



Challenges of Distribution in Nepal

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Bachelors Degree Thesis
Bachelors Degree Programme
2022

DEGREE THESIS	
Arcada	
Degree Programme:	International Business
Identification number:	8642
Author:	Rajendra Nepali
Title:	Challenges of Distribution in Nepal
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Commissioned by:	
<p>Nepal is a small landlocked country located in South Asia between India and China. The imports and exports of materials in the country is dependent on these countries specially on India as India and Nepal share open borders. Being a country mostly covered with mountains and hills, the distribution of supplies to the consumers is mainly dependent on air and road. Hence, as a least developing country, road transport plays a vital role in the distribution and supply chain because it is affordable and therefore most common. The aim of the research was to identify the challenges in distribution in Nepal through road transport. The purpose of the study was to search for the best possible solutions by identifying the problems and challenges of distribution of Nepal. The theories of logistics such as; supply chain, transportation, distribution, delivery service, route planning and PESTLE were selected to compare the data and information for the quality results for the research. Qualitative research method was selected since the features of this method matched the aim of the study. A semi-structured interview was conducted for the collection of primary data and several economic surveys, journals and relevant scientific materials were studied and reviewed as a secondary source of data. The results showed that unmanaged traffic systems in urban areas and unavailability of proper transport roads in rural parts were the major challenges in the country. Other results were analysed through comparisons and analysed through PESTLE analysis. The results showed that the government of Nepal need to focus on the real and basic issues like; construction of proper roads and infrastructures as well as development of proper traffic systems in order to bring efficient and vibrant changes. The data collection and interviews were conducted during spring of 2022 and the research was finalized during the autumn of 2022.</p>	
Keywords:	Logistics, Distribution, Challenges, Road Transportation, Supply chain, Route Planning, Rural areas, Urban areas
Number of pages:	63
Language:	English
Date of acceptance:	

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1 INTRODUCTION

Nepal had a liberalized trade policy to a great extent even before its entry to World Trade Organization in 2004 as 147th member. (Rajkarnikar 2010).

“Nepalese foreign trade performance has so far been poor. Several factors seem to be responsible, and of these, its landlocked is one of the major causes for Nepal's weak production base, which is eventually linked with the growth of exports and imports of technology and raw material. Not only the open border with India but also the limited transit facilities in one or other way have constrained its trade with overseas countries.” (Sharma & Bhand 2005).

Nepal's imports and exports situation can be shown as table 1.

Table 1 Foreign trade of Nepal (Ministry of Finance 2021)

Details	Before Covid-19		Covid Period	
	2018	2019	2020	2021
Export	8,558	10,722.40	10,014.80	3,072.30
Import	139,995.40	139,279.60	114,104	41,849
Total Trade	148,553.50	150,002	124,118.80	44,921.30
Total Deficit	131,437.40	128,557.10	104,089.20	38,776.70
Export/Import Ratio	6.10	7.70	8.80	7.30
Share of Export to Total Trade	5.80	7.10	8.10	6.80
Share of Import to Total Trade	94.20	92.90	91.90	93.20

According to WITS (World Integrated Trade Solution), Nepal's total value of exports is 741 million dollars and imports is 10,038 million US dollars as per 2017. Nepal exports 1,093 products to 124 countries and imports 4,146 products from 147 countries. But Nepal imports most of its products and raw material supplies from India.

“Nepal is known to have a comparative advantage in products like handmade woollen carpets, Pashmina products, readymade garments (RMG), leather and leather products, handicrafts, and gold and silver jewellery and in the tourism, hydroelectricity, and agro-processing industries. However, sandwiched between two large manufacturing powerhouses, India and China, Nepal faces huge disadvantages relating to the economy of scales.” (Chaudhary et. al. 2018).

Nepal, being a landlocked country, has also become the main reason for the dependency on India and China. The imports and exports dependency of Nepal with various countries is shown in table 2. Table 2 shows the top imports and exports dependency of Nepal is India since Nepal is surrounded by India and Nepal develops the free border trade with India.

Table 2 Major Imports and Exports countries of Nepal (Department of Customs Nepal 2021)

Major Trading Partners of Nepal (Six Month Provisional)					Major Trading Partners of Nepal (Six Month Provisional)				
Exports					Imports				
S.N	Countries/Region	F.Y. 2076/77 (Shrawan-Paush) (2019/20)	F.Y. 2077/78 (Shrawan-Paush) (2020/21)	% Change in value	S.N	Countries/Region	F.Y. 2076/77 (Shrawan-Paush) (2019/20)	F.Y. 2077/78 (Shrawan-Paush) (2020/21)	% Change in value
1	India	40.14	43.5	8.4	1	India	423.84	438.83	3.5
2	United States	5.63	6.6	17.5	2	China	118.25	96.33	-18.5
3	Germany	1.71	1.8	4.2	3	Argentina	5.22	15.30	193.3
4	United Kingdom	1.34	1.3	-1.3	4	U.A.E	10.33	14.69	42.2
5	France	0.71	0.7	2.2	5	Canada	6.98	8.49	21.6
6	Japan	0.57	0.6	6.8	6	U.S.A	10.23	6.67	-34.8
7	Australia	0.32	0.5	63.4	7	Indonesia	20.24	6.40	-68.4
8	China	1.02	0.5	-50.0	8	Korea, Republic of	5.02	5.79	15.3
9	Turkey	1.20	0.5	-58.2	9	Ukraine	4.69	5.38	14.6
10	Canada	0.39	0.5	15.6	10	South Africa	5.29	5.36	1.2
11	Italy	0.42	0.4	-4.1	11	Australia	3.42	4.08	19.1
12	Netherlands	0.23	0.3	41.8	12	Thailand	5.28	4.01	-24.2
13	Bangladesh	0.82	0.3	-60.7	13	Viet Nam	4.12	3.51	-15.0
14	Switzerland	0.22	0.3	30.7	14	Malaysia	4.63	3.47	-25.1
15	Others	2.57	2.90	12.9	15	Others	67.1	43.0	-36.0
Grand Total		57.3	60.80	6.1	Grand Total		694.7	661.2	-4.8

Geographically, Nepal is divided into three main regions; a) plain region, where the land surface is plane and flat. b) hilly region, the land is surrounded by hills and c) Himalayan region, the region with sloppy and mountainous roads. (Khanal & Khanal 2020). The distribution of the supplies to the consumers is limited to air and land since Nepal is landlocked country. The motive of this study is derived from the fact that transport distribution has the important role in the supply chain management and logistics because the air transport can be expensive to the customers looking at the economic status of the economic capacity and the national economy. (Bhagat 2017). Nepal is listed as the least developing country and the economic status of the people is low. Moreover, the study focuses on the transport logistics and distribution keeping into consideration about the road structures of Nepal and challenges faced by the various delivery mediums of the country. The research focuses on the study of challenges occurred during the transport logistics.

1.1 Problem statement

In a landlocked country like Nepal, the road transport is very crucial factor for the transportation and the distribution of the deliveries. There need to be fair amount of the studies in this field. But there is not enough study and research in the field of transport logistics and distribution. There are only few little studies in the road structure and geographical challenges. And these studies are lacking the connection with the transport distribution. Whatever research have been there, they do not serve the proper relevancy in the logistics that a transport distribution faces. Moreover, there is a shortage of the research in the related field in the present time which is very important because the timely update

is necessary in every field. So, this study is conducted so that there will be the current status of the country's transport distribution and aid in the relevancy by providing the current challenges and aim to provide the possible solutions and alternatives. This study hopes to fill the gap of time relevancy, information and data regarding the distribution challenges in the various parts of Nepal.

1.2 Aim of the study

The aim of the study is to identify the challenges in distribution in Nepal. By identifying the challenges, it will be possible to look for the solutions for each of the challenges.

Hence, the following research question has been developed to complete the study.

What are the present challenges of the distribution agencies via road transport in various parts of Nepal?

For the support of answering the research question, two sub-questions are formulated which are as below;

- i. What are the challenges in the distribution via transport in cities of Nepal?
- ii. What are the challenges of distribution via transport in the rural areas of Nepal?

1.3 Demarcation

Supply chain management has different stages in the process. But this study will focus on the final stage of the supply chain, the distribution to the end-customer. Moreover, distribution process in the firm also consists of various branches. And the study prioritizes in the transport distribution. The supply from the firm to the final customers are examined. Similarly, this study will not study the reverse logistics. To study the logistics in Nepal, the research will be done to know the challenges in the transport distribution but not specialize on the geographical aspects of the country. And the most important consideration of the research is the time frame. The present situation and the challenges occurring in the present situation is taken in the study. The past and future time frame is disregarded in the study.

1.4 Definitions

Following terminologies are used in this study;

a. Supply chain management

Supply chain management is network of interconnected business which consist of ultimate provision for the end customers to achieve the products and services. (Harland 1996). As per (Christopher 2005 p17), SCM is a network of organization that deals with the upstream and downstream in different processes to deliver products and services to the customers. The network with which the firm delivers the goods and services to the consumers right from the raw materials to final products. (Ellram 1991). Similarly, (Berry et al. 1994) describes that SCM focuses on building trust, exchange of information about market needs, development of new products and reducing the supplier base for the long-term relationship.

b. Distribution

Distribution is a set of activities that deal with the flow of products from supply point to demand point. (Yang 2013). Distribution is a part of business activities dedicated to transport raw materials or finished goods to the destination place. (Bowersox 1969). Distribution is an important part of logistics that helps to gain customers' satisfaction through the delivery of their desired products and services.

c. Transport distribution

Transportation is a visible factor of the supply chain. (Tien et al. 2020). Transportation infrastructure includes vehicles and other carrier organizations which provide the movement of goods and services. Transportation logistics deals with the transfer of goods and supply not just freight but with the full commercial and operational form. (Button 2010). Moreover, (Coyle et al. 1996) describes that transportation logistics plays the role of intermediary in supply chain by enabling the physical flow of products from the suppliers to customers. It also performs as function of physical distribution. And (Kappauf et al. 2011) explain

that the aim of transport logistics is to transfer the deliveries in right place at the right time.

2 THEORY

According to Strauss and Corbin (1998:15) cited in Kauda & Kauda (2012), a theory is “a set of well-developed concepts related through statements of relationship which together constitute an integrated framework that can be used to explain or predict phenomena”.

The most common use of theory is to explain the regularities during / after observation. (Bryman & Bell 2011). This chapter covers the theoretical section of the research. The aim of this study is to identify the challenges in distribution in Nepal. So, this theory section explains the various theories such as; supply chain, transportation covering modes of transportation and route planning, distribution including distribution channels and delivery services which further leads compare with the data available in the method section to answer the research question.

2.1 Supply Chain

According to Christopher (1994), a supply chain is “a network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate customer.”

The aim of SCM is to satisfy the end consumers with the products and services they want in coordination with the suppliers to manufacture. “SCM deals with the total flow of materials from suppliers through end users.” (Jones & Riley 1985). SCM has various parts such as; supplier, manufacturer, distributor, retailer, customer for the products to complete their life cycle. Figure 1 shows the various actors of supply chain. (Chopra & Meindl 2001).

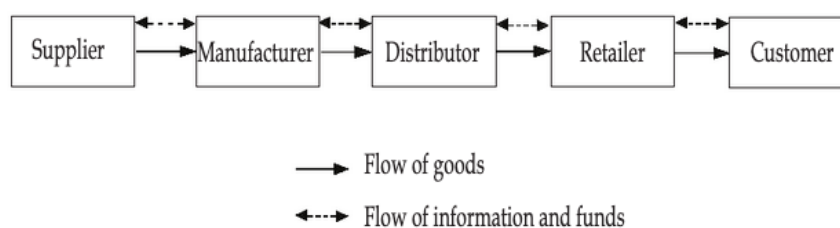


Figure 1 Supply chain (Chopra & Meindl 2001)

Supply chain consists of several factors like; suppliers, manufacturer, transporters, warehouses, wholesalers, retailers and even consumers (Felea & Albăstroi 2013).

Chopra & Meindl (2007 p 3) states “a supply chain consists of all parties involved, directly or indirectly, in fulfilling a customer request. Within each organization, such as a manufacturer, the supply chain includes

all functions involved in receiving and filling a customer request. These functions include, but are not limited to, new product development, marketing, operations, distribution, finance, and customer service”.

According to Stevens (1989), supply chain starts with the supply and ends at the point of consumption. Supply chain is a set of suppliers, manufacturers, warehouses, distributors and retailers who, with the help of coordinated plans, develop products converting raw materials to finished goods. (Chandra & Grabis 2007, Sadraoui & Mchirgui 2014).

2.2 Transportation

2.2.1 Transport in Supply Chain

Transport logistic is an important part of supply chain.

“Transport logistics is a crucial part in the supply chain that in its essence organizes, manages, optimizes and ultimately performs physical distribution of goods and information through the whole upstream and downstream chain in an efficient and effective manner.” (Topolšek et. al. 2018 p1201).

Supplier act as upstream and consumers are downstream in the distribution where the product does from upstream to downstream. Transportation denotes to the set of activities which includes shipping of finished goods from supplier to warehouses and sales location. (Kenyon & Meixell 2011). The main task of supply chain management is to maintain the flow of products through various stages to reach to the final consumer, where transportation plays a vital role. (Chen & Paulraj 2004). Transportation management includes the proper management of all sorts of operations consisting of delivery routing, fuel costing, warehousing, communications, tracking, cargo handling, etc. to manage and optimize daily operations. (Sarder 2021 p10). Through the movement of goods, transport helps to add value and maintain the low-cost principle. It also influences production and sales. (Tseng et al., 2005). Transportation is the basis of efficiency and economic business logistics as it satisfies the customers through the right order at right time. It also benefits as competitive advantage. (Sreenivas & Srinivas 2000).

2.2.2 Modes of Transportation

According to (Stock & Lambert 2001) the transportation of goods, services and people is maintained by the five modes of transportation i.e., motor, rail, air, water and pipeline. The key factors in selecting a transport mode which makes up the main reason why

a mode of transport is chosen over the other are speed, accessibility, safety, reliability, capacity, fuel efficiency, privacy, comfort. (Vaddadi 2017).

2.2.3 Road Transportation

Road freight is the leading modes of transportation for many countries. (Baker et al. 2014). Road freight has vital role in international distribution within geographical limitation too like sea crossings. According to The Economic Times (2022) road transportation is transporting goods and personnel from one place to another. The use of roads that is either paved or worked where motorized carriage runs, is a cost-effective means. The features of flexibility and versatility of road transport makes it most preferred in the world. (Stock & Lambert 2001). This theory is selected since the research aims to find the challenges of distribution in Nepal through the road transport. And the research also helps to understand what modes and types of road transport are used for the distribution of products in various parts of Nepal.

2.3 Distribution

Much of the production needs to be delivered to many stores or, in some cases, it is moved directly to customers (KOŠÍČEK et al. 2012). Distribution is fundamentally concerned with ensuing that products reach target customers in the most direct and cost-efficient manner. In the case of services, distribution is principally related with access. (Dent 2011). Distribution is a part of SCM, which deal with the exchange of products and services from the manufacturer to the end consumer. The process with which products/goods are transferred from the production point to the end consumers is the physical distribution channel. But the end point of a product varies for end customers such as retail outlet, shop, factory or direct to customers. (Rushton et. al. 2014). For a proper plan in distribution system, various factors must be considered, customers need being the first. There should be balance in customers need and providing service since, it is difficult to reach out to deliver customers need immediately. A distribution channel is the mechanism with which a product or service is made available to the customer. (Stine & Macarthur 1984). The channel of distribution differs according to their serving aims like; direct, producer to consumers, multi-level intermediaries. (Czinkota & Ronkainen

2004). Hence, there are several distribution channels. (Jobber 2001). The channel of distribution is shown in the figure 2.

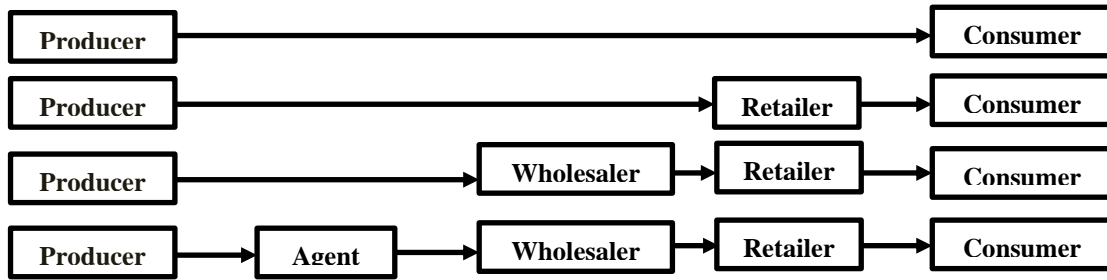


Figure 2 Channels of distribution (Jobber 2001)

According to Jobber (2001), the distribution channels can be categorized and understood as;

Producer – consumer

This process of passing the goods and services direct from producer to consumer helps to reduce the distributor profit margin and are beneficial for producers.

Producer – retailer – consumer

The transfer of products and services from the producer to consumer with the help of retailers in between is economic and easier for knowing the and testing the products in the outlets.

Producer – wholesaler – retailer – consumer

The system of delivering the goods and services manufactured by the producers to the customers through the aid of wholesalers and retailers in the middle is very popular in the market where wholesalers dominate the distribution system.

Producer – agent – wholesaler – retailer – consumer

The process whereby the consumers receive the products developed by the producer with the long series of various distribution actors; distributing agents to wholesalers to retailers and consumers is economic in the case of products delivered to international market because it saves investment and time.

2.4 Delivery Service

The measurement of the supplier’s logistic performance during the delivery of products to the customer is defined as the delivery service. (Storhagen 2018). This theory of

delivery is selected for the research to understand what elements of delivery services are affected and act as the challenges during the road transport delivery in Nepal. Delivery services are the main aspects of the distribution process. So, this theory helps to know which are the most affected ones in Nepal. This service has nine crucial factors for the measurement of the performance.

a. Stock availability

The availability of the product in the stock is known as the stock availability. The probability of the product in the stock is in percentage like 97%. There is a high risk of losing the orders/customers if there is product available in the stock when customers demand.

b. Lead time (Delivery time)

Delivery time is the amount of time starting from when the customer submits an order to the delivery at the customer. It is also known as lead time. Lead time has a direct relationship with the stock availability. The speed of delivery is possible if the products are available in the stock when they order.

c. Delivery reliability

Delivery reliability is a degree to which a supplier delivers a product according to the promised or scheduled time. The aim of the delivery reliability is 100% but the critical limit may be 98%. The unit of measurement may be the number of deliveries of what would be delivered or / and the value of the deliveries of the total value to be delivered. The reliability should be optimum at every point and need to be followed up in order to avoid mistakes in the future.

d. Delivery performance

Delivery performance is the ability of the firm to deliver the right products and services in right quantity as ordered by the customers. It is very essential for the good delivery performance to follow up on why the wrong items or quantities are delivered and how are those mistakes corrected for the customers.

e. Information

The exchange of information from/to the customers is vital for the good delivery service. The information of map, follow-ups of shipments, addresses and posts, etc help in the identification of needs, follow-up of shipments, track and trace of the goods. This leads the delivery services to the precision and better performance.

f. Customization

Customization is the action of altering a product or service to suit a customer's preferences. It is the ability to live up to the customers' expectation. The customizing of customers' orders benefits in value creation. This leads to the customers satisfaction and loyalty.

g. Environmentally friendly option

Environment friendly option selection is one of the determinants to top notch delivery service. The production of eco-friendly products/services and the selection of the environment friendly mode of transportation are demanded by the customers, and it must be the focus of the suppliers.

h. Flexibility

Flexibility is the ability of someone to adapt according to the changing conditions. Customers make changes in their orders in the last moment and the supplier need to flexible and adapt according to that situation. It is also value adding factor for the business.

i. Other service elements

Some additional extra services often lead the company to competitive advantages. They include the activities associated with the delivery service such as packaging or administrative service in connection with the delivery services or return policies at the online stores, return policy, product recall plan, claim handling.

2.5 Route planning

Route planning drives logistics companies in the maximization of their transportation performance and profitability. (Wang & Kopfer 2013). Route planning systems specify the sequences in which the selected transport vehicles should supply the demand points by requested quantities of goods. (KOŠÍČEK et al. 2012). Route planning provides more efficiency to the delivery service hence its importance is optimum for logistics and distribution process. The reasonable optimization of the distribution routes for the vehicles is significant for the speed, cost, and efficiency of the whole logistics transportation. (Ding & Zou 2016). Proper route planning helps to reduce the transportation cost by optimizing the freight collection route, freight loading and delivery route optimization. Paths generated through the modern tools such as; hand-held computers, vehicle navigators, global positioning systems (GPS) provides actual time and absolute coordinates in the transfer of goods and products. (Edelkamp & Schrödl 2003). According to Rushton et al. (2014), vehicle route planning helps to achieve the following objectives for the betterment of the firm;

- maximizes the time that vehicles are used (i.e., make sure they are working for as long as possible)
- maximizes the capacity utilization of vehicles (i.e., ensure that all vehicles are as fully loaded as possible within legal limits)
- minimizes mileage (i.e., complete the work by travelling as few miles as possible)
- minimizes the number of vehicles used (i.e., keep the capital or fixed costs to a minimum)
- ensures that customer specific delivery requirements are met (i.e., timed deliveries or vehicle type restrictions)

2.6 PESTLE analysis

PESTLE is an acronym that stands for factors such as Political, Economic, Social, Technological, Legal and Environmental.

According to Sheffield Hallam University, “A PESTLE analysis is a framework or tool used to analyse and monitor the external environment factors which have an impact on an organization. The result of which is used to identify threats and weaknesses, strengths and opportunities which can be considered or used in a SWOT analysis.”

A PESTLE analysis helps by providing effective strategies to raise the awareness of the external factors. It is an important tool for analysis in a business firms because external factors are not under the control of business firm and hence this tool help to formulate suitable strategies to tackle the external factors. The PESTLE analysis factors can be shown in the figure 3.

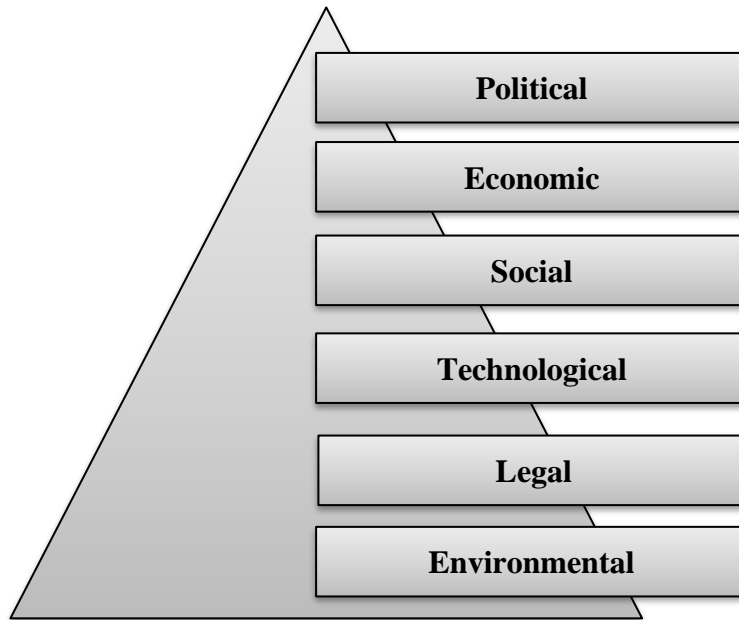


Figure 3 PESTLE analysis (Newton 2015)

The PESTLE analysis has various six aspects to help analysing the external factors. With the categorization into six factors, it will be simplified and easy to analyse and formulate strategies. The six factors of PESTLE analysis are;

a. Political factors

PESTLE analysis helps to know how an organization is affected by the political environment of a country. For instance; an unstable political climate and wars negatively affects the business market and destroy them. (Buye 2021). Political factors consist of government attitudes to employment, consumer protection, the environment, taxation, trade restrictions, and social reforms, as well as the burden of bureaucracy and the level of corruption. (Newton 2015).

b. Economic factors

Use of the PESTLE analysis, help the firms to understand how the economic scales and factors affects the organizational run. For example; high interest rate affects the

cost of capital of the firm and recession might end the life span of the business market. (Buye 2021). Economic factors include assessing potential changes to an economy's inflation rate, taxes, interest rates, exchange rates, trading regulations, and excise duties. (Newton 2015).

c. Social factors

By the help of PESTLE analysis, a company can understand how the social structure and distribution affects the business market. For instance, income and education level of the consumers will affect the sales and revenue of the company. (Buye 2021). Social factors consist of age distribution, population growth rate, employment levels, income statistics, education and career trends, and religious beliefs, as well as cultural and social conventions. (Newton 2015).

d. Technological factors

PESTLE analysis provides the organization to cope up with the change and speed of the modern tools and technologies. For instance; the use of internet and telecommunication can bring high productivity in less cost. (Buye 2021). The pace of technological changes is rapid and hence affects the market from unknown sources. Unable to keep up with the rapid changes is damaging and matching the change is competitive advantage. Mainly, there are two divisions of technology; manufacture and infrastructure. So, technological factors include automation, incentives, outsourcing, improved quality parts, etc. (Newton 2015).

e. Legal factors

With the efficient use of PESTLE analysis, firms can generate the data and regulations of the government that can positively or negatively influence the sales of the products. (Buye 2021). Legal factors consist of current and impending legislation which affects employment, competition, health and safety areas of organization. (Newton 2015).

f. Environmental factors

PESTLE analysis checks the nature and physicality of the environment where the company operates its business. Information about availability of raw materials, pollution, protection of the environment etc. can be known using this tool. (Buye 2021). Environmental factors include infrastructure, cyclical weather, disposal of materials, energy availability and cost, and the ecological consequences of production processes. (Newton 2015).

2.7 Nepalese Development Indexes Situation

Several sources of recent information such as official sites of national and international organizations related to Nepal's distribution challenges with road transport were studied to gather the data so that the answer to the research question can be obtained. Such data are presented below:

a. Social Sector Development Indicators

Table 3 Social Sector Development Indicators (Nepal Central Bureau of Statistics 2017-2020)

Social Sector	Indicators	2017/18	2018/19	2019/20
Education	Expected Years of Schooling [*]	12.6	12.8	12.8
	Mean Years of Schooling [*]	4.7	4.9	5
	Net Enrolment Rate (1-5)	97.2	96.5	97.1
	Net Enrolment Rate (1-8)	92.3	92.7	93.4
	Net Enrolment Rate (9-12)	43.9	46.4	47.6
	Literacy Rate (15+)	-	58	-
Health	Life Expectancy at Birth	70.2	70.5	70.8
	Total Fertility Rate*(Births Per Woman)	2.3	2.3	2
	Neonatal Mortality Rate [*] (At Per 1000 Live Births)	17	21	16
	Infant Mortality Rate (At Per 1000 Live Births)	26	26	25
	Health Institutions	4513	5717	7154
	Health Workers	90803	90946	90946
Drinking Water and Sanitation	Population with Access to Basic Drinking Water Facility (in Percentage)	88	89	91
	Population with Access to Basic Sanitation Facility (in Percentage)	98.6	99.7	100
	Population with Access to High-Medium Level Water Facility (in Percentage)	19	21	23
Employment	Ratio of Employment to Population (in Percent)	34.3	-	-
	Labor Participation Rate (15+ , Percentage)	38.5	-	-
Human Development	Human Development Index [*]	0.588	0.596	0.602
Gender Development	Gender Development Index [*]	0.925	0.897	0.886
Gender Inequality	Gender Inequality Index [*]	0.48	0.476	0.479

The data shown in the above table 3 shows that there are gradual but positive changes in the various social development indicators. This brings the awareness and intelligence among the people of the country. These positive developments help to manage various challenges like; the minimization of the challenges of distribution with road transport. But this is still not enough pace for the development. The slow pace in the change can cause several challenges if not maintained on time.

b. Road Expansion

Table 4 Road Expansion by Federal Government [in km] (Nepal Ministry of Physical Infrastructure and Transport 2021)

Details	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Total
Black Topped	12173	12803	13707	14695	15424	550	15974
Graveled	6460	6822	7231	8594	8622	504	8582
Earthen	9675	9492	9150	9590	9198	284	8972
Total	28308	29117	30088	32879	33244	1338	33528

According to Economic Survey 2020/21 conducted by Ministry of Finance, Nepal, as of mid-March 2021, a total of 33,528 kilometres strategic and local road network has been constructed which includes 15,974 kilometres black topped, 8,582 kilometres gravelled, and 8,972 fair weathers. Total length of roads including blacktopped, gravel and fair weather, constructed by provinces and local levels has reached 63,577 kilometers. The data in above table shows the road expansion is not enough. The projects need to focus to rural areas more rather than urban.

c. Road safety

Nepal Urban Road Standard-2076 (2020), the road networks are of uneven types. Since, the roads are constructed by different governmental bodies, there is no uniformity in the section of each type of road as each agency has its own standards. The traffic lanes are highly mismanaged. The footpaths are encroached by the vendors, parking and other amenities. There is lack of parking spaces. These are the reasons why there is high traffic jams. The roads are not disable-friendly. There are random installations of street railings, streetlights, etc. irrespective of their available clear width. The drainages and sewages are not efficiently constructed and not repaired on

time due to which there is overflow and flood of water in the streets for pedestrians and vehicles. The roads have lots of pit holes and uneven roads that causes frequent accidents. Many of the traffic signs are either missing or damaged and the road marking are also erased. This creates confusions among the riders and maximizes the chances of accidents. There are no separate roads for bicycles which brings traffic jams. Proper bus-stop spots are not available. This brings the public vehicles stopping wherever they like that causes chaos in the road.

Most of the places in Nepal either don't have traffic lights or are broken. And the road, during the rush hours have to be managed by traffic personnel/police which brings physical and mental stress to the traffic personnel and unsystematic traffic. Unnecessary bumps and speed breaker are constructed randomly that maximizes the accidents.

d. Air pollution

According to IQAir (Air Quality Index), Nepal is ranked 126th country in the air quality in 2021. Kathmandu has 162 US AQI which is considered unhealthy while Pokhara has 74 US AQI which is moderate. In many parts of the country, there is no communication between various departments of government like; electricity department, water supply association, road department due to which the roads are broken several times which makes the road damaged and air pollution is maximum. This pollution makes the driving unhealthy and risky during driving.

e. Effects of Covid-19

According to Economic Survey 2020/21 conducted by Ministry of Finance, Nepal, the Nepalese economic growth has become negative by 2.12 percent first time in the last two decades in fiscal year 2019/20 due to the impact of Covid-19 pandemic, which is severer than that of the economic loss caused by the devastating earthquake of fiscal year 2014/15. The Nepalese economic growth rate was projected to grow at a level of 4.01 percent in current fiscal year in the expectation of gradual improvement in the health crisis but the widely spreading second-wave of the Covid-19 during the third quarter of the current fiscal year has become challenging in achieving the estimated growth rate. Because of Covid-19, less industries were only used.

f. Infrastructures

Delivery of products and services are only affected by the manufacture and production capacity of the firms but also dependent on the availability of resources and infrastructures of the country. Most urban areas of Nepal are benefitted with the modern-day tools and technologies whereas rural areas of Nepal are still far away from the basic infrastructures such as; road, transport, electricity, drinking water, education, communications, etc. While cities are blessed with 4Gs and 5Gs, villages students still have no availability of books. So, these differences bring out challenges in equal and efficient distribution all over Nepal.

g. Vehicles and traffic

According to Economic Survey 2020/21 conducted by Ministry of Finance, Nepal, the total number of registered vehicles of all kinds has reached 3,987,267 of which 3,836,502 were registered before mid-July 2020, and 150,765 were newly registered, during the mid-March of current fiscal year. And the most common means of transport for people are public vehicles such as; bus, taxi, bikes, etc. In case of delivery of products, major companies use trucks and trailers while small and medium level industries use the vans, cars, motorbikes, bicycles, etc. as they are minimal in cost and road friendly since most of the roadways of Nepal are narrow and small. For instance, the table below shows the number of vehicles registered in Bagmati zone, one of seven provinces in Nepal.

Table 5 Number of vehicles registered in Bagmati zone (Department of Transport Management)

S.N.	Name of vehicle	Number of registrations
1	Motorcycles	921,917
2	Buses	12,616
3	Micro-buses	1,343
4	Trucks and tippers	22,322
5	Cranes and excavators	10,654
6	Cars and jeeps	154,443
7	Tempos	2,525

This is just an example of one province. Such are other six province. This represents the traffic situation in the country with not developed traffic system. Moreover, according to one data mentioned in The Kathmandu Post, Traffic division's data shows there are 107 zebra crossings in the Capital. The Kathmandu Walkability Study-2018, conducted in 35 sections of the metropolis one year ago, found 60 percent of the zebra crossings faded and 80 percent of the road stretches without zebra crossings. The Kathmandu Metropolitan City in December last year publicly announced to install 100 'smart zebra crossings' at a cost of Rs 13 billion, but the commitment has not been translated into action.

h. Technologies

Table 6 Electronic Payment Transaction (Nepal Rastra Bank 2021)

Details	Transaction Number		Transaction Amount (Rs. in Million)	
	Mid-July 2020	Mid-March 2021	Mid-July 2020	Mid-March 2021
Real -Time Gross Settlement (RTGS)	37297	48765	1567959	1736329
Automated Teller Machine (ATM)	6302846	7472259	54763	60711
Electronic Check Clearing (ECC)	1260169	1104909	792007	701808
Interbank Payment System (IPS)	596538	907398	223651	179697
Connect IPS	696447	1603598	51306	110572
Debit Card	3316554	8215170	25894	63797
Credit Card	119610	189166	584	1039
Prepaid Card	5249	11491	36	102
Internet Banking	653459	267582	19048	8880
Mobile Banking	5817681	10082655	18839	40359
Branchless Banking	83249	51093	1338	1123
Wallet	10179557	10614268	10222	10180
# Based on Quick Response (QR)	-	635738	-	2055
# Point of Sale (POS)	-	813330	-	3322
#E-Commerce ^{ns}	-	130202	-	904

According to Economic Survey 2020/21 conducted by Ministry of Finance, Nepal, the electronic payment in transaction has been growing remarkably due to the development of infrastructure related to electronic payment, incentives provided for electronic transactions and increasing public access to and use of electronic devices. Fear of the Covid-19 infection and the lockdown imposed to control the infection have also helped to increase the use of electronic payments. But the problem is that these facilities are available to urban areas only because rural areas lack basic infrastructures such as; electricity, communication, technology, etc.

2.8 Summary of the theoretical framework

The concept of PESTLE analysis was chosen to structure this study because PESTLE analysis analyses the challenges with several factors like; Political, Economic, Social, Technological, Legal and Environmental factors. With the proper study of primary and secondary sources, the various challenges of Nepal can be discussed and analysed factors by factors to reach to the proper conclusion. With this theoretical framework the challenges can be categorized according to the most threat and weakness and opens the pathway to deal with the proper and best possible alternatives and solutions.

3 METHOD

Methodology refers the process of approaching problems and finding the answers to them. (Taylor et al. 2015 p 14). According to Kothari (2004), research methodology is a method that helps researcher in solving the research problem in a systematic way. Research design mostly focuses on collection and analysis of data that leads to find answers to the research question. (Saunders et al. 2009).

3.1 Choice of method

According to Kumar (2019), there are three types of methods for research namely; quantitative method, qualitative method and mixed method that can be shown as figure 3.

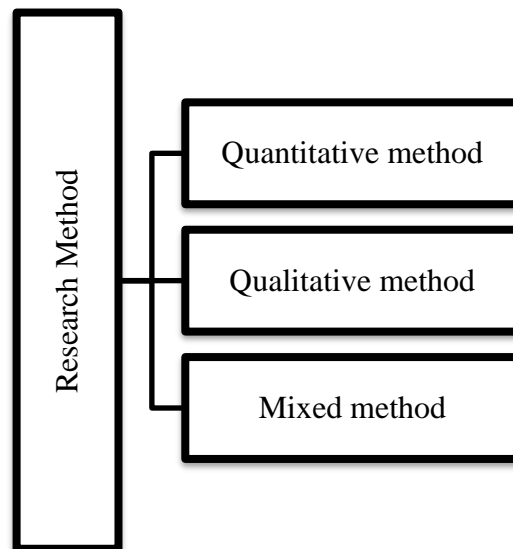


Figure 4 Types of research method (Kumar 2019)

According to Creswell (2003), the quantitative method is used to measure and observe the theories through experiments, survey, and statistical data. Quantitative research method examines relationship between variables, that are numerically measured and analysed using a graphical and statistical technique. (Saunders et al. 2009).

According to Bryman & Bell (2007), qualitative research shows how theories are generated to get the facts and indicates the relations between theory and research. Qualitative research method examines the participants meaning and relationship between them using

of data collecting techniques and analytical procedures to develop theoretical framework and contribution. (Saunders et al. 2009). According to Taylor et al. (2015) in broad sense, qualitative methodology produces descriptive data gathered from people's written, spoken words or observed behaviour.

According to Williams (2007), mixed method is used to minimize the weakness and increase the strength of both qualitative and quantitative method. Mixed method is effective for reliable outcomes because of both theoretical perspective and numerical terms. Mixed research method compiles the qualitative and quantitative data collection techniques and analytical procedures. (Saunders et al. 2009).

This thesis has chosen the qualitative method for the data research because qualitative research emphasizes on the meaningfulness of the research. (Taylor et al. 2015).

3.1.1 Data collection

Several methods can be used to collect data. The choice of the method depends upon the purpose of study, the available resources and skill of the researcher. Based upon the broad approaches to information gathering, data can be categorized into two major approaches which are primary data and secondary data (Kumar 2019) which is shown as figure 4.

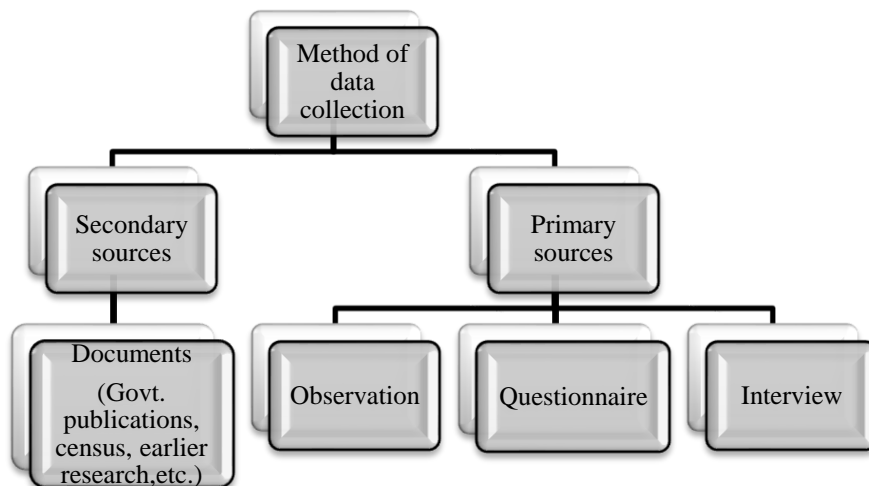


Figure 5 Data collection method (Kumar 2019)

Secondary data guides the research as a framework of data collection which can be utilized in several ways. (Johnston 2014). It is existing data that is already published or broadcasted. Sources of secondary data are books, journals, previous research studies of an agency, government publications, census, etc. (Kumar 2019). As a secondary data, this thesis will use the relevant and related published articles, journals and publications on the topic about the distribution challenges in Nepal through road transport.

Information gathered using the first approach where we collect the required information for the research from primary source is primary data. Primary sources of data include interviews, observations and questionnaire. (Kumar 2019). As a primary data, the thesis will undertake the interview with the individual or company representing the supply chain and distribution in Nepal.

3.2 Interview and Interview guide

According to Monette et al. (1986 p 156) cited in Kumar (2019), ‘an interview involves an interviewer reading questions to respondents and recording their answers’.

According to Burns (1997 p 329) cited in Kumar (2019), ‘an interview is a verbal interchange, often face to face, though the telephone may be used, in which an interviewer tries to elicit information, beliefs or opinions from another person’.

Figure 5 describes the various options when conducting the interviews.



Figure 6 Interview structures (Bryman and Bell 2011)

3.2.1 Semi-structured interview

A semi-structured interview is a type of interview where the interviewer has list of questions regarding the research topic also known as interview guide and the interviewee has leeway in the way of replying. (Bryman & Bell 2011). Semi-structured interview has advantage of following the questions as random in contrast to the structured interview where the schedule of outlined questions needs to be followed. Interviewer has the possibility of asking the questions out of interview guide by picking and following up with the answers given by the respondents. So, for this thesis, a semi-structured interview was conducted with the audio recording by taking the consent from the participants and representatives.

3.2.2 Interview guide

An interview guide is a list of topics which we plan on covering in an interview with the questions that we aim to answer to get the study topic. (Bird 2016). The goal of the interview in the study was to understand the variations in each respondent's experience of challenges faced during the distribution of the products in Nepal.

The interviews with the individuals and representatives of the distribution logistics in Nepal were carried out via internet meetings such as; Zoom meetings in the months of March to April of 2022 because of COVID-19 restrictions and the interviewer not being able to visit Nepal during the interview. So, a face-to-face virtual meeting was conducted. The interview lasted between 30-60 minutes in average. And the information collected from the interview were audio-recorded with the consents of the interviewees.

Some of the examples of the important questions asked to the respondents regarding the study are; What means of road transport do you/your company use for the delivery? What difficulties do you face while transporting the goods in the rural areas of Nepal? What sorts of problems do you get while transporting the products in the urban areas of Nepal? What kinds of route planning techniques and tools do you use for delivering the products? etc.

A list of all the questions that were asked, and more details of the interview can be found on the Interview Guide which is also attached in the appendices section of this study.

3.3 Respondents

Respondents are the individuals who take part in a survey or interview for the research or who provide data to be analysed for the research study. (Allen 2017). The factors that need to be considered in selection of respondents are that they can be of any age but must be determined by the scope of the study and informed consent to participate. There are various methods of reaching out to the respondents, but the focus must be the fact that they must be related or have idea about the related study and fall under the actual sample.

The aim of the study is to know the challenges of road transport delivery in Nepal. So, the respondents in this study were the individuals and the company representatives involved in the goods and service delivery in Nepal through the road transportation. The respondents are chosen because of their knowledge in the supply chain and most specifically distribution fields. The information gathered from these respondents will help to update the information in the field of distribution in the current scenario.

3.4 Validity and reliability

Validity deals with the issue of whether a concept really measures the concept. (Bryman & Bell 2011). Validity determines whether the research truly measures that it was intended to measure. (Joppe 2000 cited in Golafshani 2003).

Reliability is fundamentally concerned with the consistency of a measure of a concept. (Bryman & Bell 2011). Reliability refers to the degree to which other researchers performing similar observations in the field and analysis such as reading notes transcribed from narrative data would generate similar interpretations and results. (Franklin & Ballan 2001).

To achieve the aim of the study, it is very important for the formulated interview questions correlated with the answers coming for them. And the information that are to be gathered

must be reliable. So, for the reliability of the research is secured by selecting the respondents who are directly involved in distribution field and have idea of logistics.

3.5 Research approach

Research approach are the plans and procedures by which the research spans from broad assumptions to detailed and narrowed down data collection method, analysis and interpretation. (Creswell 2014).

For the collection of primary data, five different individuals/companies representing the distribution logistics in Nepal through the road transportation were selected for the interview. Several semi-structured questions were asked relating to the research topic were asked to them electronically during the months of March and April 2022 because of the current COVID-19 pandemic and the interviewer not being able to visit Nepal for direct face-to-face interview. The respondents were provided with the online consent forms before the interview. And the information from the interview was audio-recorded and then transcribed into the texts within the 48 hours' time for the reliability and freshness of the data to store. The identificatory factors of the individual and company representatives involved in the interview like; respondents' names, companies' name, brands, places, etc. were removed from the transcribed version for the protection of the identification. The gathered information was further used for the analysis of data.

3.6 Analysis of the data

Analysis of data deals with breaking down the existing complex factors onto simpler by combining all parts together in proper arrangements for interpretation purpose. So, a proper plan must be made before hand in advance. (Singh 2006).

The aim of the study is to identify the challenges of distribution in Nepal. So, the information gathered from the methodology section is used for the analysis to achieve the aim of the study which is the identification of the distribution challenges in Nepal. The data collected from the primary and secondary sources were analysed to answer the research question by comparing the information with the theories used in the study. The theories

used in the study are supply chain, distribution, transportation, route planning and delivery service. Moreover, a PESTLE model will also be used to analyse the data. The gathered information will be classified in various sections of PESTLE model as; Political, Economic, Social, Technological, Legal and Environmental. The information gathered in the transcription will be used to categorize them into various sections using different coloured pens. The data representing Political section will be coloured red, Economic part with yellow, Social part with blue, Technology with orange, Legal part with brown and Environment with green.

3.7 Research ethics

Ethical issues rotates in two major questions that are; How should we treat people on whom we conduct research? and are there activities in which we should or should not engage in our relations with them? (Bryman and Bell 2011). They explain various ethical principles such as; harm to participants, lack of informed consents, invasion of privacy, deception, data management, copyright, reciprocity and trust, affiliation and conflicts of interest. According to University of Stirling, Research ethics involves the application of fundamental ethical principles to research activities which include the design and implementation of research, respect towards society and others, the use of resources and research outputs, scientific misconduct and the regulation of research. Ethics are the set of rules which governs the standards of code of conducts and guides the researcher to responsibly conduct the research. (Wagle 2020). She further explains the objective of research ethics to protect and guard human participants, their dignity, rights and welfare.

For the efficiency and meeting the ethical requirement of the research, the participants were contacted and requested to voluntarily participate in the research. They were provided with the informed consent for the interview. The respondents were given full anonymity and full confidential information covered and discussed during the interview. The audio was recorded and then transcribed into text with the consent of the respondents. The protection of the identification of the representatives and companies in the interview were done with the removal of their name, brand, places from the transcription.

The ethical aspects were included in the consent form and signed after their agreement. The proper and systematic reference are given for the secondary sources of data. The research has tried the best to achieve the principles of research ethics.

4 RESULTS

This chapter presents the data collected from the primary and secondary sources. As a primary source, semi-structured interviews were taken with five respondents; two representing rural areas and three representing urban areas of Nepal. The mix of rural and urban area in the interview was done with the aim of representing Nepal as a whole and giving perspective of all Nepal. Similarly, as a secondary source, data and information related to the challenges of distribution through road transportation were studied and presented from various sources.

The research was to be conducted anonymous. So, the respondents are referred as Respondent A, Respondent B, Respondent C, Respondent D, and Respondent E. But the region/place they represent are shown in the side.

4.1 The main findings of the respondents

As a part of qualitative method of data collection, semi-structured interviews were conducted among five respondents out of which two were from rural (village) areas and three were from urban (city) areas of Nepal. These five respondents were primary source of data since fresh and raw information were generated for the first time from them. The results gathered from them are presented below:

Respondent A (from Kathmandu – mostly urban area with less rural areas)

We are a second-party logistics company distributing lotte chocolate to the customers through wholesalers and retailers. We are a dealer company taking products from the company from the manufacturers and selling them to wholesalers and retailer who further sell them to customers. We mostly use vans and motorbikes to deliver our products. Depending upon the size of the products, we use the vehicle, and we mostly distribute in the city areas but sometimes we do deliver to the rural areas too. The challenge with the rural areas is that the delivery takes long time because of the road condition i.e., narrow and bumpy. Sometimes we face political strikes too which is also a challenge during delivery. But the challenges in the urban area are crowded road and traffic jams. The competitions with other delivery companies are also another challenges. And to cope up with the trafics and addresses, we frequently use google maps in the cities. And to save cost, we take

several orders of same areas at single time so to save time and money. For the solution of these challenges we face, we wish to have more lanes and wider roads to reduce traffic jams and political stability so that the political strikes won't happen, and our delivery time is saved.

Respondent B (from Gulmi – rural area)

We are a clothing company that distribute various clothing to the rural areas as a third-party logistics. We directly do not deliver our products to customers; we sell to retailers, and they further sell them to customers. Since, our retailers are from rural areas, the means of transport that we are using are the delivery vans and motorbikes. We get the orders either from phones or during the delivery time from the retailers, so we know the quantity of products to be delivered and then use the vehicles as according. The challenges concerning our area and work is that the road to the rural areas is not good. They are narrow or gravel or hilly. Moreover, we are also at the risk of natural disaster during rainy season as well as the roads become slippery and watery, so the chance of accidents are high. Hence, the delivery time is always long. Due to the lack of necessary technology like internet, we don't use any route planning tools such as; google maps and GPS systems. But our driving staffs have better knowledge of the roads because of continuous delivery over a long period of time. We desire to have a good governing body in our area who builds the proper roads in upcoming days.

Respondent C (from Kathmandu – urban area)

I work as food delivery girl in the food delivery company situated in capital city, Kathmandu. It's a third-party logistics. I'm provided a mobile device where I get notified about the orders placed. Then I go to the restaurants, take the orders and deliver to the customers using my scooter. The challenge with my work is that I work in the capital city which has lots of traffic jams that increases the lead time. Moreover, due to a lot of traffic, there is air pollution and I feel difficulty in breathing. Similarly, the roads have missing road and traffic signals and signs which makes difficulty in driving. And the potholes and manholes in the road makes our work difficult by the chance of damage/destroy in orders. And the houses in Kathmandu are so congested and tight that sometimes it is difficult to find exact address. I'm also concerned with the safety at night during delivery and road accidents too. I really hope the safety, traffic and pollution issues are solved with proper measures.

Respondent D (from Pokhara – urban area)

I'm an employee of a restaurant which has the facility of both inhouse and delivery services of our food items. I use motorbike of the restaurants to deliver the food to the customers. Since, our restaurant is in the city, we only deliver to the market areas. We get the orders from the customers, and we locate the address using GPS system and google maps. We deliver many orders, so we use bikes. The challenges nowadays regarding the delivery service is to maintain the delivery time because of the busy traffics. There is high chance of road accidents in city areas too. And because of Covid-19 situation, we had many orders from customers because they were afraid and hesitating to go out. So, it was very tiring, and we were afraid of our health of transmitting corona. And during the pandemic time, it was difficult to go out because of the restrictions and it was also challenging to explain the reason to go out to the police who were very strict. And the address locating was also a challenge sometimes.

Respondent E (from Myagdi – rural area)

I'm an employee of a third-party organization i.e., postal services. I deliver the postal letters and packages to the recipient's addresses. Letters and packages sent from the foreign countries are received by us and we deliver them to the sender's family and relatives. Since, I work in the remote areas, I mostly walk to the recipient's addresses or use bicycle wherever I could ride them. The main challenge with my job is the road which is not proper due to which I must physically walk and get tired. Other challenges are I cannot use transport, ask the people to get the exact address since route planning is difficult due to circumstance. I wish the villages have the proper road facilities and hence my work will be way easier.

4.2 The challenges

The aim of the research is to find the challenges of distribution in Nepal through the road transport. To simplify the research question two sub-questions are presented i.e., challenges of distribution in rural and urban areas of Nepal through road transport. And with the semi-structured interview with five respondents representing cities and villages of Nepal, the following results are drawn presented in the tables.

Table 7 SQ1: What are the challenges of distribution via transport in the rural areas of Nepal?

Respondent	Challenges
Respondent A	<p>Main: Longer delivery time because of bad road condition, no proper roads.</p> <p>Others: Difficulty because of lack of technology like; internet, GPS, Google maps, collecting many orders and delivering loads of orders at once to save cost leading to longer delivery time.</p>
Respondent B	<p>Main: No proper roads and hilly, narrow, dangerous roads</p> <p>Others: Safety issues because of natural calamities like; landslide, floods, soil erosion in the hilly roads during monsoon and rainy seasons, lack of technology and internet, no use of route planning tools like; GPS and Google maps, government offices not building the roads.</p>
Respondent E	<p>Main: No roadways for the delivery via big vehicles</p> <p>Others: No route planning tools, traditional tools of asking the people's house with names to the neighbours, no basic facilities so delivery is physically and mentally stressing</p>

The respondents were from different rural areas of Nepal but the main challenge is the same in almost all rural areas of Nepal which is the availability of proper roadways which create hindrance in day-to-day supply and distribution of the products and services. Moreover, the availability of the other infrastructure of developments such as; electricity, technology, education, etc. are also lacking.

Table 8 SQ2: What are the challenges of distribution via transport in the urban areas of Nepal?

Respondent	Challenges
Respondent A	<p>Main: Over-crowd and traffic jams</p> <p>Others: Narrow roads and less lanes of roads, political strikes, festivals making road busy.</p>
Respondent C	<p>Main: Traffic jams</p> <p>Others: Missing road-signals and signs, damaged roads like; potholes, air pollution, difficulty to get address due to un-managed housing structures, road safety and accidents.</p>
Respondent D	<p>Main: Busy traffics leading the longer lead time</p> <p>Others: Road accidents due to bad traffics, physical and mental safety because of corona pandemic, address location, tiring and work overload due to more orders in corona time.</p>

In contrast to rural areas, urban parts of the country have the issues mainly traffic and other factors like; road safety, width of road, strikes, etc. The city areas do not lack the roads but the issues regarding the roads are the prime issues here.

5 DISCUSSION

This chapter discusses and analyses the data collected from the primary and secondary sources. The aim of the research is to find the challenges of distribution in Nepal through the road transportation. This chapter conducts an analysis by comparing the data in the theoretical framework with the empirical data and study. Moreover, this section also discusses whether the secondary data and other theories are in line with the data collected from primary source.

5.1 Results discussion

The study question of this research is What are the present challenges of the distribution agencies via road transport in various parts of Nepal? So, the aim of the research is to find the challenges of distribution in Nepal. And two sub-questions were developed in order to fully understand and achieve the proper answer for the research question.

5.1.1 Sub-question 1

The first sub-question is What are the challenges in the distribution via transport in cities of Nepal? There were three respondents representing the urban areas and shared their challenges they faced during the delivery of the products and services to the final customer. From all of them, the first and main challenge was the traffics of the city areas. The further challenges are also linked and are affected by the traffics. Respondent A shared that traffic is the main challenge with narrow road, less lanes and over-crowd creating chaos in the roads with political strikes and festivals adding more effects. The political strikes block the road and need to find the alternative routes and Nepal has almost 2-3 festivals celebrated in a week which makes the road super busy and leads to delays in the deliveries. Respondent C also states traffic jams the main problem. Adding to that damaged roads, lack of maintenance, missing and broken road signs and signals as well as road safety as serious challenge. In a country like; Nepal, females find less secured at night deliveries and long routes as problem too and which is true. And due to the tons of vehicles in the road, air pollution and noise pollution is a health challenge. Similarly, Respondent D also tells that traffic jams are the main challenges and the other

challenges include issues with the address recognition due to improper housing and town planning and congested housing structures. And deliveries during the time of corona pandemic was a challenge. They were fearful with the health issues for the deliveries and the police checking were strict to let delivery people freely work. And there were a lot of deliveries allocated to them due to high demand of orders from home by the customers. They were stressed mentally and physically tiring. There was a common answer of main challenge in the respondents about the urban areas which was traffic jams.

5.1.2 Sub-question 2

The second sub-question was What are the challenges of distribution via transport in the rural areas of Nepal? There were also three respondents responding the question regarding the rural areas of Nepal. In this question also, all three of them had a common answer to the main challenge which is the availability of proper roads for the delivery. Being a country with the major parts with mountains and hills and developing country, there is a serious problem of the road constructions in the rural areas of the country. It is difficult to construct the roads in the mountains and hills which is why many rural areas, and their products never reach to the city areas. Because of the narrow, improper roads, they were also not able to take big vehicles which limits the size of the deliveries and longer lead times. And there was also common concern from all three respondents about the technological challenges for the deliveries. Due to the absence of the internet and technologies, the route planning tools and techniques are never utilized. Basic infrastructures of development like; electricity, internet, roads, school, etc. are not fully available. They bring direct impact in the deliveries of the orders. And Respondent B stated that it was dangerous to deliver products during rainy seasons as there were high chances of natural disasters and governmental officers not serious about the constructions of the roadways linking villages with cities. And they all shared that they are using traditional way of finding routes and addresses either by asking the locals about the ways or hiring the driving staffs who knows the areas properly since they cannot use tools like; GPS and Google maps.

Through these sub-division of the question, it was to gain knowledge of the different challenges in various sections of the country. While the advanced city areas were facilitated with proper roads and route planning tools, they face the traffic as a major challenge whereas the villages are still facing the facilities of proper roads that is creating the problems of proper and timely deliveries of products and services efficiently to the customers. The companies in cities offer discounts and sales to handle with the delivery challenges but the customers of rural are considering ones as they understand the problems faced by the companies and never complaint.

5.2 Theory Discussion

Several theories were discussed in the research to know if they match with the context of Nepal's logistics and supply chain situation. The theories and their connections are analysed below:

5.2.1 Supply Chain

Supply chain combines all the aspects of the products' lifecycle like; supplier, manufacturer, transporter, wholesaler, retailer and consumers to fulfilling from demand to supply to consumption. According to the data available from the Ministry of Finance of Nepal and WITS, the foreign trade of Nepal mostly is in deficit. There are more imports than exports. And being a landlocked country, Nepal has to depend mostly on India and China for the exports and imports. Nepal cannot directly contact with the western world because of its landlocked and less developing category. And Nepal cannot afford to air flight business because its expensive. So, reliability on the neighbouring giant countries, India and China limits the foreign trade of Nepal hence there is negative effect on the supply chain of Nepal. And domestically too, Nepal has a problem in the proper supply chain of the products and services within the various parts of the country because of its difficult geographical structure. Most parts of Nepal are covered with hills and mountains, it is difficult to supply goods easily since there aren't proper infrastructural development.

5.2.2 Transportation

Transportation are the physical means of delivering the products to the customers to fulfil their needs on time. It provides the meaning and existence to the distribution of the products. Nepal is a landlocked country, so roadways are the popular means of transport. Motorcycles are the most used means of transport, which is 921917 registered in one zone, Bagmati zone, out of 14. And the major means of delivery of products are motorcycles and delivery vans. Yearly, the number of vehicles registrations are in rapid increase and the construction of the roads are gradual. As per Economic Survey of Nepal 2020/21, the total number of registered vehicles is 3987267 and the total road expansion is only 33528km. This shows the situation of road pressure with vehicles and hence air pollution is also too much. Nepal is one of the countries with worst air quality as per World Air Quality Index. The expansion of the roads is increasing but it needs to be speed up.

5.2.3 Distribution

Distribution is a part of supply chain which deals with the transfer of goods and services from the manufacturer to the final consumer via several channels. The selection of appropriate channel is vital for the proper distribution of the product. This research project is focused on this part of the supply chain and the challenges involved during the delivery. With the interviews with the respondents of various areas, third party logistics were more prominent among them where four out of five respondents were dealing with it and one was related to second party logistics. There are various channels of distribution present in Nepal like; wholesalers, retailers, dealers, etc. And in the field of logistics and distribution more specifically, 2PL, 3PL and 4PL are most common.

5.2.4 Delivery Service

The prime aspect of the delivery service is the involvement of the performance and services at the time of delivering the products and services to the customers. Proper lead time achievement is the prime focus for the distributors at the time of delivery. From the data collected from the respondents from urban areas, they do have the focus on various elements of delivery service such as stock availability, lead time, reliability,

performance, information, customization, flexibility and environment friendly. The urban sectors tend to use organic packaging for environment, are flexible to the customized orders, search for the alternatives reduce the lead time of the delivery, use GPS and maps for the route planning and try to deliver right orders to right person at right time in right quality and quantity. But the overload and unsystematic traffic is hindering them. The main challenge lies in the traffics. And in case of rural areas, the case is other way around. The traffics are not the issues but the road that leads the delivery to the customers are the main challenge. And the delivery time and performance are hugely affected. There are positive changes in the technologies like online payment, mobile banking, Quick Response (QR) scanners and RFIDs that makes the distribution feasible and effective. The social development indicators such as; education, health, employment, gender developments are improved yearly. They keep on increasing the investment and upgrading the status of these factors. But there is starting to change but it is minimal and not sufficient mainly in the rural parts of the country.

5.2.5 Route Planning

Route planning consists of the use of the tools and techniques for the optimization, performance and quality during the delivery of the products and services. This brings the profitability and positive effects to the company through the proper utilization of apt tools and technologies. The urban section of distribution is gifted with more facilities in compared to the rural ones. The city deliveries have more precision and good lead time because of the availability of enough roads and the route planning tools like GPS and google maps for the directions of address. The means of communication like; telephone, internets facilities like 4G, 5G are available. The concept of electric vehicles is brought into practice and enough subsidies need to be provided. But the rural areas' distribution channels must be based on traditional and time-consuming tools like asking the locals and neighbours for the address of the deliveries.

5.2.6 PESTLE Analysis

PESTLE stands for Political, Economic, Social, Technological, Legal and Environmental factors and this analysis helps the companies to deal with the external factors which

are not under the control of the company. There were several factors found in the data collected from the interviews for this research. Those factors can be categorized under the matching section and described and analysed as;

Table 9 PESTLE Analysis

Political factors	Economic factors	Social factors	Technological factors	Legal factors	Environmental factors
No roads constructions and repair	Less investments	Festivals	Unavailability of internet services like; GPS and Google maps	Implementation and supervisions of traffic rules	Air and noise Pollution
Lack of supervision and maintenance of traffic signals and signs		Women's safety		Environment policy	
Political strikes making roads blocked		Corona pandemic services			

From the available data and information from the primary source, Nepal is facing challenges in the distribution because of mainly the political reason. There is political instability and corruptions in the government sections because of which the development of the infrastructure of the nation is not satisfactory and up to the par. The government had to focus on the proper planning and construction and maintenance of the roads being a small country covered with lands. It is more feasible way of movement of people and goods. Not enough roads are constructed, black-topped and rural roads are dangerous for transportation. The social factors are also creating challenges in the field of distribution since the country has lots of festivals, rituals, customs celebrated and there aren't enough spaces because of the bad town and road planning. There are still safety of women and night working conditions lacking in Nepal. The political strikes and demonstrations are conducted on the roads that either blocks the roads or destroys the

condition of roads by burning tires, infrastructures on the roads. This causes chaos in the roads and hence there is environmental effects like air pollution, noise pollution, light pollution and various health hazards need to be faced by the people riding on the roads. There are problems of the legal issues too. There are the implementation of various rules and policies, but they are not properly monitored and supervised. The traffic policies, environment policies if properly implemented, followed and checked, then there would be huge changes in the elimination of these challenges and the distribution and supply chain fields would be efficient. Moreover, installation and repairing of traffic signs and signals, CCTV cameras, traffic lights, road lights, cyclists' lanes, pedestrian lanes, etc. brings positive impacts in the roads and minimizes the road accidents. And the decentralization of the developmental works in the rural areas of the country should be prioritized so that the supply chain in the rural areas would be effective and efficient and thus aids in the national economy.

5.3 Method discussion

Qualitative method of data collection was used for this research to find the challenges of distribution in Nepal through road transport. And semi-structured interviews were conducted with five respondents from rural and urban areas as a part of primary data and secondary sources like articles and published data and journals were studied for the secondary data to fully gain the knowledges about the distribution challenges. This qualitative method was selected for the data collection because it focuses on words, feelings, in-depth ideas and rich data and texts which is fruitful for the accurate understandings and root cause of the problems. To make the research question more accurate and considerable of overall nation's challenges rather than region, city areas and villages areas respondents were selected who represented various sections of the country. The data available from the interviews from the respondents from different sections of Nepal were in the same alignment with the information achieved from the secondary sources but in depth and feelings were felt from the interview. After conducting the study, it was found that the selected method was fruitful because the respondents were open to the interview since they were from the related field of distribution part of logistics. Most of them were freely sharing the ideas and experiences about the challenges they faced during the distribution in various sections of the country. But there were some limitations in the method. Due to

the economic and time constraints, as well as the effects of COVID-19 pandemic and restrictions, the aim of the study was not met up to the expected standards. The time arrangement with the respondents was difficult to manage, the researcher was unable to visit the research country i.e., Nepal due to the travel journey complications and campus course studies. The interviews were taken via ZOOM meeting and technical issues like internet connections were there with the respondents specially with rural areas. The interview was limited to one time only due to time frame. Further investigation with the mix of respondents from various hierarchies in the company from various parts of the country is encouraged for the more accurate and standard findings. Moreover, on-filed observations and presence for the interview would bring more energy and richness in the data.

6 CONCLUSIONS

The aim of the study was to identify the challenges in distribution in Nepal. The purpose was to look for the solutions for each of the challenges by the identification of the challenges. In conclusion, there is a huge difference in the rural and urban distribution challenges. The challenges of urban Nepal are the traffic jams and delays and pollutions and safety whereas the urban Nepal is still lacking proper roads and facilities which is a huge blow to the nation. This indifference shows the discrimination among the people of urban and rural in the distribution of products and services. The developmental works should be decentralized by the government and regular supervision is needed since supply chain, distribution and logistics are major aspects of national economics.

It seems that the government of Nepal is bringing the changes in the development of infrastructures such as; construction and repair of roads, technological changes in internet, machineries, information technologies, education, etc. but the changes are rather gradual, and supervision is stagnant. There are rapid advancement and growth in the world and the pace of changes of Nepal is way behind. And the pace needs to gear up.

The affordable and most efficient means of transport for the supply chain in Nepal is the roadway since Nepal is a landlocked country full of mountains and hills. And Nepal must heavily and equally invest in the proper and accessible roads and sustainable means of transport. The efficient construction and timely maintenance of the roads and traffics will enhance effectiveness and quality of supply chain and the feasible distribution of the products and services to the customers will aid in the economic growth and upliftment of the nation.

The issues of traffic jams, political strikes, pollution, road safety in urban and lack of availability of roads, technologies and infrastructures, etc. brought the challenges in the distribution of products and services in Nepal. There is gradual growth in the indicators of social development indicators like, education, transport, communication, etc. are found in the Economic surveys but are not at enough pace while compared to the pace of development all around the world. While the western world has reached to the Moon and Mars, huge parts of Nepal are still lacking basic needs of education and roads and

infrastructures. Though their advanced progress in the urban areas of the country, they are incapable of managing the traffic and pollution which is a concern. And the growth and advancement in the urban areas are there but the country is not urban areas, and the measurement and mean calculation is calculated in total which is the mix of urban and rural. Hence, the government and locals need to wake up and start doing from their individual part to eradicate these challenges and bring positive changes.

6.1 Limitations of the study

This research was conducted with utmost efforts and dedication but could not achieve the desired expectations because of the lack of time and economic constraints. The primary source mainly the interview respondents would if conducted to the upper managerial level personnel would perhaps bring out the in-depth and rich data. Moreover, the up-to-date sources of secondary data like; the most recent articles and academic writings on the related topic were difficult to find. Proper and most recent data and information if available would bring out more enlighten to the research.

6.2 Suggestions for the further studies

This research suggests that there is still a room for the further studies regarding this topic. A research and study on this topic can be conducted with the renowned personnel and companies based as well as data collection from the higher position company staffs without economic constraint and lack of sufficient time. This could bring more depth and open paths in understanding the challenges from managerial views of the companies or national level.

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APPENDICES

APPENDIX 1

Interview Guide

The Thesis

I am an International Business student at Arcada University of Applied Sciences, majoring in Business Logistics.

The title of the study is “Challenges of Distribution in Nepal”. The aim of the research is to identify the challenges in distribution in Nepal. By identifying the challenges, it will be possible to look for the solutions for each of the challenges.

The research question of the study is: RQ. What are the present challenges of the distribution agencies via road transport in various parts of Nepal? For the support of answering the research question, two sub-questions are formulated which are: SRQ1. What are the challenges in the distribution via transport in cities of Nepal? And SRQ2. What are the challenges of distribution via transport in the rural areas of Nepal?

The method selected for the study is qualitative research, for qualitative research focuses on words than the numerical data. With the research question of this study into consideration, a semi-structured interview is chosen as the interview approach as the interview can be conducted with one respondent at once.

As a secondary source of data, the thesis uses relevant journals, articles and other reliable sources. The information gathered from the primary and secondary sources will be reviewed for the discussion and analysed for answering the research question.

The Respondents

The respondents in the study are the individuals and company staffs representing and directly linked with the distribution of logistics in various parts of Nepal including rural and urban areas.

The respondents are provided with full anonymity and every confidential information covered and discussed during the interview will be anonymized in such a way that it is not be possible to recognize the respondents and their representing company through the response. The interviewees were checked with the consent of the recording before starting the interview.

The interviews will be conducted via virtual meetings during March to April of 2022 since the research is conducted in Finland and the area of research is Nepal as well as the direct interview is difficult because of the interviewer's inability to visit Nepal during that time. The data collected from the interview will be audio-recorded at first with the consent of participants from the said interviews and then the audio-recording will be transcribed into text.

The protection of the identification of the companies and the representatives involved in the interviews will be done properly by removing the identificatory factors like; name, brand, places, etc. from the transcription.

The Questions

Age, Gender, Education,

What is your current job role?

For how long have you been working for the company?

1. What company do you represent? What are the products that you/your company distribute?
2. What means of road transport do you/your company use for the delivery? Why?
3. How do you transport goods/products for the delivery?
4. Do you deliver the products to the customers yourself or do you outsource the companies as a distribution channel?
5. What type of logistics do you/your company represent (1PL, 2PL,3PL)?

6. Do you deliver the products to the rural areas? If yes, what are the challenges of distribution in rural area with road transport?
7. Do you deliver the products to the urban(city) areas? If yes, what are the challenges of distribution in urban areas?
8. What kind of route planning techniques or tools do you use?
9. If you could change anything about road transport distribution in Nepal, what would it be? Why?
10. What in your opinion is the most challenging issue for the road transport delivery in Nepal?
11. What do you think are the hindrances to overcome the issues of road transport distribution in Nepal?
12. How do you handle / face the challenges occurred during the transport distribution?

The Ending

The respondents will be thanked for their active participation to this interview and the copy of this study after the completion will be provided to them.

APPENDIX 2

Consent for Participation in Interview Research

I volunteer to participate in a research project conducted by Rajendra Nepali from Arcada University of Applied Sciences. I understand that the project is designed to gather information about academic work for the conduction of a research project.

1. My participation in this research project is voluntary. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any time without penalty. If I decline to participate or withdraw from the study, there will be no consequences.
2. I understand that if I feel uncomfortable in any way during the interview session, I have the right to decline to answer any question in the discussion or to end the interview immediately.
3. Participation involves being interviewed by Rajendra Nepali from Arcada University of Applied Sciences. The interview will last approximately 45-60 minutes. Notes will be written during the interview. An audio tape of the interview and subsequent dialogue will be made. If I do not want to be taped, I will not be able to participate in the study.
4. I understand that the researcher will not identify me by name in any reports using information obtained from this interview, and that my confidentiality as a participant in this research will remain secure. Subsequent uses of records and data will be subject to standard data use policies which protect the anonymity of individuals and institutions.
5. Faculty and administrators from Arcada University of Applied sciences will not be present at the interview but will have access to raw notes or transcripts if needed. This precaution will prevent my individual comments from having any negative repercussions.
6. I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.
7. I have been given a copy of this consent form.

Name of Participant

Signature

Date

Name of Researcher

Signature

Date

For further information, please contact Rajendra Nepali nepalira@arcada.fi