 13 Production capacity, Production and capacity utilization of Footwear in Nepal





According to Survey statistical data, 2021 and FMAN, 2076/77, the production capacity for the footwear manufacturing is increased by approximately 2% than year 2072/73 to 2076/77. Similarly, the annual production of footwear is found increased by 50% than year 2072/73 to 2076/77. The capacity utilization of the domestic footwear manufacturers is 37.5% in the year 2076/77, where it was high in the year 2073/74 to 2075/76 (i.e. about 40%).

4.3.2 Demand and supply of Footwear in Nepal

Table 4. 16 Footwear Demand and Supply in Nepal

S. N.	Particular	Fiscal Year				
		2072/73	2073/74	2074/75	2075/76	2076/77
1.	Footwear Annual Demand, pairs	72859515	86439358	95615981	88346295	72751155
2.	Footwear Domestic Production, pairs	30000000	44000000	45000000	48000000	45000000
3.	Footwear Import, pairs	37894387	39244723	38450244	35903798	22088762

(Source: Survey Data, 2021, FMAN, 2076/77)

According to table 4.16, footwear demand and supply in Nepal was highest in the year 2074/75 i.e. 95.61 million pairs including both domestic production and import and was lowest in the year 2076/77 where domestic supply was 45 million pairs and import supply was 22 million pairs, in total 72.75 million pairs.

Table 4. 17 Future Five Years Demand of Footwear in Nepal

S. N.	Fiscal Year	Fiscal Year				
		2077/78	2078/79	2079/80	2080/81	2081/82
1.	Footwear Future Demand, pairs	90000000	95000000	100000000	110000000	116000000

(Source: Survey Data, 2021, FMAN, 2076/77)

According to FMAN Nepal, the demand of footwear will be about 90 million pairs in the year 2077/78 in total and will be reached to 116 million pairs in year 2081/82 i.e. 28% increment in five years.

4.3.3 Import Status of Footwear in Nepal

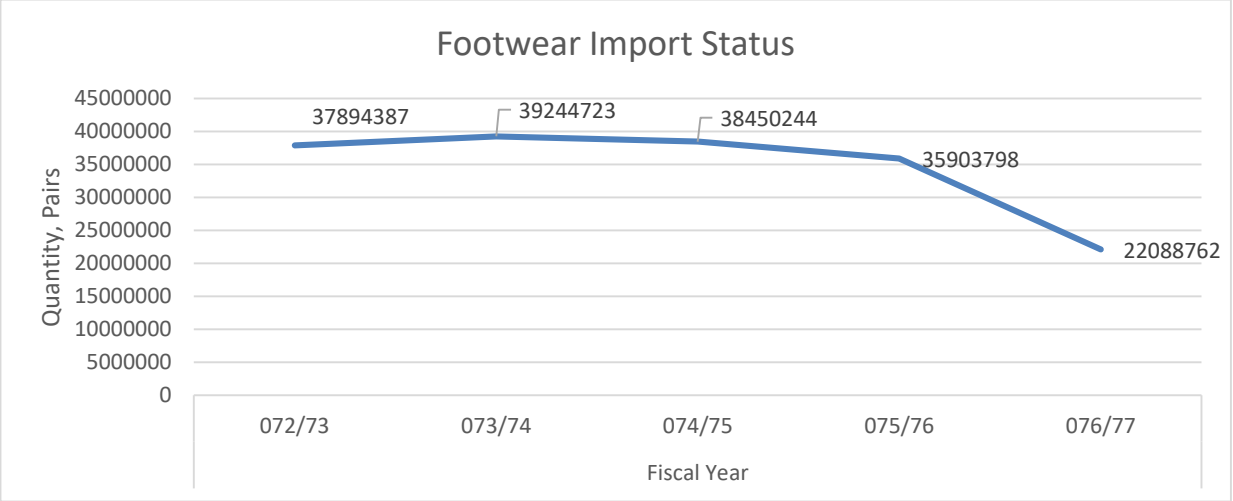
Table 4. 18 Import status of Footwear in Nepal

S. N.	Footwear Import	Unit	Fiscal Year				
			072/73	073/74	074/75	075/76	076/77
1	Quantity	Pairs	37894387	39244723	38450244	35903798	22088762
2	Value, 000	NRs	3349884	3224709	4076618	7518726	5283423

(Source: Department of Custom)

According to department of custom, while analyzing the import of footwear in the last five years, it was found highest in the year 2073/74 i.e. 39.24 million pairs however while comparing to the value, it was highest in the year 075/76 amounting 7.51 billion rupees.

Figure 4. 14 Footwear Import Status



4.3.4 Industry Details of Selected Industries

Table 4. 19 Industry Details of Selected Industries

S. N.	Name of Industries	Province	District
1	Jay Shree polymers Pvt. Ltd. (Magic)	1	Morang
2	Utsav Overseas Pvt. Ltd.	1	Morang
3	B. K. Footwear	3	Kathmandu
4	Bajra Footwear Industries Pvt. Ltd.	3	Kathmandu
5	Base Footwear Pvt. Ltd.	3	Kathmandu
6	Birat Shoe Company Pvt. Ltd.	3	Kathmandu
7	Black Horse Industries Pvt. Ltd.	3	Kathmandu
8	Boss Shoe Industries Pvt. Ltd	3	Kathmandu
9	Comfort Felt and Craft Pvt. Ltd.	3	Kathmandu
10	Coseli Chhala Jutta Udhog Pvt. Ltd.	3	Kathmandu
11	Fit Well Shoes Pvt. Ltd.	3	Kathmandu
12	Foot Step Shoes Industries	3	Kathmandu
13	Kiran Shoe Manufacturers	3	Kathmandu
14	Coral Shoes Pvt. Ltd.	3	Kathmandu
15	Laliguransh Footwear	3	Kathmandu
16	Makalu Footwear Pvt. Ltd.	3	Kathmandu
17	Max Shoes Industries Pvt. Ltd.	3	Kathmandu
18	Nepal Footwear Industries	3	Kathmandu
19	New Famous Shoes Centre Pvt. Ltd.	3	Kathmandu
20	Royal Footwear Industries Pvt. Ltd.	3	Kathmandu
21	Run Shoe Industries Pvt. Ltd.	3	Kathmandu
22	Sagarmatha Footwear	3	Kathmandu
23	Samrat Shoes Pvt. Ltd.	3	Kathmandu
24	Shikhar Shoe Industries Pvt. Ltd.	3	Kathmandu
25	Sky Shoes Industry Pvt. Ltd.	3	Kathmandu
26	Smart Shoes Industries Pvt. Ltd.	3	Kathmandu
27	Style Shoes Industries Pvt. Ltd.	3	Kathmandu
28	Sunrise Footwear Pvt. Ltd.	3	Kathmandu
29	The Right Shoes Pvt. Ltd.	3	Kathmandu
30	Yeti Footwear Pvt. Ltd.	3	Kathmandu

(Source: Survey Data 2021)

There are about six large scale industries which has daily production capacity of 10000 pairs, 15 medium scale industries which has daily production capacity of 500 to 1000 pairs, 300 small scale industries which has daily production capacity of 100 to 500 pairs and 1200 micro-scale manufacturers which has very less production capacity in Nepal. Out of which 30 industries have been selected for the study from large, medium and small scale industries. Province wise, these are 2 from Province 1 and remaining 28 from Bagmati Province.

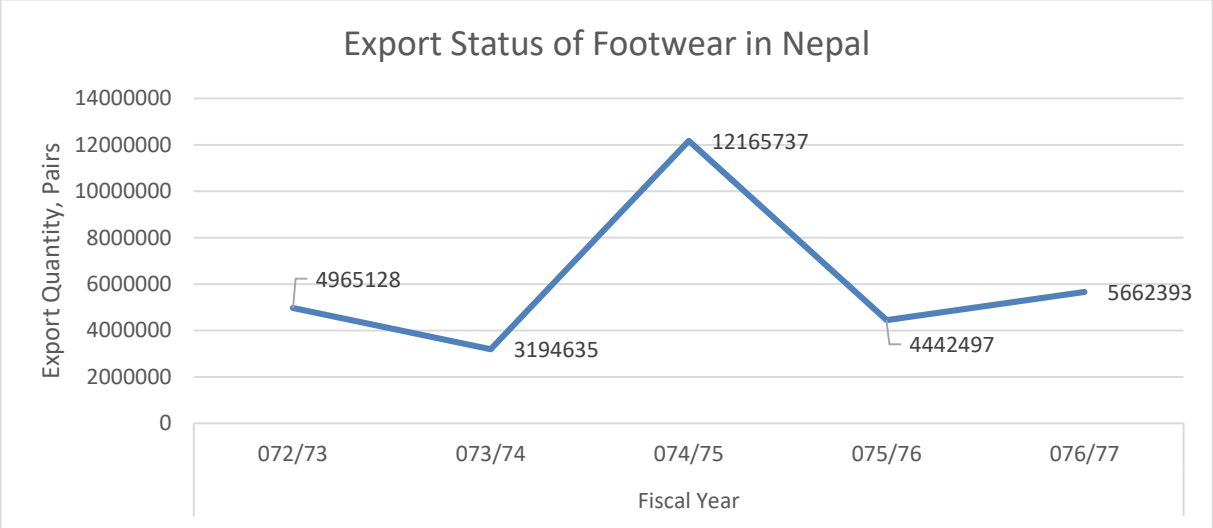
4.3.5 Export Status of Footwear in Nepal

Table 4. 20 Export Status of Footwear in Nepal

S. N.	Export of Footwear	Unit	Fiscal Year				
			2072/73	2073/74	2074/75	2075/76	2076/77
1	Quantity	Pair	4965128	3194635	12165737	4442497	5662393
2	Values, 000	NRs	1521313	926284	1283272	1256636	1602804

(Source: Department of Custom)

Figure 4. 15 Export Status of Footwear in Nepal



From above table 4.20 and figure 4.15; while analyzing last five years export of footwear from Nepal, it was found highest quantity in the year 2074/75 i.e. 12.16 million pairs and lowest in the year 2073/74 i.e. 3.19 pairs only. While comparing with the value in NRs it was highest in the year 2076/77 i.e. 1.60 billion and lowest in the year 2073/74 i.e. 0.92 billion only.

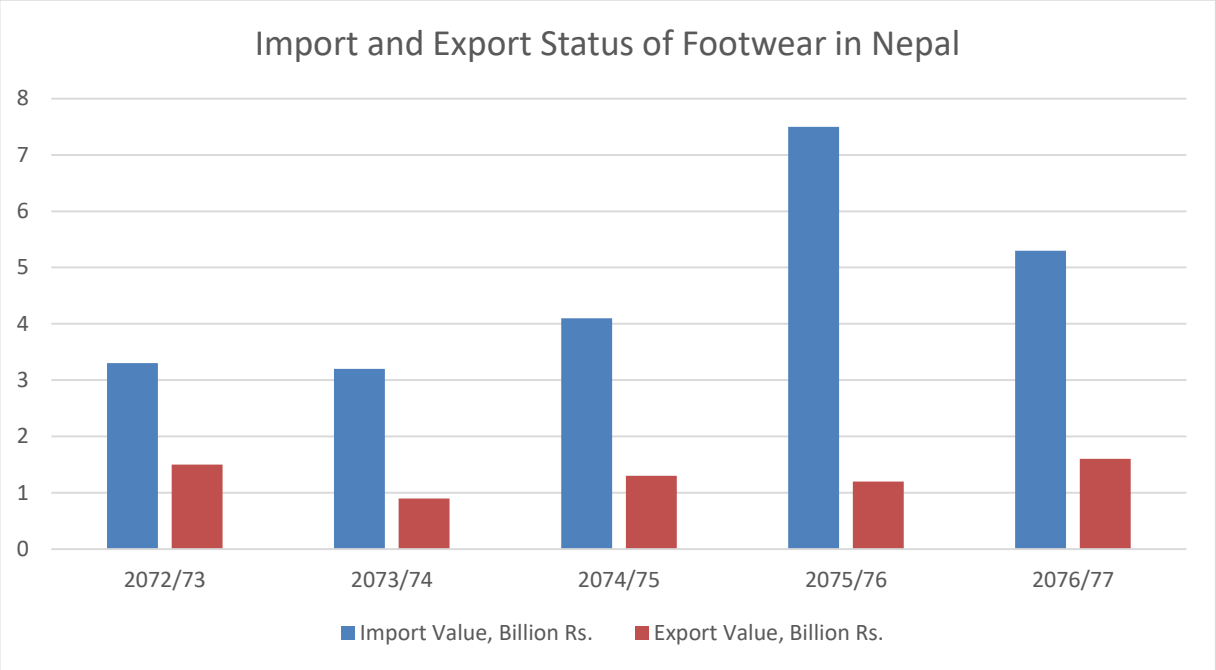
Table 4. 21 Import and export of footwear in value for last five years

S. N.	Import & Export of Footwear	Fiscal Year				
		2072/73	2073/74	2074/75	2075/76	2076/77
1	Import Value, Billion Rs.	3.3	3.2	4.1	7.5	5.3
2	Export Value, Billion Rs.	1.5	0.9	1.3	1.2	1.6

(Source: Department of Custom)

In the above table, Import and export of footwear value for last five years has been given which shows that, import was highest in the year 2075/76 with 7.5 billion Rs and export was highest in the year 2076/77 with 1.6 billion Rs. Every year import value is more than export value.

Figure 4. 16 Import and export of footwear in value for last five years



4.3.6 Status of Raw Material Availability for Footwear Production

Raw materials used for footwear production like leather, rexene, lining, inter-lining, PU sole, nylon net, rubber, elastic, lace and chemicals are imported from China and India (80%) and remaining from other third countries. Buffalo leather is exported to India in wet blue stage without any value addition, which is afterwards imported with quality tanning.

4.3.7 Technology Adoption in Footwear Production

Most of the production process of the Nepalese footwear is manual and consumes minimal amount of electricity. Most of the technology they adopted are Chinese, Italian, Taiwan and Indian.

4.3.8 Employment in Footwear Industry

Footwear industries generate approximately 70000 direct and indirect employments. Among them, approximately 60% are skilled and semiskilled manpower, 5% are technical and rest are administrative and marketing manpower.

4.3.9 Electricity Demand and Supply to Footwear Industry

Total electricity demand of footwear industries is about 10 MW which is being supplied sufficiently but the quality of electricity supplied is not as good as expected. Almost industries having DG of smaller capacity, uses for other purpose than operation of plant.

4.3.10 Quality Related

There is no mandatory product certification for footwear in Nepal. Some customers ask for ISO 9001 certification and testing of footwear products. Few industries are certified with ISO 9001:2015. Test methods for whole shoes heel attachment, upper sole adhesion, thermal insulation, water resistance, tensile strength and elongation abrasion resistance and tear strength of out-sole, water soluble content of outsole, insole, lining and in-socks have been available in Nepal Standard. Some customers i.e. Nepal Army, Nepal Police etc. requires verification of footwear as per those NS Standards.

4.3.11 Environmental

Nepalese footwear market has minimum impact on the environment. This is supported by the fact that more than half of the production process of the Nepalese footwear is manual and consumes minimal amount of electricity. Also, the cut leather, rubber and synthetic pieces are safely disposed of, no noise or smoke is emitted and there is minimum water consumption. The small amount of bad smoke emitted during the production process is limited to the production places.

4.3.12 Financial

According to the survey data and the Footwear Manufactures Association of Nepal, more than Rs 12 billion is invested in Nepali footwear industry.

4.3.13 Challenges Faced by Footwear Manufacturing Industries

- The GoN has not yet identified the nature of raw materials for this sector. The import taxes on some of the raw materials are higher than the cost of the finished product, which is affecting the cost of production and global competition.
- Generally, there is a high competition in the quality of export footwear of synthetic, nylon and some leather-based raw materials, with 20 per cent cost in labour charge in Nepalese footwear production process. So, strong GoN support is required.
- Nepalese footwear industries have to compete with cheap imported shoes that come in through the open border. With increasing choices, growing fashion consciousness and rising health awareness, the global demand for footwear has been increasing.

- Lack of modern technology in the footwear has been the key reason behind the drop in production. High-interest rate on loan has discouraged the industry from expanding. The rising cost of production is another factor which has made the industry struggle and rise in the workers' wages have increased the production costs as well.
- Shortage and sustenance of skilled labour with upper stitching and lasting skills and designers is a key issue.
- Development of footwear zones has not materialized.
- As per GoN rules, there should be a security post wherever over 500 workers are employed, but it has not happened, and there are some industries with as many as 2,500 workers.
- Imported raw materials are 100 per cent costlier than the factory price. Buffalo leather is exported to India in wet blue stage without any value addition, which is afterwards imported with quality tanning.
- The investment capacity of manufacturers in this sector differs widely. Some have invested millions and some have invested low amount. Because of this, they are not able to invest in productive hi-tech machines and equipment. So, lack of well-equipped common facility centers is hampering the quality and quantity of footwear production.
- To meet international standards, quality test laboratories are required, but not all manufacturers can invest in such laboratories. At the same time, felt-based manufacturers are facing problems in measuring the size of footwear as per European standards.
- Supply of substandard raw materials by importers.
- More tariff rate on import of some raw materials compared to finished products.
- The raw materials imported for trading, manufacturing and for importers' consumption in their industries are subject to similar tariff.
- A number of foreign importers are coming forward for contract manufacturing, but because of lack of strict labour laws like those in garment industry in Bangladesh, Nepalese footwear manufacturers hesitate to take the risk of contract manufacturing.

4.4 PAINT INDUSTRY

4.4.1 Production Capacity, Annual Production & Capacity Utilization of Paint in Nepal

Table 4. 22 Production capacity, Production and capacity utilization of Paint in Nepal

S. N.	Paint Industry	Annual Production Capacity, MT	Annual Production, MT		Capacity Utilization
			Water Based	Oil Based	
1	Year 2076/77	2,00,000	95,000	23,000	59%

(Source: Survey Data, 2021)

According to Survey statistical data, 2076/77, the production capacity for the Paint manufacturing is about 200000 MT. Similarly, the annual production of Paint is found about 118000 MT. The average capacity utilization of the Paint Industries is 59% in the year 2076/77.

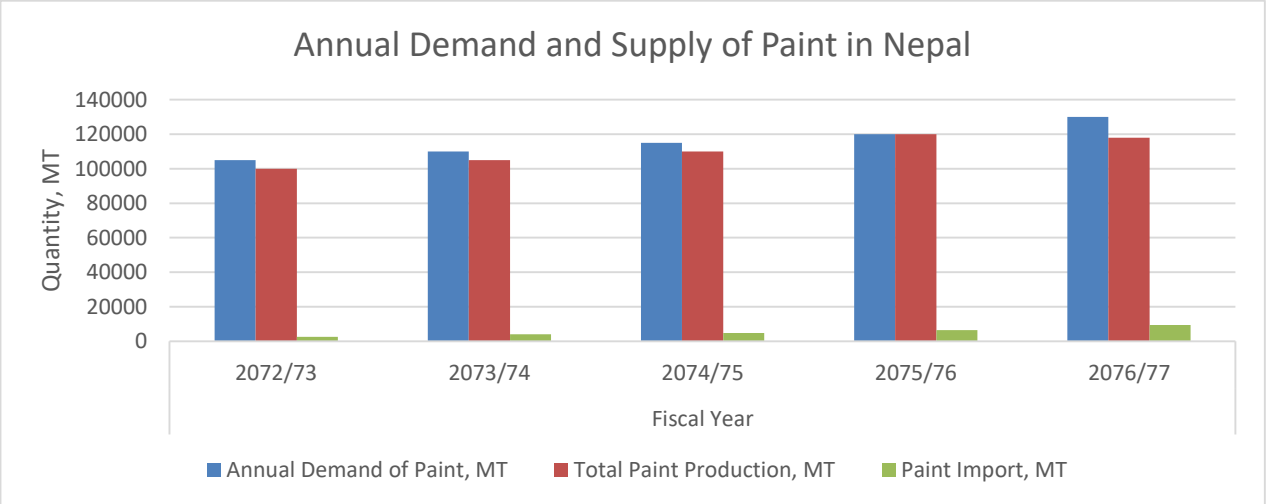
4.4.2 Demand and supply of Paint in Nepal

Table 4. 23 Paint Demand and Supply in Nepal

S. N.	Particular	Fiscal Year				
		2072/73	2073/74	2074/75	2075/76	2076/77
11.	Annual Demand of Paint, MT	105000	110000	115000	120000	130000
12.	Total Paint, MT	100000	105000	110000	120000	118000
i.	Water Based Paint, MT	81000	84000	88000	96000	95000
ii.	Oil Based Paint, MT	19000	21000	22000	24000	23000
13.	Paint Import, MT	2611.63	4047.45	4780.56	6517.81	9448.85

(Source: Survey Data, 2021, Custom Office)

Figure 4. 17 Paint Demand and Supply in Nepal



After devastating earthquake of 2072, the demand and supply of Paint are gradually increased up to 2074/75. The annual demand of Paint was 130000 MT in the last fiscal year i.e. 2076/77.

The import quantity of Paint was also found increased by 262% from the year 2072/73 to 2076/77 i.e. 2611 MT to 9448 MT. Current market of Nepalese paint industries is approximately around 20 billion rupees as per Nepalese Paint Manufacturing Association (NPMA).

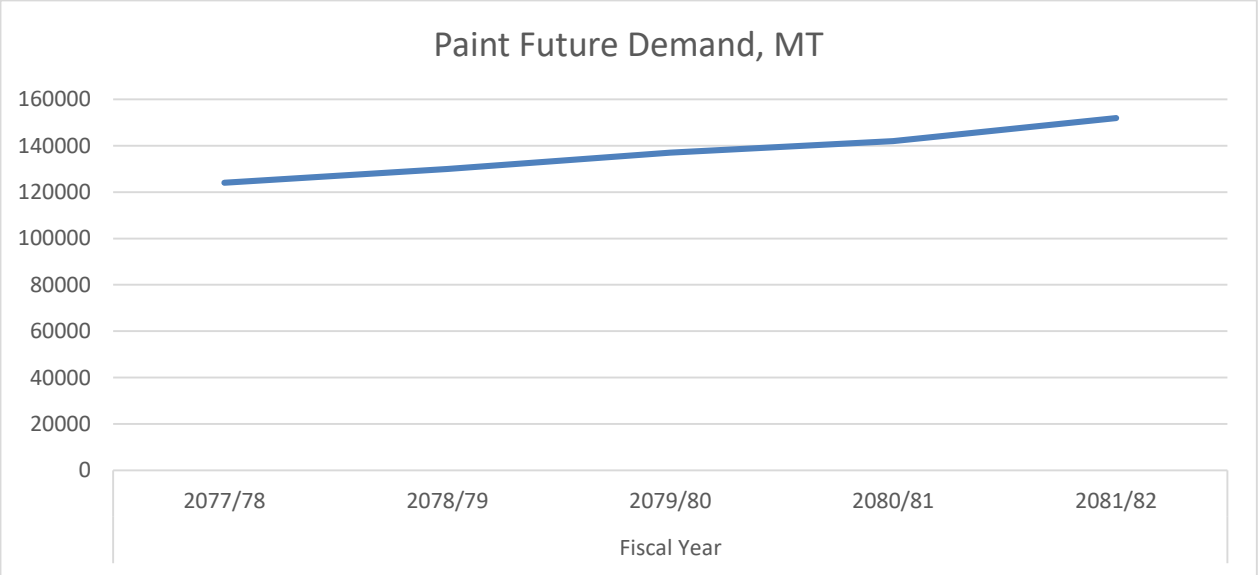
According to industrialist, almost all demand (more than 90%) is fulfilled by domestic manufacturers, since only 9448 MT of paint has been imported on the year 2076/77.

Table 4. 24 Future Five Years Demand of Paint in Nepal

S. N.	Fiscal Year	Fiscal Year				
		2077/78	2078/79	2079/80	2080/81	2081/82
14.	Paint Future Demand, MT	124000	130000	137000	142000	152000

(Source: Survey Data, 2021)

Figure 4. 18 Future Five Years Demand of Paint in Nepal



According to the feedback provided by the industrialist, the future demand will be increased by about 5.2% each year.

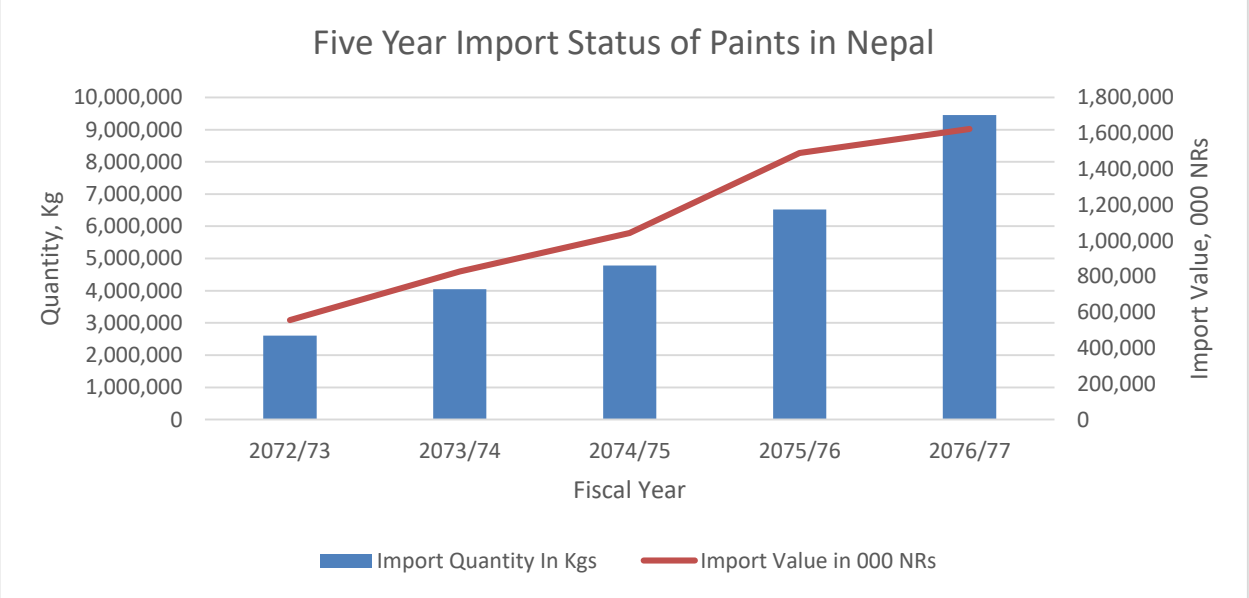
4.4.3 Import and Export Status of Paint in Nepal

Table 4. 25 Import & Export status of Paint in Nepal

S. N.	Fiscal Year	Import		Export	
		Quantity In Kgs	Imports Value in 000 NRs	Quantity In Kgs	Exports Value in 000 NRs
1	2072/73	2,611,628	556,745	5186	1036
2	2073/74	4,047,447	828,697	15273	1265
3	2074/75	4780566	1043293	15067	1207
4	2075/76	6517811	1488988	68	18
5	2076/77	9448854	1624396	138	40

(Source: Department of Custom)

Figure 4. 19 Import & Export status of Paint in Nepal



The import quantity of Paint was found increased in the year 2075/76 and 2076/77 i.e. 1633 MT and 2760 MT respectively. The growth of import was about 70% in year 2076/77 than in year 2075/76. But the value was found almost the same in both the years. The import amount and value both are increased in the year 2075/76 than in the year 2074/75 by more than 2400%.

4.4.4 Industry Details of Selected Paint Industries

Table 4. 26 Industry Details of Selected Paint Industries

S. N.	Name of Industries	Province	District
12.	Pashupati Paint Pvt. Ltd.	1	Sunsari
13.	Kansai Nerolac Paints Pvt. Ltd.	2	Parsa
14.	KNP Japan Pvt. Ltd.	2	Parsa
15.	Asian Paints Pvt. Ltd.	3	Hetauda
16.	Surya Paints and Chemical Pvt. Ltd.	3	Hetauda
17.	Berger Jenson & Nicholson (Nepal) Pvt. Ltd.	3	Hetauda
18.	Reliance Paint Ind. Pvt. Ltd.	3	Kathmandu
19.	Rukmini Chemical Ind. Pvt. Ltd.	3	Kathmandu
20.	Tirupati Paints Pvt. Ltd.	3	Chitwan
21.	Applo Paints Pvt. Ltd.	3	Chitwan
22.	Jasmin Paints Pvt. Ltd.	3	Chitwan

(Source: Survey Data 2021)

According to Nepal Paint Manufacturing Association (NPMA), 19 paint manufacturing industries are associated with it. However, 137 small paint and rosin manufacturing industries are registered under Department of Cottage and Small Industry, Nepal, but the industries name are not available. (Source: Statistical data of DOCSI 2075/76). Only 12 small and medium scale paint industries are registered under Department of Industry (DOI). Among them, 11 industries were selected for the study where one industry in Province – 1, two from Province – 2 and remaining from Bagmati Province.

4.4.5 Status of Raw Material Availability for Paint Production

The raw materials used for manufacturing of Paint are imported almost from India. Packaging materials; cans and plastic buckets are also purchased from India. Resins used for manufacturing of paints as adhesive materials is used locally but in very few amounts. Few industries purchased their packaging materials from domestic packaging industry in Nepal.

4.4.6 Technology Adoption in Paint Production

All the production technology of paint manufacturing in Nepal are Semi-automatic and automatic. They have used mostly Indian technology (TEPCO, TOYAN etc.). Few industries used Japanese and Chinese Technology. Multinational company i.e. Asian Paint, Berger, KNP Japan, J&N, have automatic processes for the paint grinding, dispersion, mixing etc.

4.4.7 Employment in Paint Industry

Paint industries generate approximately 5600 direct and indirect employments. Among them, approximately 30% are skilled and semiskilled manpower, 10% are technical and rest are administrative and marketing manpower.

4.4.8 Electricity Demand and Supply to Paint Industry

Total electricity demand of Paint industries is about 14.5 MW where about 50% of electricity was demanded by large four industries (Asian Paint, Berger, KNP Japan & Pashupati Paint). The electricity is supplied sufficiently from NEA. Almost industries have DG of smaller capacity.

4.4.9 Quality Related

Though product standard (NS) for paint is not mandatory in Nepal, 11 industries have been received product standards (NS 85, NS 112, NS 117, NS 161). Few big industries like Asian Paint, Pashupati Paint, Berger J&N (Nepal) etc. have been certified with Management Systems i.e. ISO 9001, ISO 14001 and they are aware of Quality, Environment, Health and Safety.

4.4.10 Environment

In Nepal, the Government of Nepal gazette a new mandatory lead paint standard of 90 ppm in December 2014 to protect children's health by eliminating hazardous level of lead in paint. It was promulgated through notification in Nepal Gazette (Khand 64, Number 30, Part 5, Notice No.3 dated December 22, 2014) by Government of Nepal, Ministry of Science, Technology and Environment as per the Rule 15 of Environment Protection Regulation 1997 and takes effect after 181 days (June 20, 2015).

Paint serves important functional and aesthetic purposes, but it also has the potential to cause both health and environmental impacts. Low level exposure to paint may irritate or burn the eyes, nose, throat and skin and cause reactions such as headaches, dizziness or nausea. These symptoms are generally mild and will subside once the immediate exposure has ceased. However, high levels of exposure to some of the elements in paint, even for a short period of time, can cause severe and lasting impacts, such as kidney or liver damage, or respiratory problems. Substances found in some oil-based paint, such as formaldehyde and benzene, are carcinogenic, while others, such as heavy metals and phthalates, are human and ecosystem toxins.

By far, the most important environmental impact from paints is the release of volatile organic compounds (VOCs) during the drying process after the coating is applied. Virtually everything but the solids in a typical paint formulation is released to the air.

Once in the atmosphere, VOCs participate in the formation of ozone. In the presence of nitrogen oxides (NOx) and sunlight, VOCs react with oxygen in the air to produce ozone, the most toxic component of the form of pollution commonly known as smog. Ozone attacks lung tissue, and is very injurious, even in very low concentrations.

4.4.11 Financial

According to statistical data of Department of Industry (DOI), more than Rs. 10.8 billion is invested in Paint Manufacturing Industries. There are 6 large scale industries having investment more than 250 Million Rupees, nine industries are medium scale industries having 100 – 250 Million Rupees and remaining are small scale industries having less than 100 Million Rupees.

4.4.12 Challenges Faced by Paint Manufacturing Industries

Following challenges are faced by the industry:

- Availability of the technical manpower locally and high turnover;
- Communication and coordination of government body with paint industries;
- Consumer focus on foreign and multinational product;
- Unhealthy market competition;
- Tariff is same for industry and traders for raw materials.

Other challenges are:

- The stability of political situation of the nation;
- Market based economy and Introduction of FDI in paint sectors by government;
- Rise in price of raw material and Import of semi-finished goods by traders;
- Emerging of IT sector, Modernization of paint like (waterproof paints, Teflon coating, creating colors shops etc.) and Lead free paints;
- Impact of volatile organic compounds (VOCs), Lead free paints, Season and climate changes.
- Decrease in taxes on key raw materials will improve the position of the organized players.

4.5 JASTA PATA INDUSTRY

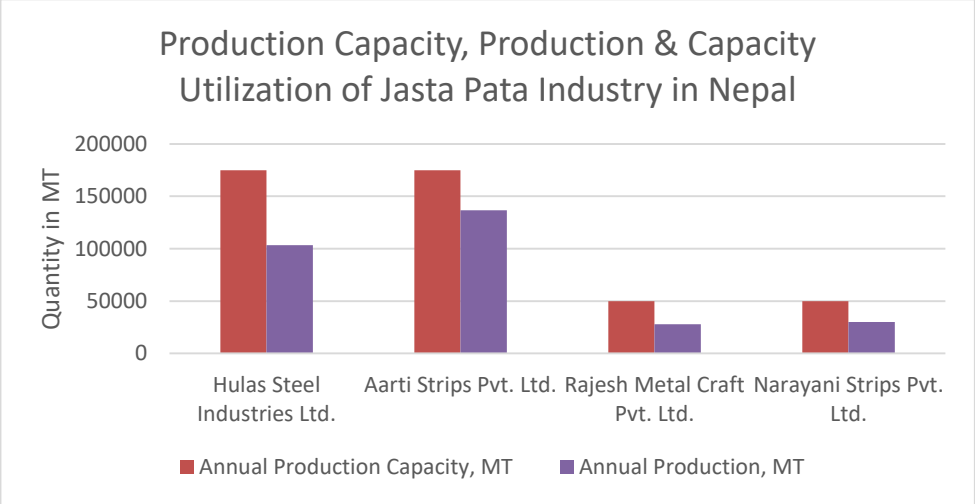
4.5.1 Production Capacity, Annual Production & Capacity Utilization of Jasta Pata in Nepal

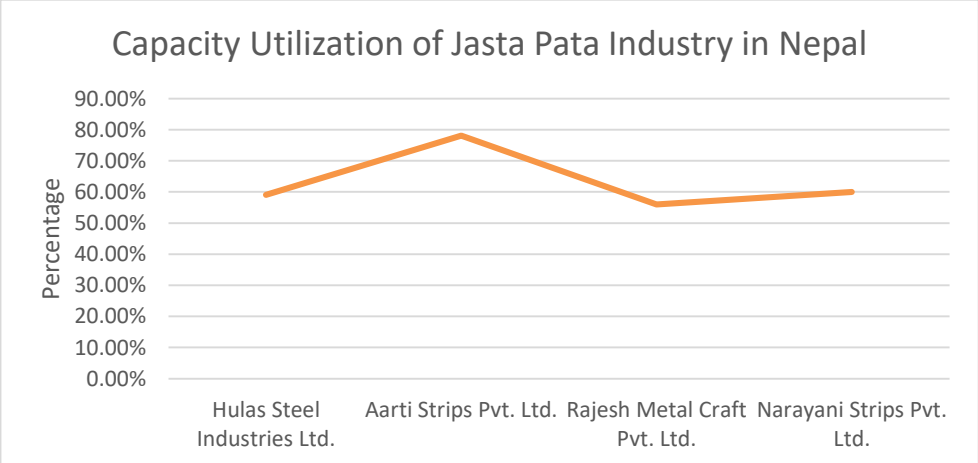
Table 4. 27 Production capacity, Production and capacity utilization of Jasta Pata in Nepal

S. N.	Product	Annual Production Capacity, MT	Annual Production, MT	Capacity Utilization
1	Hulas Steel Industries Ltd.	175000	103400	59.09%
2	Aarti Strips Pvt. Ltd.	175000	136600	78.05%
3	Rajesh Metal Craft Pvt. Ltd.	50000	28000	56.00%
4	Narayani Strips Pvt. Ltd.	50000	30000	60.00%
5	Jagdamba Steels Pvt. Ltd.	150000	-	-
Total		600000	298000	63.29%

(Source: Survey Data, 2021)

Figure 4. 20 Production capacity, Production and capacity utilization of Jasta Pata in Nepal





According to Survey statistical data, 2021, the production capacity for the Jasta Pata manufacturing is 600000 MT. Similarly, the annual production of Jasta Pata is found about 298000 MT. The average capacity utilization of the Jasta Pata Industries is 63.29% in the year 2076/77. The annual production will be increased after running of Jagdamba Steel Pvt. Ltd.

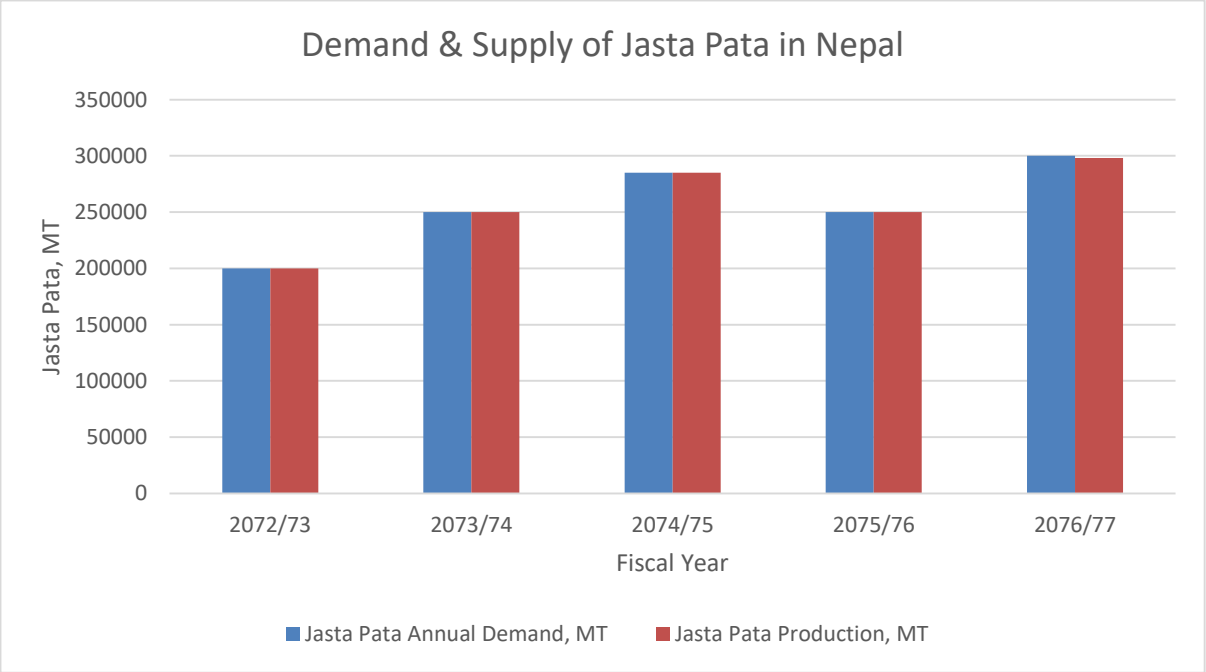
4.5.2 Demand and supply of Jasta Pata in Nepal

Table 4. 28 Jasta Pata Demand and Supply in Nepal

S. N.	Particular	Fiscal Year				
		2072/73	2073/74	2074/75	2075/76	2076/77
1.	Jasta Pata Annual Demand, MT	200000	250000	285000	300000	300000
2.	Jasta Pata Production, MT	200000	250000	285000	250000	298000
3.	Jasta Pata Import, MT	5.552	413.701	64.606	1632.737	2759.440
4.	Jasta Pata Export, MT	-	23824.8	27304.7	25778.9	10400.6

(Source: Survey Data, 2021, Custom Office)

Figure 4. 21 Jasta Pata Demand and Supply in Nepal



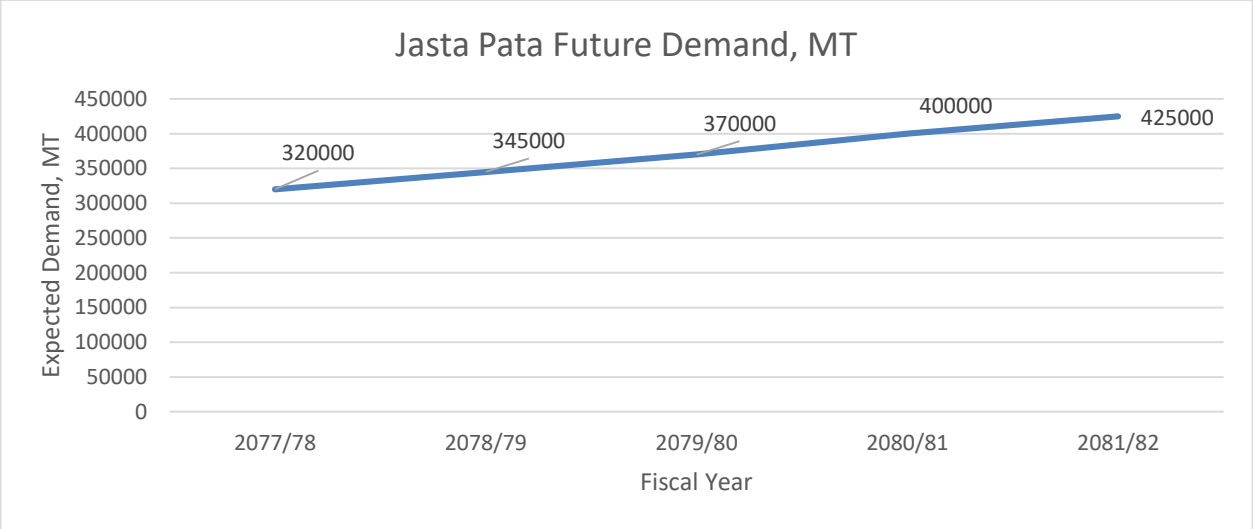
After devastating earthquake of 2072, the demand and supply of Jasta Pata gradually increased. The demand and supply were increased. The annual demand of Jasta Pata was 300000 MT in last fiscal year i.e. 2076/77. The import quantity of Jasta Pata was found increased in the year 2075/76 and 2076/77 i.e. 1633 MT and 2760 MT respectively. The growth of import was about 70% in year 2076/77 than in year 2075/76. The export quantity was found less in the fiscal year 2076/77 i.e. 10400 MT which were about double in previous years. According to industrialist, almost all demand is fulfilled by domestic manufacturers, since only 2660 MT of corrugated sheet has been imported on the year 2076/77.

Table 4. 29 Future Five Years Demand of Jasta Pata in Nepal

S. N.	Fiscal Year	Fiscal Year				
		2077/78	2078/79	2079/80	2080/81	2081/82
5.	Jasta Pata Future Demand, MT	320000	345000	370000	400000	425000

(Source: Survey Data, 2021)

Figure 4. 22 Future Five Years Demand of Jasta Pata in Nepal



According to the feedback provided by the industrialist, the future demand will be increased by about 7.36%.

4.5.3 Import Status of Jasta Pata in Nepal

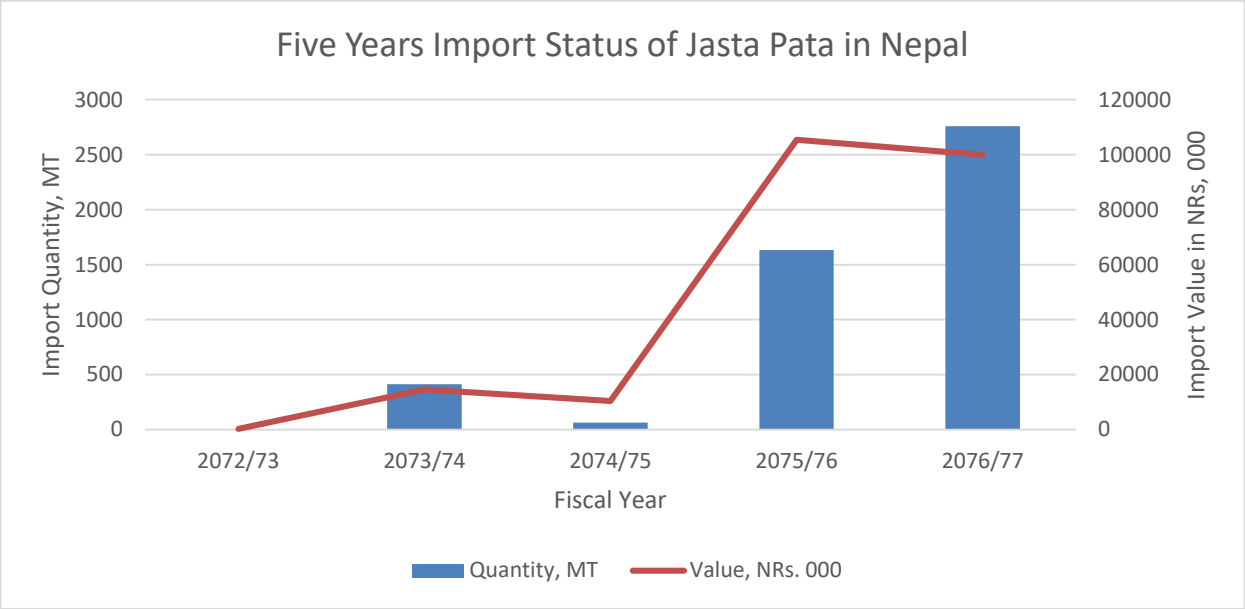
Table 4. 30 Import status of Jasta Pata in Nepal

S. N.	Jasta Pata Import	Unit	Fiscal Year				
			2072/73	2073/74	2074/75	2075/76	2076/77
1	Quantity	MT	5.552	413.701	64.606	1632.737	2759.44
2	Value, 000	NRs	299	14581	10431	105428.87	99922

(Source: Department of Custom)

The import quantity of Jasta Pata was found increased in the year 2075/76 and 2076/77 i.e. 1633 MT and 2760 MT respectively. The growth of import was about 70% in year 2076/77 than in year 2075/76. But the value was found almost the same in both the years. The import amount and value both are increased in the year 2075/76 than in the year 2074/75 by more than 2400%.

Figure 4. 23 Import status of Jasta Pata in Nepal



4.5.4 Industry Details of Selected Industries

Table 4. 31 Industry Details of Selected Industries

S. N.	Name of Industries	Province	District
1	Aarati Strips Pvt. Ltd.	1	Morang
2	Narayani Strips Pvt. Ltd.	2	Parsa
3	Hulas Steel Industries Ltd.	2	Bara
4	Jagdamba Steel Pvt. Ltd.	2	Bara
5	Rajesh Metal Craft Pvt. Ltd.	2	Bara

(Source: Survey Data 2021)

There are five Jasta Pata manufacturing industries in Nepal where four are running and one (Jagdamba Steels) is almost in planning phase. Four are located in Province – 2 and one in Province – 1. Their total annual production capacity is 430000 MT but they run in half of their capacity. They employed about 1500 direct and indirect manpower.

4.5.5 Export Status of Jasta Pata in Nepal

Table 4. 32 Export Status of Jasta Pata in Nepal

S. N.	Export of Jasta Pata	Unit	Fiscal Year				
			2072/73	2073/74	2074/75	2075/76	2076/77
1	Quantity	MT	-	23824.8	27304.7	25778.9	10400.6
2	Values, 000	NRs	-	2194144	2856180	2920277	1054718

(Source: Survey Data 2021, Department of Custom)

Jasta Pata is exported to India four folds more than that of import in quantity and value. The ready materials for Jasta Pata in coils have been exported to India by Aarati Strips in remarkable amount.

4.5.6 Status of Raw Material Availability for Jasta Pata Production

The raw materials used for manufacturing of roofing iron sheet are CR Sheet, Zinc and Paint which are imported mostly from India. A new technology i.e. Galvalum is applied in Hulas Steel and Aarati Strips consume Aluminum as coating materials along with zinc and almost purchased from India.

4.5.7 Technology Adoption in Jasta Pata Production

All the production technology of roofing iron sheet in Nepal are continuous. In 1983, Hulas Steel Industries commissioned the first sheet galvanizing line in Nepal using Japanese Technology. Now another line has been expanded by Hulas Steel Industries and Aarati Strips of world renowned technology “Galvalum” from China.

4.5.8 Employment in Jasta Pata Industry

Jasta Pata industries generate approximately 1500 direct and indirect employments. Among them, approximately 40% are skilled and semiskilled manpower, 5% are technical and rest are administrative and marketing manpower.

4.5.9 Electricity Demand and Supply to Jasta Pata Industry

Total electricity demand of Jasta Pata industries is about 62 MW (some industries manufactures other products also hence actual electricity consumption of Jasta Pata Manufacturing industries at current situation is approximately 10 MW only) which is being supplied sufficiently from NEA, but the quality of electricity supplied is not as good as expected. Almost industries having DG of smaller capacity, uses for few purposes like cutting and corrugation than operation of plant.

4.5.10 Quality Related

Product standard NS 141 for CGI Sheet has been mandatory in Nepal recently, however only two industries have got NS 141 license and other are under process of getting license since government has given them some time. Almost all industries have been certified with Management Systems i.e. ISO 9001 and ISO 14001.

4.5.11 Environment

Nepalese Jasta Pata manufacturing industry has some impact on the environment if wastage are not properly managed and treated. The major wastages generated are scraps, paints,

chemicals, noise, and smokes. As per Nepal gazette, the industries have to treat the wastage before discharge. The organization are monitoring the status of wastage yearly and disposing them safely.

4.5.12 Financial

According to statistical data of Department of Industry (DOI), more than Rs. 2.5 billion is invested in CGI Sheet Industries (Nepali Jasta Pata Udhyog).

4.5.13 Challenges Faced by Jasta Pata Manufacturing Industries

As most demand of Nepal for CGI Sheet is fulfilled by existing four domestic Industries, Nepal is almost self-reliant on CGI Sheet at current. However, an industry of big group is almost installed and forecast for starting production on April 2021, the capacity utilization of the industries would be decreased.

Nowadays, GI sheet used in roofing are being replace with attractive and light plastic and fiber sheet and tile due to which demand of GI Sheet is being affected.

After massive earthquake of 2072, traditional houses in rural areas are being replaced with concrete house. Thus the demand of GI Sheet is decreased.

CHAPTER V: CONCLUSION AND RECOMMENDATIONS

5.1 Findings and Conclusion

5.1.1 Tea Industry

- There are major two types of tea producers in Nepal i.e. CTC mostly in Jhapa District and Orthodox Tea in hilly region mostly in Ilam, Panchthar Dhankuta, Terhathum, Taplejung and Sankhuwasabha District.
- There are 146 tea estate and 14014 small tea farmers in Nepal and planted in 16905 hector area. Large tea plantations estates accounts for 72% of land used for growing tea. Small farmers, who mainly live in the hills and produce orthodox tea, cultivate the remaining 28% of land.
- Total tea production in the year 2019/20 was about 24 thousand metric tons, where CTC tea production contributes about 62%, Orthodox tea is 34% and green and other tea is 4%.
- The average capacity utilization of the tea Industry is about 60% for CTC and the orthodox tea is 45%.
- The actual demand of last year was 4000 MT higher than production in the year 2019/20. The average growth of demand of last five years is 2.61%.
- The five-years future demand of tea is 3.2 % average annual increment.
- Tea is imported mostly from India in the year 2019/20, i.e. about 91% (198 MT) and china followed by 6.37% (14 MT). Other countries are Sri Lanka, Turkey, Thailand, Malaysia, UAE, Italy and Bangladesh etc. The imported value in the year 2019/20 is 77.4 million rupees.
- The trend of tea imported volume for last five years was found decreasing stage but the value was stable.
- Nepal has exported tea to India as a major contribution in the year 2019/20, i.e. 96.7% (10816.3 MT) and 1.8% (204.5 MT) in Russia. Other countries are Russia, Germany, USA, Japan, Czech Republic, China, Singapore and Australia etc. Total export value in 2019/20 was 2.78 billion Rupees.
- In comparison to import of tea in Nepal, export was 50 times more and half of the tea production mostly orthodox tea was exported to India and other countries in the year 2019/20.
- The raw material for the finished tea is only the leaves of tea plant grown in local tea estates and small farms. The average yield of the tea production in the year 2019/20 is increased by 52%, although there was less plantation hector by 41% than past years.
- There are mainly two types of tea technology in Nepal i.e. CTC and Orthodox and they are adopted from India.

- Tea sector employs approximately 70,000 people directly and indirectly for an average of 30,000 full-time equivalent jobs, majority of whom are women (approximately 60%)
- Electricity demand is about 25 MW and supplied by NEA sufficiently.
- Twelve tea processing industries had received the certificate to use the national logo of orthodox tea "**Nepal Tea Quality From Himalayas**" by Nepal government. Few had got Organic Tea Certification and about 23 industries had certified with FSMS/HACCP certification.
- Almost of the tea manufacturers and processors are small (84%), few are medium scale (15%) and remaining are large (2%). Total investment in tea industries is approx. 8.5 billion rupees.
- Lack of experience in the tea processing business, supply-side issues, business environment constraints, social and economic status of the workers are the internal challenges.
- The Tea Policy, Indian tea traders & stakeholders, constraints to increasing overseas exports lacks of technical support, financial resources of private sector, market entry constraints are external challenges.
- Tariff for exporting, promoting export, financial support for sustainability and long term plan & policy are feedbacks to the government bodies.
- Participatory Auction Research for selection of suitable species and scientific quality research, human resource preparation related to technical skill development, establishment of organic certification body and brand promotion and strong marketing and value addition are suggestion provided by the Tea Associations.

5.1.2 Cable and Conductors Industry

- There are 13 industries selected for the study out of 25 registered industries in Nepal, among them four cable and conductor industries in province-1, two from province-2, four from Bagmati province, one from Gandaki province and two from Lumbini province.
- The actual demands of cables & conductors are quite lower than production capacity. The average capacity utilization of 25 cable and conductors is 40% including above five and other remaining products.
- Five-years future demand of electrical cables and conductors will be about 13 %.
- Conductors are imported mostly from India and China found continuously increasing in trend by 388%. Similarly, Copper winding wires by 383%. The import status of all the cables and conductors were found increased except Co-axial cables.
- Cables and conductors has been exported in very less quantity and irregular in the fiscal years as compared to import. Only Copper winding wires are found increased

export remarkably (from 38 KM in 2072/73 to 36963 KM in 2075/76) in the past four fiscal years, but it was not exported in the previous year (2076/77).

- The annual copper wire and rod as raw materials imported mostly from UAE, India and China are 5866.6 MT and the annual aluminum wires and rods imported mostly from India are 8775.9 MT in the year 2076/77.
- Insulated materials used for cables and conductors were 21548 MT and purchased from Thailand, South Korea, Taiwan, Germany.
- Besides these materials few materials like GI Wires and strips are purchased locally.
- Technology used for manufacturing of cables and conductors in Nepal are of Indian, Germany, UK and China. Processes are semi auto and manual. Nowadays, pot annealing is replaced with on line annealing system in few industries.
- Cable and conductor industries generate approximately 1000 direct and 5000 indirect employments. Among them, approximately 50% are skilled and semiskilled manpower.
- Total electricity demand by 25 cable and conductor industries is about 5 MW which is being supplied sufficiently from NEA.
- There is mandatory product standard for PVC insulated wires (house wiring cables) i.e. NS 344 in Nepal. NS 259 for ACSR conductors though not mandatory, customer like NEA and other projects ask for this products certification.
- Most of the cable & conductors manufacturing industries are certified with management system certification like ISO 9001 and ISO 14001.
- Almost of the Cable & Conductors manufacturers and processors are small (84%), few are medium scale (15%) and remaining are large (2%).
- Total investment is approx. 8.5 billion rupees for 25 Cable & Conductors manufacturing industries in DOI,
- Custom duty for importing raw materials, uninterruptible power supply, national and international Competitive Bidding (NCB/ICB) procurement to NEA and NCB procurements for Nepalese manufacturers are internal and external challenges.
- Tariff for raw materials, necessary plans and policies for export, Tender requirements of NEA and long term plan & policy for sustainability of cable and conductor industries are feedbacks to the government bodies.
- Tender competition from local industries for government and projects, support for raw materials import from third countries are suggestions provided by the NEEMA.

5.1.3 Footwear Industry

- There are about six large scale industries, 15 medium scale industries, 300 small scale industries and 1200 micro-scale manufacturers in Nepal. Out of which 30 industries

have been selected for the study, 2 from Province-1 and remaining 28 from Bagmati Province.

- Annual footwear production has been increased to to 45 million pairs in the year 2076/77. The capacity utilization is 37.5%.
- The production capacity for the footwear manufacturing is increased by approximately 2% in the fiscal year 2076/77. Similarly, the annual production of footwear is found increased by 50%.
- The footwear demand is 72.75 million pairs and domestic supply is only 45 million pairs in Nepal in the year 2076/77.
- The demand of footwear will be about 90 million pairs in the year 2077/78 in total and will be reached to 116 million pairs in year 2081/82 i.e. 28% increment in five years.
- The import of footwear, it was found highest in the year 2073/74 i.e. 39.24 million pairs however while comparing to the value, it was highest in the year 075/76 amounting 7.51 billion rupees.
- The export of footwear from Nepal in the year 2076/77 is 5.66 million pairs and in values, it is 1.60 billion, which is highest values in the last five year data.
- Raw materials used for footwear production are imported from China and India (80%) and remaining from other third countries. Buffalo leather is exported to India and again imported with quality tanning.
- Most of the production process of the Nepalese footwear is manual and the technology they adopted are Chinese, Italian, Taiwan and Indian.
- Footwear industries generate approximately 70000 direct and indirect employments. Among them, approximately 60% are skilled and semiskilled manpower.
- Total electricity demand of footwear industries is about 10 MW which is being supplied sufficiently from NEA.
- There is no mandatory product certification for footwear in Nepal. Some customers ask for ISO 9001 certification and testing of footwear products. Few industries are certified with ISO 9001:2015. Test methods for shoes are available in Nepal Standard and Nepal Army, Nepal Police etc. requires verification of footwear as per those NS Standards.
- Nepalese footwear market has minimum impact on the environment.
- More than Rs. 12 billion is invested in Nepali footwear industry.
- Identification of the nature of raw materials, the import taxes on some of the raw materials, high market competition in the quality of export footwear, open border, lack of modern technology in the footwear, shortage and sustenance of skilled labor, development of footwear zones, GoN rules, imported raw materials, the investment

capacity and supply of substandard raw materials by importers are major internal and external challenges, feedbacks and suggestion provided by the associations of footwear.

5.1.4 Paint Industry

- The production capacity for the Paint manufacturing is about 200000 MT. Similarly, the annual production of Paint is found about 118000 MT. The average capacity utilization of the Paint Industries is 59% in the year 2076/77.
- The annual demand of Paint was 130000 MT in the fiscal year 2076/77. Current market of Nepalese paint industries is approximately around 20 billion rupees.
- Almost all demand (more than 90%) is fulfilled by domestic manufacturers, since only 9448 MT of paint has been imported on the year 2076/77.
- The future demand will be increased by about 5.2% each year.
- The import quantity of Paint in the year 2076/77 is 9448 MT with the growth of 70%.
- There are 19 paint manufacturing industries associated with Nepal Paint Manufacturing Association (NPMA), 137 small paint and rosin manufacturing industries are registered under Department of Cottage and Small Industry, Nepal.
- Out of 12 small and medium scale paint industries registered DOI, 11 industries were selected for the study where one industry in Province – 1, two from Province – 2 and remaining from Bagmati Province.
- The raw materials used for manufacturing of Paint are imported almost from India.
- All the production technology of paint manufacturing in Nepal are Semi-automatic and automatic. They have used mostly Indian technology (TEPCO, TOYAN etc.).
- Paint industries generate approximately 5600 direct and indirect employments. Among them, approximately 30% are skilled and semiskilled manpower.
- Total electricity demand of Paint industries is about 14.5 MW where about 50% of electricity was demanded by large four industries.
- Though product standard (NS) for paint is not mandatory in Nepal, 11 industries have been received product standards (NS 85, NS 112, NS 117, NS 161). Few big industries like Asian Paint, Pashupati Paint, Berger Paint, J&N (Nepal) etc. have been certified with Management Systems i.e. ISO 9001, ISO 14001.
- Lead content in paint is health hazard, though mandatory standard for lead in paint of 90 ppm in Nepal. Paint also has the potential to cause both health and environmental impacts due to volatile organic compounds (VOCs). VOCs participate in the formation of ozone.

- More than Rs. 10.8 billion is invested in Paint Manufacturing Industries. There are 6 large scale industries, nine industries are medium scale and remaining are small scale industries.
- Availability of the technical manpower locally and high turnover; communication and coordination of government body with paint industries, consumer focus on foreign and multinational product, unhealthy market competition and tariff for industry and traders are the major challenges faced by the paint industries.

5.1.5 Jasta Pata Industry

- There are five Jasta Pata manufacturing industries in Nepal where four are running and one (Jagdamba Steels) is almost in planning phase. Four are located in Province – 2 and one in Province – 1.
- The production capacity for the Jasta Pata manufacturing is 600000 MT, the annual production is about 298000 MT and the average capacity utilization is 63.29% in the year 2076/77.
- The demand and supply of Jasta Pata is 300000 MT in the last fiscal year i.e. 2076/77.
- The import quantity of Jasta Pata in the year 2075/76 and 2076/77 i.e 1633 MT and 2760 MT respectively. The growth of import was about 70% in year 2076/77 than in year 2075/76.
- The export quantity and value both are decreased in the year 2076/77 i.e. 10400 MT and one billion rupees than previous year 2075/76 i.e. 25779 MT and 2.9 billion rupees.
- Almost all demand is fulfilled by domestic manufacturers, since only 2760 MT of corrugated sheet has been imported on the year 2076/77.
- According to the feedback provided by the industrialist, he future demand will be increased by about 7.36% each year.
- The raw materials used for manufacturing of roofing iron sheet are CR Sheet, Zinc and Paint which are imported mostly from India.
- All the production technology of roofing iron sheet in Nepal are continuous. In 1983, Hulas Steel Industries commissioned the first sheet galvanizing line in Nepal using Japanese Technology. Now another line has been expanded by Hulas Steel Industries and Aarati Strips of world renowned technology “Galvalum” from China.
- Jasta Pata industries generate approximately 1500 direct and indirect employments. Among them, approximately 40% are skilled and semiskilled manpower.
- Total electricity demand of Jasta Pata industries is about 62 MW including other iron and steel products. The actual consumption of the Jasta Pata is about 10 MW in current situation.

- Product standard (NS) for CGI Sheet is mandatory in Nepal, however only 2 big industries have got NS 141 and all industries have been certified with Management Systems i.e. ISO 9001 and ISO 14001.
- Jasta Pata manufacturing has some impact on the environment as they are using acids, paint and chemicals.
- More than Rs. 2.5 billion is invested in Jasta Pata Industries.
- Challenges for Jasta Pata Industry are:
  - As most demand of Nepal for CGI Sheet is fulfilled by existing four domestic Industries, Nepal is almost self-reliant on CGI Sheet at current. However, an industry of big group is almost installed and forecast for starting production on April 2021, the capacity utilization of the industries would be decreased.
  - Nowadays, Jasta Pata used in roofing are being replace with attractive and light plastic and fiber sheet and tile due to which demand of GI Sheet is being affected.
  - After massive earthquake of 2072, traditional houses in rural areas are being replaced with concrete house. Thus the demand of GI Sheet is decreased.

5.2 Recommendations/Way Forward

- Nepal government should facilitate for raw materials and latest technology procurement, so that the cost of production can be reduced and finished goods can be available at competitive price.
- Government should monitor and control for un-authorized import especially in border side for above products.
- It is recommended for further study from both government side and association of related products/FNCCI/CNI etc. for other such products so that the investment of the investor/ banks/ nation will not be in risk.
- Associations, industries and related stakeholders with the help of government should train required manpower from professional engineer to skilled supervisor, foreman etc. for all these industries.
- Because of disturbance in power supply it has been observed increase in wastage percentage, so it is suggested to provide the quality (uninterruptable) power supply.
- Industry should focus more on work environment and employee's health safety.

5.2.1 Tea Industry

- As there is a lot of potential for export, it seems necessary to simplify the export policy at the initiative of the Government of Nepal and ensure quality, food hygiene and organic certification.
- It is necessary to promote and expand tea cultivation in potential areas by researching and producing improved varieties of plants.
- It seems necessary to develop human resources related to technical skills.

5.2.2 Cable and Conductor Industry

- Government bodies/projects should give special priority to all quality domestic products while bidding tender especially in case of cable and conductors.

5.2.3 Footwear Industry

- Government should promote footwear and tea manufacturing industries by discouraging import on such products for the sustainable development of the national industries.
- Government may designate a special dress code for Nepalese footwear in governmental offices, schools and other which will promote domestic footwear industries in future.

5.2.4 Paint Industry

- Since market share of domestic paint manufacturing industries is very low as compared with multinational paint manufacturing industries; government should provide incentive for promoting domestic industries.
- Tariff of raw materials of paint for traders and industrialist should be different.

5.2.5 Jasta-Pata Industry

- Government should help to replace all thatched roof in rural areas by Jasta Pata which helps to sustain the Jasta-Pata manufacturing Industries.

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ANNEXES

ANNEX A: Team Composition

S.N	Name of Expert	Position in Team	Education	Experiences	Remarks
1.	Pradeep Raj Sitaula	Team Leader	M. Sc. (Env.) /M. A (Sociology)	10 Years	ISO 9001:2015/ ISO 14001:2015 Certified Auditor
2	Pom Raj Bhandari	Team Member	M. B. S. (Finance)	15 Years	ISO 9001:2015 Certified Auditor
3	Pratibha Sharma	Team Member	M. Sc. (Microbiology)	5 Years	

ANNEX B: Photographs

Data Collection at Nepal Wire and Cable Ind P. Ltd.

Data Collection at United Wire and Cable Ind P. Ltd.

Data Collection at Lumbini Vidyut Udhyog P. Ltd.

Data Collection at Mahalaxmi Wire and Cable Ind P. Ltd.

Team Leader at Ilam Tea Estate During Field Study

Khusbu Tea Estate

Meeting With General Secretary of HOTPA

Data Collection at Berger Paints

Factory Visit, Berger Paint, Hetauda

Meeting with officials of Asian Paints, Hetauda

Factory Visit, Hulas Steel Industries Ltd., Simara

Factory Visit, Hulas Steel Industries Ltd., Simara

Team Leader at Narayani Strips for data collection

Team Leader at Utshav Shoes Ind for data colletion

ANNEX C: Questionnaire for Study of Self-Reliant Industrial Goods in Nepal (for Industry)

Annex C.1: Tea Manufacturing

(This questionnaire is prepared only for study purpose and collected information shall be kept confidential. The study has been conducted on behalf of department of industry and the program is also sponsored by DOI)

Please fill up or tick (√) mark in the relevant answer.

Section 1: Introduction

1.1 Name of Organization: ……..……..…

1.2 Address

Particular	Registered Office	Factory
Province		
District		
Metro/Sub Metro Politian city/ municipality/Rural municipality		
Ward No		
Place		
Telephone No		
E Mail		
Year of establishment		

1.3 Legal Registration

a) Proprietor b) Partnership c) Private Limited d) Public Limited

1.4 Type of Organization.

a) Small b) Medium c) Large

1.5 Authorized person (Top Management)

a) Chairman/MD/Director ..... Contact No:……

b) CEO/GM/FM .....Contact No:……

1.6 How do you identify and traceable your products ……

……..……..……

Section 2: Investment

2.1 Capital

a) Fixed Rs. .....b) Working Rs. .....c) Total Rs. .....

2.2. Source of Investment

a) 100% Equity b) .....% Loan & .....% Equity c) 100% Foreign Investment

d).....% Internal ..... % Foreign Investment

2.3. Type of Investment

a) 100% Internal b) 100% Foreign c) Internal …… % Foreign .....%

Section 3: Production & Import

3.1: Type of Products

a) CTC Tea b) Orthodox Tea c) Others……

3.2: Production Capacity (In Quantity)

Approved Production Capacity	Actual Production Capacity	Existing Running Capacity	Capacity Utilization (%)

3.3: Production (in Quantity)

F/Y 2072/73		F/T 2073/74		FY 2074/075		FY 2075/076		F/Y 2076/077	
CTC	Orthodox	CTC	Orthodox	CTC	Orthodox	CTC	Orthodox	CTC	Orthodox

Section 4: Human Resource

4.1 Type & Number of Human resource

Particular	**Administrative**	**Technical/Skilled**	**Non Skilled**	**Other**	**Total**
Permanent					
Contract Basic					
Daily Wages					
Total					

Section 5: Electricity Consumption

5.1 Demand Electricity…….....KVA

5.2 Supplied Electricity by NEA…….....KVA

5.3 Annual Electricity Consumption ……..Units

5.4 Source of Energy Consumption (Kw/Year)

a) NEA..... b) Diesel..... c) Turbine……d) Other.....

5.5 Do NEA provide sufficient electricity to factory?

a) Yes b) No c) If no other source of energy in %.....

5.6 Do you have applied any mechanism to minimize energy consumption?

a) Yes b) No c) If yes what is method……

Section 6: Raw Material

6.1 Use of raw material (annual)

Year	Tea Leaf	Others	Remarks
F/Y 2072/73			
F/T 2073/74			
FY 2074/075			
FY 2075/076			
F/Y 2076/077			

Section 7: Technology Adopted

7.1 Import of machinery and country

a) ……

b) ……

7.2 Used Technology

Activity	**Technology Used**		
Mixing	Auto	Manual	Other
Filling	Auto	Manual	Other
Packing	Auto	Manual	Other
Storage/Handling	Auto	Manual	Other

Section 8: Quality Related

8.1 Do you have any product certifications?

a) Yes b) No c) if yes mention……

8.2 Do you have any other System certifications?

a) Yes b) No c) if yes mention……

Section 9: Market Management

9.1 Main Market .....

9.2 Annual Sales.

a) Distributors .....% b)Wholesalers.....% c) Retailers……%

d) Tender……% e) Others……%

9.3 Sales and Export

9.3.1 Sales

Fiscal Year	CTC		Orthodox		Remarks
	Quantity	Amount	Quantity	Amount	
F/Y 2072/73					
F/T 2073/74					
FY 2074/75					
FY 2075/76					
F/Y2076/77					

9.3.2 Export

Fiscal Year	CTC		Orthodox		Remarks
	Quantity	Amount	Quantity	Amount	
F/Y 2072/73					
F/T 2073/74					
FY 2074/75					
FY 2075/76					
F/Y2076/77					

Section 10: Financial Status

10.1 Profit/Loss in last Five Years

Fiscal Year	Profit (in Amount)	Profit in % (As per sales)
F/Y 2072/73		
F/T 2073/74		
FY 2074/75		
FY 2075/76		
F/Y 2076/77		

Section 11: Environment Related

22.1 Do you have Conducted IEE/EIA?

a) IEE b) EIA c) Others……

22.2 What method do you follow to minimize environmental Impact by Factory?

a) .....

b) .....

c) .....

22.3 Do you have faced any environmental Complaint?

a) Yes b) No c) If yes from where.....

Section 12: Relation and coordination with Government

12.1 Are Government policies helpful to develop the Industries?

a) Fully helpful b) Partially Helpful c) Not Helpful

12.2 What do you expect from following Government Bodies? (Suggestion for Government Bodies).

a) Company Registration Office……

b) Department of Industry……

d) Inland Revenue Department ……..……

e) Custom office……..

f) Nepal Electricity Authority ……..……

g) Others if any……..……

Section 13: Challenges Faced by Industry

13.1 Internal challenges

a) .....

b) .....

c) .....

13.2 Governmental (Policy and rules/ regulations)

a) .....

b) .....

c) .....

13.3 Technology Changes

1) .....

2) .....

3) .....

13.4 Establishment of large Plant/ Industries.

1).....

2) .....

3) .....

13.5 Import

a) .....

b) .....

c) .....

13.6 Consumer Awareness

a) .....

b) .....

c) .....

Section 14: Any Suggestion

a) .....

b) .....

c) .....

d) ……

e) ……

f) ……

Authorized Representative: …… Signature:-…….

Designation: …….., Date: ……..……. Seal:

-------END-------

Annex C.2: Footwear Manufacturing

(These questionnaire are prepared only for study purpose and collected information shall be kept confidential, The study has been conducted on behalf of department of industry and the program is also sponsored by DOI)

Please fill up or tick (√) mark in the relevant answer.

Section 1: Introduction

1.1 **Name of Organization**:……..……..…

1.2 Address

Particular	Registered Office	Factory
Province		
District		
Metro/Sub Metro Politian city/ municipality/Rural municipality		
Ward No		
Place		
Telephone No		
E Mail		
Year of establishment		

1.3 Legal Registration

a) Proprietor b) Partnership c) Private Limited d) Public Limited

1.4 Type of Organization.

a) Small b) Medium c) Large

1.7 Authorized person (Top Management)

a) Chairman/MD/Director ..... Contact No:……

b) CEO/GM/FM .....Contact No:……

1.8 How do you identify and traceable your products ……

……..……..……

Section 2: Investment

2.1 Capital

a) Fixed Rs. .....b) Working Rs. .....c) Total Rs. .....

2.2. Source of Investment

a) 100% Equity b) .....% Loan & .....% Equity c) 100% Foreign Investment

d).....% Internal ..... % Foreign Investment

2.3. Type of Investment

b) 100% Internal b) 100% Foreign c) Internal …… % Foreign .....%

Section 3: Production & Import

3.1: Type of Products

a) Lather Shoes/sandal b) synthesis Shoes/Sandal c) Sport Shoes d) Others…….

3.2: Production Capacity (In Quantity)

Approved Production Capacity	Actual Production Capacity	Existing Running Capacity	Capacity Utilization (%)

3.3: Production (in Quantity)

F/Y 2072/73	F/T 2073/74	FY 2074/075	FY 2075/076	F/Y 2076/077

Section 4: Human Resource

4.1 Type & Number of Human resource

Particular	**Administrative**	**Technical/Skilled**	**Non Skilled**	**Other**	**Total**
Permanent					
Contract Basic					
Daily Wages					
Total					

4.2 Are technical manpower easily available ?

a) Yes b) No c) If no other source/No of skilled manpower.....

Section 5: Electricity Consumption

5.1 Demand Electricity…….....KVA

5.2 Supplied Electricity by NEA…….....KVA

5.3 Annual Electricity Consumption ……..Units

5.4 Source of Energy Consumption (Kw/Year)

b) NEA..... b) Diesel..... c) Turbine……d) Other.....

5.5 Do NEA provide sufficient electricity to factory?

a) Yes b) No c) If no other source of energy in %.....

5.6 Do you have applied any mechanism to minimize energy consumption?

a) Yes b) No c) If yes what is method……

Section 6: Raw Material

6.1 Use of raw material (annual)

Year	Lather	Synthesis	Gum	Sole	Other
F/Y 2072/73					
F/T 2073/74					
FY 2074/075					
FY 2075/076					
F/Y 2076/077					

Section 7: Technology Adopted

7.1 Import of machinery and country

c) ……

d) ……

7.2 Used Technology

Activity	**Technology Used**		
cutting	Auto	Manual	Other
Stitching	Auto	Manual	Other
Polishing	Auto	Manual	Other
Storage/Handling	Auto	Manual	Other

Section 8: Quality Related

8.1 Do you have any product certifications?

a) Yes b) No c) if yes mention……

8.2 Do you have any other System certifications?

a) Yes b) No c) if yes mention……

Section 9: Market Management

9.1 Main Market .....

9.2 Annual Sales.

a) Distributors .....% b)Wholesalers.....% c)Retailers…….% d) Tender……% e) Others……%

9.3 Sales and Export

9.3.1 Sales

Fiscal Year	Quantity	Amount	Remarks
F/Y 2072/73			
F/T 2073/74			
FY 2074/075			
FY 2075/076			
F/Y2076/077			

9.3.2 Export

Fiscal Year	Quantity	Amount	Remarks
F/Y 2072/73			
F/T 2073/74			
FY 2074/075			
FY 2075/076			
F/Y2076/077			

Section 10: Financial Status

10.1 Profit/Loss in last Five Years

Fiscal Year	Profit (in Amount)	Profit in % (As per sales)
F/Y 2072/73		
F/T 2073/74		
FY 2074/075		
FY 2075/076		
F/Y 2076/077		

Section 11: Environment Related

11.1 Do you have Conducted IEE/EIA?

a) IEE b) EIA c) Others……

11.2 What method do you follow to minimize environmental Impact by Factory?

a) .....

b) .....

c) .....

11.3 Do you have faced any environmental Complaint?

a) Yes b) No c) If yes from where .....

Section 12: Relation and coordination with Government

12.1 Are Government policies helpful to develop the Industries?

a) Fully helpful b) Partially Helpful c) Not Helpful

12.2 What do you expect from following Government Bodies? (Suggestion for Government Bodies).

a) Company Registration Office……

b) Department of Industry……

c) Department of Cottage and Small Industries……..……..

d) Inland Revenue office……

e) Custom office……..

f) Nepal Electricity Authority……

g) Others if any……..……

Section 13: Challenges Faced by Industry

13.1 Internal challenges

a) .....

b) .....

c) .....

13.2 Governmental (Policy and rules/ regulations)

a) .....

b) .....

c) .....

13.3 Technology Changes

1) .....

2) .....

3) .....

13.4 Establishment of large Plant/ Industries.

1).....

2) .....

3) .....

13.5 Import

a) .....

b) .....

c) .....

13.6 Consumer Awareness

a) .....

b) .....

c) .....

Section 14: Any Suggestion

a) .....

b) .....

c) .....

d) ……

e) ……

f) ……

Authorized Representative: …… Signature:-…….

Designation: …….., Date: …….. Seal:

-------END-------

Annex C.3: Cable & Conductor Manufacturing

(These questionnaire are prepared only for study purpose and collected information shall be kept confidential. The study has been conducted on behalf of department of industry and the program is also sponsored by DOI)

Please fill up or tick (√) mark in the relevant answer.

Section 1: Introduction

1.1 **Name of Organization**:……..……..…

1.2 Address

Particular	Registered Office	Factory
Province		
District		
Metro/Sub Metro Politian city/ municipality/Rural municipality		
Ward No		
Place		
Telephone No		
E Mail		
Year of establishment		

1.3 Legal Registration

a) Proprietor b) Partnership c) Private Limited d) Public Limited

1.4 Type of Organization.

a) Small b) Medium c) Large

1.5 Authorized person (Top Management)

a) Chairman/MD/Director ..... Contact No:……

b) CEO/GM/FM .....Contact No:……

1.6 How do you identify and trace your products ……

……..……..……

Section 2: Investment

2.1 Capital

a) Fixed Rs. .....b) Working Rs. .....c) Total Rs. .....

2.2. Source of Investment

a) 100% Equity b) .....% Loan & .....% Equity c) 100% Foreign Investment

d).....% Internal ..... % Foreign Investment

2.3. Type of Investment

c) 100% Internal b) 100% Foreign c) Internal …… % Foreign .....%

Section 3: Production & Import

3.1: Type of Products

a) Multi Strand b) Power cable c) Tel Comm. Cable d) ACSR Conductor

e) Others……..……..

3.2: Production Capacity (In Quantity)

Particular	Multi Stand/HW	Power Cable	Tel. Comm. Cable	Concentric	ACSR Conductor	Others
Approved Production Capacity						
Actual Production Capacity						
Existing Running Capacity						
Capacity Utilization (%)						

3.3: Production (in Quantity)

Fiscal Year	Multi Stand/HW	Power Cable	Tel. Comm. Cable	Concentric	ACSR Conductor	Others
F/Y 2072/73						
F/T 2073/74						
FY 2074/075						
FY 2075/076						
F/Y2076/077						

Section 4: Human Resource

4.1 Type & Number of Human resource

Particular	**Administrative**	**Technical/Skilled**	**Non Skilled**	**Other**	**Total**
Permanent					
Contract Basic					
Daily Wages					
Total					

Section 5: Electricity Consumption

5.1 Demand Electricity…….....KVA

5.2 Supplied Electricity by NEA…….....KVA

5.3 Annual Electricity Consumption ……...Units

5.4 Source of Energy Consumption (Kw/Year)

c) NEA..... b) Diesel..... c) Other.....

5.5 Do NEA provide sufficient electricity to factory?

a) Yes b) No c) If no other source of energy in %.....

5.6 Do you have applied any mechanism to minimize energy consumption?

a) Yes b) No c) If yes what is method……

Section 6: Raw Material

6.1 Use of raw material (annual)

Year	Compound (PVC/XLPE)		Copper Rod/Wire	Aluminum Rod/Wire	MS Wire
	Own	Purchase			
F/Y 2072/73					
F/T 2073/74					
FY 2074/075					
FY 2075/076					
F/Y 2076/077					

6.2. Do you manufacture PVC Compound

a) Yes b) No c) If yes how much annually……

6.3. Do you Sales PVC Compound

a) Yes b) No c) If yes how much annually……

Section 7: Technology Adopted

7.1 Import of machinery and country

e) ……

f) ……

7.2 Used Technology

Activity	**Technology Used**		
Extrusion	Auto	Manual	Other
Twisting/Bunching	Auto	Manual	Other
Armouring	Auto	Manual	Other
Coiling	Auto	Manual	Other
Packing	Auto	Manual	Other
Storage/Handling	Auto	Manual	Other

Section 8: Quality Related

8.1 Do you have any product certifications?

a) Yes b) No c) if yes mention……

8.2 Do you have any other System certifications?

a) Yes b) No c) if yes mention……

Section 9: Market Management

9.1 Main Market .....

9.2 Annual Sales.

a) Distributors .....% b)Wholesalers.....% c)Retailers…….% d) Tender……% e) Others……%

9.3 Sales and Export

9.3.1 Sales

Fiscal Year	**Multi Stand/HW**	**Power Cable**	**Tel. Comm. Cable**	**Concentric**	**ACSR Conductor**	**Others**
F/Y 2072/73						
F/T 2073/74						
FY 2074/075						
FY 2075/076						
F/Y2076/077						

9.3.2 Export

Fiscal Year	**Multi Stand/HW**	**Power Cable**	**Tel. Comm. Cable**	**Concentric**	**ACSR Conductor**	**Others**
F/Y 2072/73						
F/T 2073/74						
FY 2074/075						
FY 2075/076						
F/Y2076/077						

Section 10: Financial Status

10.1 Profit/Loss in last Five Years

Fiscal Year	**Profit (in Amount)**	**Profit in % (As per sales)**
F/Y 2072/73		
F/T 2073/74		
FY 2074/075		
FY 2075/076		
F/Y 2076/077		

Section 11: Environment Related

11.1 Do you have Conducted IEE/EIA?

a) IEE b) EIA c) Others……

11.2 What method do you follow to minimize environmental Impact by Factory?

a) .....

b) .....

c) .....

11.3 Do you have faced any environmental Complaint?

a) Yes b) No c) If yes from where .....

Section 12: Relation and coordination with Government

12.1 Are Government policies helpful to develop the Industries?

a) Fully helpful b) Partially Helpful c) Not Helpful

12.2 What do you expect from following Government Bodies? (Suggestion for Government Bodies).

a) Company Registration Office……

b) Department of Industry……

c) Department of Industry……..

d) Inland Revenue Department……..……

e) Custom office……..

f) Nepal Electricity Authority……

g) Others if any……..……

Section 13: Challenges Faced by Industry

13.1 Internal challenges

a) .....

b) .....

c) .....

13.2 Governmental (Policy and rules/ regulations)

a) .....

b) .....

c) .....

13.3 Technology

1) .....

2) .....

3) .....

13.4 Establishment of large Plant/ Industries.

1).....

2) .....

3) .....

13.5 Import

a) .....

b) .....

c) .....

13.6 Consumer Awareness

a) .....

b) .....

c) .....

Section 14: Any Suggestion

a) .....

b) .....

c) .....

d) ……

e) ……

f) ……

Authorized Representative: …… Signature:-…….

Designation: …….., Date: …… Seal:

-------END-------

Annex C.4: Paint Manufacturing

(These questionnaire are prepared only for study purpose and collected information shall be kept confidential. The study has been conducted on behalf of department of industry and the program is also sponsored by DOI)

Please fill up or tick (√) mark in the relevant answer.

Section 1: Introduction

1.1 **Name of Organization**:……..……

1.2 Address

Particular	Registered Office	Factory
Province		
District		
Metro/Sub Metro Politian city/ municipality/Rural municipality		
Ward No		
Place		
Telephone No		
E Mail		
Year of establishment		

1.3 Legal Registration

a) Proprietor b) Partnership c) Private Limited d) Public Limited

1.4 Type of Organization.

a) Small b) Medium c) Large

1.5 Authorized person (Top Management)

a) Chairman/MD/Director ..... Contact No:……

b) CEO/GM/FM .....Contact No:……

1.6 How do you identify and traceable your products ……

……..……..……

Section 2: Investment

2.1 Capital

a) Fixed Rs. .....b) Working Rs. .....c) Total Rs. .....

2.2. Source of Investment

a) 100% Equity b) .....% Loan & .....% Equity c) 100% Foreign Investment

d).....% Internal ..... % Foreign Investment

2.3. Type of Investment

d) 100% Internal b) 100% Foreign c) Internal …… % Foreign .....%

Section 3: Production & Import

3.1: Type of Products

a) Water based……

b) Oil based ……

c) Others……..

3.2: Production Capacity (In Quantity)

Approved Production Capacity	Actual Production Capacity	Existing Running Capacity	Capacity Utilization (%)

3.3: Production (in Quantity)

Fiscal Year	Water based	Oil based	Others
F/Y 2072/73			
F/T 2073/74			
FY 2074/075			
FY 2075/076			
F/Y 2076/077			

Section 4: Human Resource

4.1 Type & Number of Human resource

Particular	**Administrative**	**Technical/Skilled**	**Non Skilled**	**Other**	**Total**
Permanent					
Contract Basic					
Daily Wages					
Total					

Section 5: Electricity Consumption

5.1 Demand Electricity…….....KVA

5.2 Supplied Electricity by NEA…….....KVA

5.3 Annual Electricity Consumption ……..Units

5.4 Source of Energy Consumption (Kw/Year)

d) NEA..... b) Diesel..... c) Turbine……d) Other.....

5.5 Do NEA provide sufficient electricity to factory?

a) Yes b) No c) If no other source of energy in %.....

5.6 Do you have applied any mechanism to minimize energy consumption?

a) Yes b) No c) If yes what is method……

Section 6: Raw Material

6.1 Use of raw material (annual)

Year	Pigments	Resin	Powder	Additives	Binder	Others
F/Y 2072/73						
F/T 2073/74						
FY 2074/075						
FY 2075/076						
F/Y 2076/077						

Section 7: Technology Adopted

7.1 Import of machinery and country

g) ……

h) ……

7.2 Used Technology

Activity	Technology Used		
Mixing	Auto	Manual	Other
Filling	Auto	Manual	Other
Packing	Auto	Manual	Other
Storage/Handling	Auto	Manual	Other

Section 8: Quality Related

8.1 Do you have any product certifications?

a) Yes b) No c) if yes mention……..…….

8.2 Do you have any other System certifications?

a) Yes b) No c) if yes mention…….

Section 9: Market Management

9.1 Main Market......

9.2 Annual Sales.

a) Distributors .....% b)Wholesalers.....% c)Retailers…….% d) Tender……% e) Others……%

9.3 Sales and Export

9.3.1 Sales

Fiscal Year	Water based	Oil based	Others
F/Y 2072/73			
F/T 2073/74			
FY 2074/075			
FY 2075/076			
F/Y2076/077			

9.3.2 Export

Fiscal Year	Water based	Oil based	Others
F/Y 2072/73			
F/T 2073/74			
FY 2074/075			
FY 2075/076			
F/Y2076/077			

Section 10: Financial Status

10.1 Profit/Loss in last Five Years

Fiscal Year	**Profit (in Amount)**	**Profit in % (As per sales)**
F/Y 2072/73		
F/T 2073/74		
FY 2074/075		
FY 2075/076		
F/Y 2076/077		

Section 11: Environment Related

11.1 Do you have Conducted IEE/EIA?

a) IEE b) EIA c) Others……

11.2 What method do you follow to minimize environmental Impact by Factory?

a) .....

b) .....

c) .....

11.3 Do you have faced any environmental Complaint?

a) Yes b) No c) If yes from where .....

Section 12: Relation and coordination with Government

12.1 Are Government policies helpful to develop the Industries?

a) Fully helpful b) Partially Helpful c) Not Helpful

12.2 What do you expect from following Government Bodies? (Suggestion for Government Bodies).

a) Company Registration Office……

b) Department of Industry……

c) Department of Cottage and Small Industries……..……..

d) Inland Revenue Department……..……

e) Custom office……..

f) Nepal Electricity Authority……

g) Others if any……..……

Section 13: Challenges Faced by Industry

13.1 Internal challenges

a) .....

b) .....

c) .....

13.2 Governmental (Policy and rules/ regulations)

a) .....

b) .....

c) .....

13.3 Technology Changes

1) .....

2) .....

3) .....

13.4 Establishment of large Plant/ Industries.

1).....

2) .....

3) .....

13.5 Import

a) .....

b) .....

c) .....

13.6 Consumer Awareness

a) .....

b) .....

c) .....

Section 14: Any Suggestion

a) .....

b) .....

c) .....

d) ……

e) ……

f) ……

Authorized Representative: …… Signature:-…….

Designation: …….., Date: ……. Seal:

-------END-------

Annex C.5: CGI (Corrugated Galvanized Iron) Sheet Manufacturing

(These questionnaire are prepared only for study purpose and collected information shall be kept confidential, The study has been conducted on behalf of department of industry and the program is also sponsored by DOI)

Please fill up or tick (√) mark in the relevant answer.

Section 1: Introduction

1.1 **Name of Organization**:……..……..…

1.2 Address

Particular	Registered Office	Factory
Province		
District		
Metro/Sub Metro Politian city/ municipality/Rural municipality		
Ward No		
Place		
Telephone No		
E Mail		
Year of establishment		

1.3 Legal Registration

a) Proprietor b) Partnership c) Private Limited d) Public Limited

1.4 Type of Organization.

a) Small b) Medium c) Large

1.5 Authorized person (Top Management)

a) Chairman/MD/Director ..... Contact No:……

b) CEO/GM/FM .....Contact No:……

1.6 How do you identify and traceable your products ……

……..……..……

Section 2: Investment

2.1 Capital

a) Fixed Rs. .....b) Working Rs. .....c) Total Rs. .....

2.2. Source of Investment

a) 100% Equity b) .....% Loan & .....% Equity c) 100% Foreign Investment

d).....% Internal ..... % Foreign Investment

2.3. Type of Investment

e) 100% Internal b) 100% Foreign c) Internal …… % Foreign .....%

Section 3: Production & Import

3.1: Type of Products

a) Plain Sheet b) Color Sheet c) Corrugated Sheet color & plain

e) Others……..…….

3.2: Production Capacity (In MT)

Approved Production Capacity	Actual Production Capacity	Existing Running Capacity	Capacity Utilization (%)

3.3: Production (in MT)

F/Y 2072/73	F/T 2073/74	FY 2074/075	FY 2075/076	F/Y 2076/077

Section 4: Human Resource

4.1 Type & Number of Human resource

Particular	**Administrative**	**Technical/Skilled**	**Non Skilled**	**Other**	**Total**
Permanent					
Contract Basic					
Daily Wages					
Total					

Section 5: Electricity Consumption

5.1 Demand Electricity…….....KVA

5.2 Supplied Electricity by NEA…….....KVA

5.3 Annual Electricity Consumption ……..Units

5.4 Source of Energy Consumption (Kw/Year)

e) NEA..... b) Diesel..... c) Turbine……d) Other.....

5.5 Do NEA provide sufficient electricity to factory?

a) Yes b) No c) If no other source of energy in %.....

5.6 Do you have applied any mechanism to minimize energy consumption?

a) Yes b) No c) If yes what is method……

Section 6: Raw Material

6.1 Use of raw material (annual (MT)

Year	M.S Sheet	Zinc	Color	Acid & Chemical	others
F/Y 2072/73					
F/T 2073/74					
FY 2074/075					
FY 2075/076					
F/Y 2076/077					

Section 7: Technology Adopted

7.1 Import of machinery and country

i) ……

j) ……

7.2 Used Technology

Activity	**Technology Used**		
Cutting	Auto	Manual	Other
Painting	Auto	Manual	Other
Packing	Auto	Manual	Other
Storage/Handling	Auto	Manual	Other

Section 8: Quality Related

8.1 Do you have any product certifications?

a) Yes b) No c) if yes mention……

8.2 Do you have any other System certifications?

a) Yes b) No c) if yes mention……

Section 9: Market Management

9.1 Main Market .....

9.2 Annual Sales.

a) Distributors .....% b)Wholesalers.....% c)Retailers…….% d) Tender……% e) Others……%

9.3 Sales and Export

9.3.1 Sales

Fiscal Year	Quantity	Amount	Remarks
F/Y 2072/73			
F/T 2073/74			
FY 2074/075			
FY 2075/076			
F/Y2076/077			

9.3.2 Export

Fiscal Year	Quantity	Amount	Remarks
F/Y 2072/73			
F/T 2073/74			
FY 2074/075			
FY 2075/076			
F/Y2076/077			

Section 10: Financial Status

10.1 Profit/Loss in last Five Years

Fiscal Year	Profit (in Amount)	Profit in % (As per sales)
F/Y 2072/73		
F/T 2073/74		
FY 2074/075		
FY 2075/076		
F/Y 2076/077		

10.2 Future Demand

Fiscal Year	Quantity	Amount	Remarks
F/Y 2077/78			
F/Y 2078/79			
F/Y 2079/80			

Section 11: Environment Related

11.1 Do you have Conducted IEE/EIA?

a) IEE b) EIA c) Others……

11.2 What method do you follow to minimize environmental Impact by Factory?

a) .....

b) .....

c) .....

11.3 Do you have faced any environmental Complaint?

a) Yes b) No c) If yes from where .....

Section 12: Relation and coordination with Government

12.1 Are Government policies helpful to develop the Industries?

a) Fully helpful b) Partially Helpful c) Not Helpful

12.2 What do you expect from following Government Bodies? (Suggestion for Government Bodies).

a) Company Registration Office……

b) Department of Industry……

c) Department of Cottage and Small Industries……..

d) Inland Revenue Department……..……

e) Custom office……..

f) Nepal Electricity Authority……

g) Others if any……..……

Section 13: Challenges Faced by Industry

13.1 Internal challenges

a) .....

b) .....

c) .....

13.2 Governmental (Policy and rules/ regulations)

a) .....

b) .....

c) .....

13.3 Technology Changes

1) .....

2) .....

3) .....

13.4 Establishment of large Plant/ Industries.

1).....

2) .....

3) .....

13.5 Import

a) .....

b) .....

c) .....

13.6 Consumer Awareness

a) .....

b) .....

c) .....

Section 14: Any Suggestion

a) .....

b) .....

c) .....

d) ……

e) ……

f) ……

Authorized Representative: …… Signature:-…….

Designation: …….., Date: …… Seal:

-------END-------

ANNEX D: Questionnaire for Study of Self-Reliant Goods in Nepal (for Association)

Annex D.1: Tea Manufacturing

(These questionnaire are prepared only for study purpose and collected information shall be kept confidential.The study has been conducted on behalf of department of industry and the program is also sponsored by DOI)

Please fill up or tick (√) mark in the relevant answer

1. **Total Tea Industries Operation in Nepal……**
2. **Consumption of Tea**

F/Y 2072/73		F/T 2073/74		FY 2074/075		FY 2075/076		F/Y 2076/077	
CTC	Orthodox	CTC	Orthodox	CTC	Orthodox	CTC	Orthodox	CTC	Orthodox

3. **Fulfillment of Demand**

Country	**CTC**		**Orthodox**		**Remarks**
	Quantity	**Amount**	**Quantity**	**Amount**	
Nepal (%)					
India (%)					
Others (%)					

4. **Import of Tea**

Fiscal Year	CTC		Orthodox		Remarks
	Quantity	Amount	Quantity	Amount	
F/Y 2072/73					
F/T 2073/74					
FY 2074/075					
FY 2075/076					
F/Y2076/077					

5. Future Demand

Fiscal Year	CTC		Orthodox		Remarks
	Quantity	Amount	Quantity	Amount	
F/Y 2077/78					
F/T 2078/79					

6. Is Tea Exported?

a)Yes b) No

If yes where and how much annually/Type

.....

…….

7. Are all established Industries Sustain?

a) Yes (give reason)……

b) No (give

reason).....

8. Is it possible to export Tea? What are the facilities Nepal Government should provide to export ?

1).....

2).....

3).....

9. What are the challenge faced by Nepalese Tea industries?

1).....

2).....

3) ……

10. What improvement should be made to develop and self-reliant to the tea manufacturing Industries?

10.1 From Government Level/Policy level

a) .....

b).....

c).....

10.2 From Association Level

a) .....

b).....

c).....

10.3 From Industry Level

a) .....

b).....

c).....

11. Is there any possibility of Raw material availability for future in Nepal ?

a) Yes b) No

If Yes mention……

b) Any Suggestion

a).....

b).....

c).....

d) ……

e) ……

f) ……

Authorized Representative: …… Signature:-…….

Designation: …….., Date: ……..…… Seal:

-------END-------

Annex D.2: Footwear Manufacturing

(These questionnaire are prepared only for study purpose and collected information shall be kept confidential. The study has been conducted on behalf of department of industry and the program is also sponsored by DOI)

Please fill up or tick (√) mark in the relevant answer

1. **Total Footwear Industries Operation in Nepal……**
2. **Consumption of Footwear**

F/Y 2072/73	F/Y 2073/74	F/Y 2074/75	FY 2075/76	F/Y 2076/77

3. **Fulfillment of Demand**

Country	**Quantity**	**Amount**	**Remarks**
Nepal (%)			
India (%)			
China (%)			
Others (%)			

4. **Import of Footwear**

Fiscal Year	**Quantity**	**Amount**	**Remarks**
F/Y 2072/73			
F/Y 2073/74			
F/Y 2074/75			
FY 2075/76			
F/Y 2076/77			

5. **Future Demand of Footwear**

Fiscal Year	**Quantity**	**Amount**	**Remarks**
F/Y 2077/78			
F/Y 2078/79			
F/Y 2079/80			

6. Purchase of Raw Material

Country	Quantity	Amount	Remarks
Nepal (%)			
India (%)			
China (%)			
Others (%)			

7. Is Footwear Exported?

a) Yes b) No

If yes where and how much annually/Type .....

……

8. Are all established Industries Sustain?

a) Yes (give reason)……

b) No (give reason).....

9. Is there any possibility of Raw material availability for future in Nepal?

a) Yes b) No

If Yes mention ……

.....

10. Are technical Manpower easily available with in Country?

a) Yes b) No

If No mention how industries fulfilled ……

11. Is it possible to export Footwear? What are the facilities Nepal Government should provide to export?

1).....

2).....

3).....

12. What are the challenge faced by Nepalese Footwear industries?

1).....

2).....

3) ……

13. What improvement should be made to develop and sustain and to make self-reliant to Footwear manufacturing Industries?

13.1 From Government Level/Policy level

a) .....

b).....

c).....

13.2 From Association Level

a) .....

b).....

c).....

13.3 From Industry Level

a) .....

b).....

c).....

14. Any Suggestion

a).....

b).....

c).....

d) ……

e) ……

f) ……

Authorized Representative: …… Signature:-…….

Designation: …….., Date: ……. Seal:

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Annex D.3: Cable & Conductors Manufacturing

(These questionnaire are prepared only for study purpose and collected information shall be kept confidential. The study has been conducted on behalf of department of industry and the program is also sponsored by DOI)

Please fill up or tick (√) mark in the relevant answer

1. **Total cable and conductor Industries Operation in Nepal……**
2. **Consumption of cable and conductor**

Fiscal Year	Multi Stand/HW	Power Cable	Tel. Comm. Cable	Concentric	ACSR Conductor	Others
F/Y 2072/73						
F/Y 2073/74						
F/Y 2074/75						
FY 2075/76						
F/Y 2076/77						

3. **Fulfillment of Demand**

Country	Multi Stand/HW	Power Cable	Tel. Comm. Cable	Concentric	ACSR Conductor	Others
Nepal (%)						
India (%)						
Others (%)						

4. **Import of Cable and conductor (Quantity)**

Fiscal Year	Multi Stand/HW	Power Cable	Tel. Comm. Cable	Concentric	ACSR Conductor	Others
F/Y 2072/73						
F/Y 2073/74						
F/Y 2074/75						
FY 2075/76						
F/Y 2076/77						

5. Import of Cable and Conductors (in Amount)

Fiscal Year	Multi Stand/HW	Power Cable	Tel. Comm. Cable	Concentric	ACSR Conductor	Others
F/Y 2072/73						
F/Y 2073/74						
F/Y 2074/75						
FY 2075/76						
F/Y 2076/77						

6. Future Demand (Increase rate of consumption of cable and conductor)

Fiscal Year	Multi Stand/HW	Power Cable	Tel. Comm. Cable	Concentric	ACSR Conductor	Others
F/Y 2077/78						
F/Y 2078/79						

7. Are cable and Conductor Exported?

a)Yes b) No

If yes where and how much annually/Type .....

……

8. Are all established Industries Sustain?

a) Yes (give reason)……

b) No (give reason).....

9. Is it possible to export of cable and conductors? What are the facilities Nepal Government should provide to export?

1).....

2).....

3).....

10. What are the challenge faced by Nepalese Cable and conductor industries?

1).....

2).....

3) ……

4)…….

11. What improvement should be made to develop and to make self -reliant to cable and conductor manufacturing Industries?

11.1 From Government Level/Policy level

a) .....

b).....

c).....

11.2 From Association Level

a) .....

b).....

c).....

11.3 From Industry Level

a) .....

b).....

c).....

12. Is there any possibility of Raw material availability for future in Nepal?

a) Yes b) No

If Yes mention……

13. Any Suggestion

a).....

b).....

c).....

d) ……

e) ……

f) ……

Authorized Representative: …… Signature:-…….

Designation: …….., Date: ……. Seal:

-------END-------

Annex D.4: Paint Manufacturing

(These questionnaire are prepared only for study purpose and collected information shall be kept confidential. The study has been conducted on behalf of department of industry and the program is also sponsored by DOI)

Please fill up or tick (√) mark in the relevant answer

1. **Total Paint Industries Operation in Nepal……**
2. **Consumption of Paint (Kg)**

Fiscal Year	Water Based	Oil Based	Others
F/Y 2072/73			
F/Y 2073/74			
F/Y 2074/75			
FY 2075/76			
F/Y 2076/77			

3. **Fulfillment of Demand**

Country		**Quantity**	**Amount**	**Remarks**
Nepal (%)	Multinational			
	National			
India (%)				
Others (%)				

4. **Import of Paint**

Fiscal Year	Water Based	Oil Based	Others
F/Y 2072/73			
F/Y 2073/74			
F/Y 2074/75			
FY 2075/76			
F/Y 2076/77			

5. Future Demand

Fiscal Year	Water Based	Oil Based	Others
F/Y 2077/78			
F/Y 2078/79			

6. Is Paint Exported?

a) Yes b) No

If yes where and how much annually/Type .....

……

7. Are all established Industries Sustain?

a) Yes (give reason)……

b) No (give reason).....

8. Is it possible to export paint? What are the facilities Nepal Government should provide to export?

1).....

2).....

3).....

9. What are the challenge faced by Nepalese paint industries?

1).....

2).....

3) ……

10. What improvement should be made to develop and sustain to make self-reliant to Paint manufacturing Industries?

10.1 From Government Level/Policy level

a) .....

b).....

c).....

10.2 From Association Level

a) .....

b).....

c).....

10.3 From Industry Level

a) .....

b).....

c).....

11. Is there any possibility of Raw material availability for future in Nepal ?

a) Yes b) No

If Yes mention……

12. Any Suggestion

a).....

b).....

c).....

d) ……

e) ……

f) ……

Authorized Representative: …… Signature:-…….

Designation: …….., Date: ……. Seal:

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