Cost-Volume-Profit Analysis
of
Himalayan Distillery Ltd.

Submitted By

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T.U. Regd. No.: 7-2-14-415-2006

Exam Roll No.: 140084

Roll No.: 101/2066-68

A Thesis Submitted to:

Office of The Dean

Faculty of Management

TRIBHUVAN UNIVERSITY

In partial fulfillment of the Requirement for the Degree of Master of Business Studies (M.B.S.)

Ramswarup Ramsagar Multiple Campus

Janakpur Dham, Dhanusha-Nepal

April-2014

RECOMMENDATION

This is to certify that the thesis:

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Entitled to

Cost-Volume-Profit Analysis

of

Himalayan Distillery Ltd.

Has been prepared, as approved by this Department, is in the prescribed format of Faculty of Management.

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DECLARATION

I hereby declare that this thesis entitled **"Cost-Volume-Profit Analysis of Himalayan Distillery Ltd."** Janakpur has been submitted to office of the Dean , faculty of Management , Tribhuvan University and RRM Campus is my original work done for the partial fulfillment of requirements of Master of Business Studies (MBS) under the supervisor **Mr.Dileep Lal Karn,R.R.M**. Campus, Faculty of Management, T.U

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Date 2070/ /

ACKNOWLEDGEMENT

First of all, I would like to thank research committee of T.U. Central Department of Management, Janakpur for providing me such an opportunity to prepare a thesis on “Cost-Volume-Profit Analysis of Himalayan Distillery Ltd.”. This opportunity assisted me to develop further knowledge regarding research and skill to meet the demand of corporate business houses. I am very pleased and glorified by getting such an opportunity, which has been not only conducted for partial fulfillment of requirement for the degree of M.B.S. but also gave me perfect practical exposure of business environment.

I faced much difficulty during preliminary period of thesis writing. I would like to thank those persons who encourage and co-operate me to prepare this thesis.

I would like to express my special acknowledgement to my thesis supervisor Mr. Dileep Lal Karn, of R.R.M Campus of Management for his full support and continuous guidance to prepare this thesis. It would not be possible to complete without his guidance and encouragement.

I wish to express my appreciation to my Research Committee prof. Dr. Shailendra Labh Karn and Assistant Campus Chief Mr. Ram Naresh Thakur for their valuable suggestions and Campus Chief Mr. Navendra Kumar Nidhi,R.R.M Campus Janakpur ,for their scholarly and constructive guidance and suggestion .Their guidance and help has been a source of encouragement and inspiration to me . Without their valuable insight and time , I would not have been able to complete it.

I would like to express my heartily thanks to management of Himalayan Distillery Ltd for providing various information for the study . I am very grateful to all of those who have helped me especially all the member of my family who provided regular inspiration and continuous contributions and support for my success . The acknowledgement remains Incomplete without

special thanks to my lovely friend pankaj karn for taking a good care of the technicalities of computer tying and setting .

At last I would like to apologize for if any mistake that might have occurred in this thesis.

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TABLE OF CONTENTS

List of Tables

LIST OF FIGURES / GRAPHS

ABBREVIATION USED

ADB	:	Asian Development Bank
AGM	:	Annual General Meeting
Alt	:	Alternatives
B.S.	:	Bikram Sambat
BE	:	Break-even
BEP	:	Break-even Point
BJM	:	Biratnagar Jute Mill
C.V.	:	Coefficient of Variation
CBS	:	Central Bureau of Statistics
CM line	:	Contribution Margin Line
CM ratio	:	Contribution Margin Ratio
CM	:	Contribution Margin
Co.	:	Company
C-V-P Analysis	:	Cost-Volume-Profit Analysis
Dist^{n}	:	Distribution
DP	:	Desire Profit
DPAT	:	Desire Profit After Tax
DPBT	:	Desire Profit Before Tax
Ed	:	Edition
Exps.	:	Expenses
FC	:	Fixed Cost
FG	:	Finished Goods
FNCCI	:	Federation of Nepal Chamber of Commerce and Industry
FY	:	Fiscal Year
Govt.	:	Government
HDL	:	Himalayan Distillery Limited
HMG	:	His Majesty Government
i.e.	:	that is
Ibid	:	In the same place; from the same work

IRD	:	Inland Revenue Department
Ktm	:	Kathmandu
Ltd.	:	Limited
MC	:	Marginal Contribution
MCM	:	Morang Cotton Mill
MNCs	:	Multinational Companies
MOF	:	Ministry of Finance
MOS (M/S)	:	Margin of Safety
NA	:	Not Available
NEBICO	:	Nepal Biscuit and Confectionary
NI	:	Net Income
NIDC	:	Nepal Industrial Development Corporation
No.(s)	:	Number(s)
NRB	:	Nepal Rastra Bank
Nubiz	:	New Business Age
Op.cit.	:	in the work cited.
P, pp	:	Page,(s)
P.E.	:	Probable Error of Correlation Coefficient
P/F	:	Providend Fund
P/V	:	Profit-Volume
PERT	:	Project Evaluation Review Technique
PPC	:	Profit Planning and Control
Prod^{n}	:	Production
Pvt.	:	Private
Q	:	Quantity or Output
R&D	:	Research and Development
R/M	:	Raw Material
Req.	:	Requirement
S	:	Sales
S.D.	:	Deviation
S.P.	:	Selling Price

SAFTA	:	South Asian Free Trade Area
T.U.	:	Tribhuvan University
TC	:	Total Cost
Th. Ltrs	:	Thousand Liters.
TUCL	:	Tribhuvan University Central Library
U	:	Unfavourable
USP	:	Unit Selling Price
USSR	:	United State of Soviet Russia
UVC	:	Unit Variable Cost
VAT	:	Value Added Tax
VC	:	Variable Cost
VDC	:	Village Development Committee
viz	:	namely
WTO	:	World Trade Organization
www	:	World Wide Wave

ONE
INTRODUCTION

1.1 Background of the study

Landlocked, Nepal is the 12th poorest country in the world. In 2001 its GDP per capita was $ 241, the lowest in the south Asia region. It's population stood at 23.2 million with a population growth rate of about 2.4%. About 38% live in poverty.[1] As a developing country Nepal, agriculture is the largest sector and the backbone of the economy. It is the major sources of livelihood for a majority of the country's population. About 80% of Nepal's populations are tied up with agriculture. It's contribution to the GDP is 40.1%.[2] While the industry sector contribute about 21%.[3] The service and industry sectors grow more than the agriculture sector in FY 2003. The average annual growths of service and industry sectors were 2.7 and 2.3% respectively, while the agriculture sector grew 2.1%. Agriculture employees the most workers, absorbing about 75% of the labor force. In contrasts, the service and industry sectors employ only about 23%.[4]

The total unemployment rate is estimated at 17.4%, which is largely accounted for by under employment; the unadjusted unemployment rate is 5%. The government estimates the labor force will increase by 1.05 million during the tenth plan period, 2008-2013 or about 2,00,000 new workers each year.[5]

Although, industrial sector is not satisfactory in Nepal. Required acts and rules are made but these are not proper implemented. Establishment and

[1] Asian Development Bank, RRP: Nep 36611, Oct 2004, p.1
[2] Pant P.R. (2008), "Business Environment in Nepal," Budda Academic Publishers and Distributors Pvt. Ltd. Kathmandu, Nepal, Ed-2nd p.42
[3] Swiss Agency for development and co-operation 2003. Study report on foreign employment in Nepal with particular emphasis on skills requirement, Lalitpur, 2003
[4] ADB 2003, Key Indicators. Manila
[5] ADB, RRP: Nep 36611, Oct 2004, p.46

development of industries assist to improve economic conditions and regional balance.

Industrialization not only provides goods and services but also creates employment opportunities. It facilitates an affective mobilization of resources of capital and skill which might otherwise remain unutilized. It also act as a vehicle for fostering innovation and technological improvement. Industrial development thus has a multiplier effect on the economy.[6]

In Nepal, the agro and forest based industries dominate the industrial land escape in terms of numbers employment and value added. The number of agro industries has been gradually increasing. To a greater extent, these industries are absorbing local agricultural and forest products as their raw materials or for value addition activities.[7]

Modern liquor industries are a part of agro and forest based industries. These industries are contributing significantly to the production of agro based products to meet internal as well as external demand. Therefore, the promotion of liquor industries should be a critical element of the growth strategy in Nepal. In contributes about 20% to government revenue.[8]

In Nepalese context, manufacturing organizations are facing so many problems. There are need for a large number of good managers and managerial decisions in a developing country like Nepal. Most of organizations are in loss, profit earning is necessary to serve these organizations. Achieving objectives of the business organization, profit motive being the most dominant. A firm would thus succeed to obtain funds from the capital market if it has been incurring profit and profit potential in the future.

But lack of profit planning tools they can't forecast budgeted sales to recover total and to achieve profit. One of the most important tool (in profit

[6] Pant, P.R. (2003), Opcit pp. 219-220
[7] ibid
[8] Business Age, april 2004, p.35

planning and management accounting), C-V-P Analysis play vital role to locate zero profit. In that condition, the company of firm neither gets profit nor face loss. It provides an in sight in to the effects and inter-relationship of factors which influence profit of the firm. It is with the help of the C-V-P analysis that the account executives is enable to present facts and figures in accurate reports and intelligible charts to manage for action.

1.2 Cost-Volume-Profit Analysis

The relationship between cost, volume and profit is known as cost-volume-profit (C-V-P) analysis. It is an analytical tool for studying the relationship between volume, cost, price and profit. It is also an important tool used for the profit planning in a business. There are three factors of C-V-P analysis which are inter connected and depend on one another. For example depends upon sales, selling price to a greater extent will depends upon the costs and costs depends upon the volume of the production.

C-V-P Analysis is a greater helpful in managerial decision making, especially cost control and profit planning. "It provides attention-directing and problem solving backgrounds for important planning decisions, such as selecting distribution channels, pricing, special promotions and personnel hiring. "Know your cost" is an essential theme for any managers. And C-V-P analysis helps to direct managerial attention to important problems and paves the way to their solution."[9]

C-V-P Analysis examines the responses of profit to changes in volume. It is useful for single product as well as multiple product firms. This analysis will be designed to include the firm’s variable costs of order getting and order-filling. It predicts the effects of changes in costs and sales level on the income of the business.

[9] Horngren, T. Charles, Accounting for management control, Prentice Hall, INC, New Jersey, Ed-2nd (1970), p.207

"In its simplest form, it involves the determination of the sales level at which a company neither earns a profit nor incurs a loss, or in other words, the point at which it breaks even. For this reason, C-V-P analysis is often called break-even analysis. However the technique can be expanded to answer additional questions, such as; what sales volume is necessary to earn a desired net income?, what net income will be earned if unit selling prices are reduced in order to increase sales volume? What net income will be earned if a new machine that will reduce unit labor costs is installed? What net income will be earned if the sales mix will be changes? When the technique is expanded to answer such additional questions, the descriptive phrase C-V-P analysis is more appropriate than break-even analysis."[10]

Hence, a company may use C-V-P analysis as a planning tool when the sales volume is known and management need to find out how much profit will result. Another way of planning is to begin with a target profit. Then, through C-V-P analysis a company can decide the level of sales needed to reach that profit. Similarly, for the cost control purpose, C-V-P analysis is a way to measure how well different departments in the company are doing. At the end of a period, the company analyzes sales volume and related actual costs to find actual profit. It measures performance by comparing actual costs with expected costs. These expected costs are computed by applying C-V-P analysis to the actual sales volume. The result is a performance report on which management can base the control of operations.

So, a dynamic management, therefore, uses CVP analysis to predict and evaluate the implications of its short-run decisions about fixed costs, variable costs, volume and selling price for its profit plans on a continuous basis.

[10] Pyle, William W. and Larson, Kermit D., Fundamental Accounting principle, Richard D. Irwin, INC, Ed-10th (1984), p. 336.

1.3 Profile of Himalayan Distillery Ltd.

1.3.1 Introduction

The Himalayan Distillery Ltd is promoted by Jawalakhel Distillery, which is the largest player in Nepal's liquor market and for decades has been synonymous with quality products. The founding chairman, V.K shah, is a well qualified specialist in the field of alcoholic beverage and the family has been in the alcoholic business for the last six generations."[11]

The Himalayan Distillery Ltd is a culmination of a perfectionist's dream. If is not only a modern distillery but also a research unit. While constructing this distillery, the promoter have given paramount importance to selecting the best quality equipment with the sole aim of producing alcoholic beverage of superfine grade making them the bench mark of quality in the market. The distillery has started its initial operation as on January 1999.[12]

The distillery is located in serene surroundings at the foot hills of the Himalayas in the southern part of Nepal. Its registered office has situated at

[11] http:// www.himalayandistillery.com/profile.htm.
[12] http:// www.himalayandistillery.com/profile.htm.

Parse district, V.D.C. Lipnibirta-7, Parwanipur. The distillation unit stands as a land mark and is accessible by road. The local airport (i.e. Samira) is only

Some minutes away and the nearest India Boarder Birgunj to Raxaul is 12 Kms from the factory site. The Indian Broad Gauge Rail-way head terminals at Raxaul boarder. The contact office of the company has stayed at Satdobato Chock Lalitpur.[13]

The distillery which in present value would cost around Rs. 800 million. It's authorized capital is Rs. 900 million and issued capital is Rs. 60.18 million. The par value of the share has fixed Rs. 100 each. The company had separated 41, 30,000 equity shares for issue, out of authorized capital and provisions are not made fore issue of preference shares. The promoters have owned 58% equity shares (i.e. 23, 95,000 equity shares) and remaining 42% (i.e. 17, 34,600 equity shares) shares have offered to public.[14]

Himalayan Distillery, sister concern of Jawalakhel Distillery subscribes to the same philosophy of setting new benchmarks. The company's penchant for quality has seen it tie-up with Seagram's one of the well known name in the liquor world to produce and market Seagram's Royal stag and Imperial Blue in the first phase and other brands in he second phase.[15]

The company takes at most care that not a drop of whisky, vodka, rum, brandy and gin leaves the distillery until it has been sealed in it's bottle ready to be drunk and enjoyed. Even the flavors used in the preparation of products are directly imported from Europe. The labels are printed in Thailand and shrink wraps are used. There is no room for recycled bottles which insures that the product is genuine, has not been refilled and not counterfeited. [16]

[13] Ibid
[14] Memorandum and Articles of HDL.
[15] http:// www.himalayandistillery.com/sis[1].htm.
[16] Ibid

The HDL and Seagram Manufacturing Limited (SML) have entered into a Technical and Marketing Support Agreement on November 5, 1999. The company is producing and marketing Seagram's products in Nepal.

As per the agreement Seagram Manufacturing Limited has agreed to render the following services to the HDL:[17]

- Technical support for blending and bottling process including quality control and supervision,
- Brand Management and marketing support services, for this purpose SML's marketing and sales executives will visit Nepal on regular basis to render the support and assist in marketing and promotional activity,
- SML will provide marketing and promotional materials to be used in the kingdom of Nepal for promoting sales of the products,
- These products will be exported to India etc.

So, it is a state of the art facility and is the only grain unit in Nepal. The company is about eight times bigger than Jawalakhel Distillery.

1.3.2 List of Raw materials

The company uses some raw materials to produce finished products. Some raw materials like rectified spirits and E.N.A are produced and re-used, others are taken from Nepalese suppliers and special materials are imported from abroad. The list of raw materials is shown in the table below:

[17] http:// www.himalayandistillery.com/agreement.htm.

Table No. 1.1: List of Raw Materials

Rectified spirits	Starch
Pure Natural alcohol	Stretchable materials
E.N.A	Corns
Vaded Malt spirit	Potatoes
Malt spirit	Different kinds of fruits
Other spirit	Grains
Vegetables	Herbs
Natural oils	Yeast
Sugar	Juniper barriers (from Italy)
Sugar base materials (SAKKHARGUDD)	Coriander seeds (from Romains, Russia, and Bulgaria)
Vaded malt	Flavors
Malts (from Scotland)	Orange and lemon peels (from spain)
Molasus	

Source: Memorandum of the co. and Nubiz, June 2004 p.60

1.3.3 Technology of the company

"Quality knows no pinnade, no saturation point. It is a journey that's internal."

"The above line of though has been company's guiding principle since inception. A philosophy that runs through every stage. Be it customer interface, technology application processing or the production phase.

Firmly believing in the ethics of total quality management, the company makes their products go through a series of stringent quality control test to enhance their appeal among their esteemed and highly valued customers. Since inception, it's been their Endeavour to render high quality products and services

to customers. To achieve quality objectives, each one is always on the look out to tap the latest technology doing rounds world wide.

Keeping a close watch on the winds of changes and insuring products innovations, the company has achieved an enviable reputation in a very short period of time. All the while carrying forward the rich and tremendous legacy of sister company Jawalakhel Distillery Pvt. Ltd, of excellent, commitment and perfection."[18]

1.3.4 Product liners of the company

The company manufactures multiple products. The product lines of the company are shown in the following table:

Table No. 1.2: Product lines of HDL

1. E.N.A.	7. Bonnie Charles
2. Royal stay	8. Ultimate
3. Imperial Blue	9. Play boy
4. Ruslan white	10. Ruslan Vodka
5. Cleopatra	11. Ja. dry Gin
6. Triple Cross	12. Blue Diamond etc.

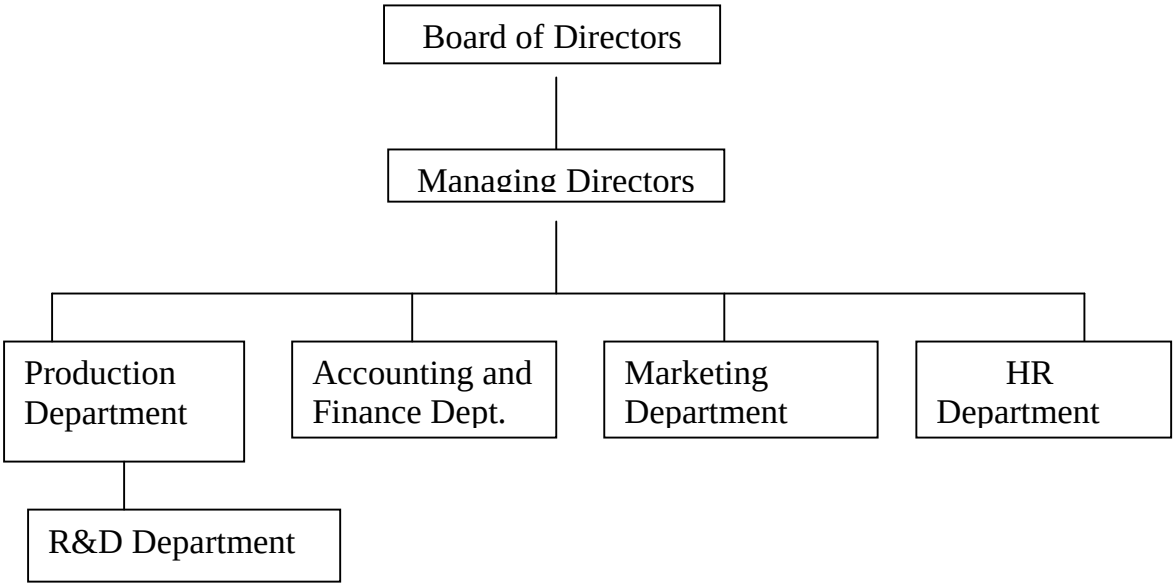
Source: Annual Reports of HDL (FY 2066-67 to FY 2069-70)

1.3.5 Organizational Structure of the Company

The company is a public limited company. There are seven persons in board of directors and one person in the post of managing director. Where five persons are elected from promoter-share holders and remaining three persons are selected from public-share holders. The company has employed two hundred persons. There as two persons employed from India. The organizational structure of the company is shown in the figure below:

[18] http:// www.himalayandistillery.com/technology.htm.

Figure 1.1: Organizational Structure of HDL



Source: Memorandum of the company and Questionnaire Interview

1.3.6 Distribution Channel and Major Market of HDL

The company has adopted channel of distribution by National distributors to Distributors then wholesalers and retailers. The retailer includes all kinds of selling stalls. Departmental stores sell more than other retailers. The channel of distribution is shown in figure below:

Figure 1.2: Channel of Distribution and Major Markets

Source: Based on Interview by questionnaire

1.4 Brief Description of Distillery Business[19]

Distilleries are engaged in the production and sales of alcohol in several forms. The distillery may produce industrial or beverage alcohol, the latter consisting of such item as whisky, gin, brandy or rum. A whisky distillery

[19] Lasser, J.K., CPA, Hand book of Accounting Methods, D. Van Nostrand Company, INO, New work, Ed-2nd (1954), pp 350-351

produces only a “type”, such as rye or bourbon. The distillery may also operate a blending plant, which is a district activity, in which case the products are called blends. Blend formulas are numerous, and a blend may be the parents of as many as fifty brands. Brands, however, may be either straight whiskies or “blends”, and are the trade names by which the ultimate consumer indicates his preference.

The products of the distillery are placed in bonded warehouse where they must remain until the Federal internal revenue tax is paid. As this tax is several times the amount of the cost of the product, the products are allow to remain “in bond” until actually required for use. However, the tax must be paid within eight years from the data of distillation. The federal government has an impressive array of tax collectible from distilleries.

The distillery may not begin operations until the government has approved the distilling plant, and one in operation it may not discontinue distilling, even for a few days, without a permit to do so, and to forestall any possibility of illicit operations the government removes a vital part of the equipment. If the distillery plans to operate at a different rate of capacity than that originally, or previously, specified, it files “notice of change in capacity”. Until the distillery product is tax paid it must remain in a bounded warehouse, generally located on the distillery property, to which the distillery has no key, and may not be visited by distillery employees except as permitted by the government’s storekeeper-gauger, who alone has the key.

All phase of the industry are governed by laws and regulations of the various Federal and other government bodies interested in the control of the industry. These are voluminous and ordinary caution suggests that persons in the industry keep fully informed so as to avoid incurring penalties for transgressing regulations. Regulations prescribes the type of barrel to be used, and if the distillery “dumps” barrel of its own product in its blending or battling

plants, the identifying numbers must be destroyed, and the barrels can not be used again in the alcohol industry.

Each distillery must have a distinctive designation mark on its barrels. The barrels are serially numbered from 1, and there is no repetition of number from 1, and there is no repetition of number, some distilleries are now using barrels numbered in the millions.

1.5 Industrial Development in Nepal

Industrial development in Nepal started from 1936 with the establishment of the Biratnagar jute mill as the first corporate body of the company. Between 1936 and 44 number of industries were set up, but the second world war disrupted the development process. It called for the state intervention in the business sector the result of which increased the number of public enterprises in Nepal.

The period of pre-war (1936-1939), there were established Nepal company act 1936 and the first joint stock enterprises (BJM) was pioneered by some Indian entrepreneurs. In addition, five new public limited companies were also incorporated in various field within a couple of year, or so.

During the war period (1936-1945), a group of 14 joint-stock companies (Small and big) were incorporated in various field such as mining, hydro-electric supply, cotton textile, paper, soap, ceramics, glass and furniture. In private sector, Nepal Brewery Pvt. Ltd. (1942) was also established.

The immediate post-war period (1946-1950), was a time of boom in the growth of JSE in the country. Out of 35 joint stock companies incorporated, 15 were rice, dal and oil mills of which more than half were wound up within a short period under various conditions. Three ambitious venture launched by foreign entrepreneur was cotton textile industry. Out of these, Morang sugar mills, Raghupati jute mills and Juddha Match factory were set up in Biratnagar

in collaboration with Indian Businessmen. In this period BJM and MCM were increased their paid capital.

And interim period (1951-1959 and after), there were no public limited company was incorporated in industrial field. Although political environment was changed. But a number of private limited company were established.

At the starting of first fifth year plan (1956/57-1960/61), there were declared 'Industrial policy of Nepal 1957'for industrial development. The first plan had no specified target of production. It's general objectives included among other things revival and expansion of cottage industries, encouragement to private saving and investment in productive enterprises assistance to existing industries and intensification of survey and research work. At that period 24 rice mill and oil mills were established. Timber corporation and NIDC were also established.

Within gap year (1961/62), there were established there public enterprises. The second plan (19692/63-1964/65), there were established Balaju and Patan industrial area. In government sector, there were established Janakpur cigarettes factory, Birgunj sugar factory, Banshabari leather and shoes factory, Birgunj agricultural implement factory, brick and tile factory with financial and technical supports of USSR and China.

In third plan (1965/66-1969/70) period, it proposed to expand output through a more effective utilization of the existing capacity of the industries. It was planned to set up import-substituting industries (i.e. daily use) and expert promoting types of industries to earn necessary foreign exchange. There were also emphasized and producing basic goods required for development projects. In non government sector, out of priorities, there were established synthetic, firebricks and stainless steel industries. In addition, some provisions were made for setting up flour mill, solvent extraction plant, brewery, soap, cold storage and paints etc.

The fourth plan (1970/71-1974/75) had assigned a major role to the private sector and public sector activities were limited to expand of the existing industries and the establishment of a few new industries. The private sector was to be encouraged to set up industries. Within fourth plan, Hetauda beer factory and floor meals were started production. Similarly, Jawalakhel Distillery Pvt. Ltd also established to product liquor products.

The fifth plan (1975/76-1979/80) was taken necessary step to make investment in industries more attractive than that in other areas such as trade, land transaction, construction of similar other lucrative activities. Within this period, Hetauda cotton mill was started their production and tourism industry was also in progress.

The government changed industrial development strategy after mid 1980s. As a result, many of the public sector industrial units were privatized in the early 1990s.

1.6 Statement of Problems

First of all, the economic slowdown has had a several effects on all industries. None of the industries are doing well, whether it is export or tourism. And this has resulted in disposable income going down which in turn has affected the industries.

The liquor industry is becoming smaller and there is over competition. Even, unfair and unhealthy competition is also exercised. In addition, product duplication has evolved as another big headache for the liquor industry. The duplicate products are sold at a lower price than the original products and could be harmful to health of users and whole liquor industry too. There are also selling and distribution problems. The distribution mediators are practicing 'pay when sold' transaction method. This result, the bad debts are to be tuned of 5 to 10 percent annually. In other parts, manufactures are offering very attractive schemes. The corruption and unhealthy completion is, in fact, killing the liquor

business. Besides, that, quality control is a another problem. The export promotional activities are not emphasized. Price increased in petroleum products, raw materials, and others, these are affecting in production expenses unfavorably. The banks are also charging high interest in the boom period.

The legal framework is very weak. There are not proper structure of changing excise duty on 25^0 UP and 40^0 UP category and others. The government charges tax rates to the liquor industry irrationally. Similarly, if people being caught red-handed distributing fake products, they always being got away with minor fines.

Another, current problems are political crisis. The political conflict which has resulted in increased security, limited night life and supply problems due to bands (Road block, Nacka Bandhi). Even, the liquor industry has, on more than one occasion, been targeted by Maoists.

Similarly, there are major problems of transportation cause of inconvenient geographical diversity. The problems are faced more at the raining season by landslide then road block.

The above problems have been concerned with the external business environment and liquor industry. In the same way, Himalayan Distillery Ltd. might have been some internal problems. Out of these, all shares are not subscribed, lack of working capital causes of non fully payment by security holders on time, non payment of bridge gap loan, interest payable on loan for working capital and long term loan etc.

In the Nepalese context, firms are still being run with primitive management. Every firm have certain way to operate business. There are lack of modern management culture in the business firms. There is a lot of difference between the theory (which are taught in the campus) and the practical life in the business firms. In some companies, there are no defined job

descriptions for the people, the accounting and finance jobs are put under the same department. These activities occur lack of budget.

The study had focused to examine on application of cost-volume-profit analysis. In Nepal, the practice of using C-V-P analysis tools for different management decision are also nil. Though some work of pre-feasibility studies are carried simply for the sale of getting latest figure from different development plans.

The major statements of problem are as follow:

a) Not segregation of costs, in to fixed and variable and unit variable cost,
b) Not application of C-V-P analysis-extension[19] computations etc.

1.7 Objectives of the Study

To analyze HDL with C-V-P analytical tool and to tackle of the problems stated above (previously) thus this research has following objectives:

a) To segregate the costs of HDL into fixed and variable costs and unit variable cost,
b) To compute extension tools [20]of C-V-P analysis,
c) To suggest measures to improve its C-V-P relationship etc.

1.8 Sources of Data

There are vital role of data in research to clear and complete research objectives. Without the data, methodology can not be utilized to bring the conclusion. There be better to collect only proper and required data from needed sources.

For the purpose of C-V-P Analysis of the HDL, there were collected mainly from both sources of data, which are as follow:

[20] Here extension tools include or refers computation of Break even analysis, CM analysis, Margin of Safety Analysis and Profit Volume Analysis.

1.8.1 Primary Data

Primary data be original in nature. For the purpose of research work, primary data were collected. Basically, following techniques were adopted:

(i) Observation
(ii) Direct meeting
(iii) Personal Interview through questionnaires etc.

1.8.2 Secondary Data

It is the published data which has been used by first person or other. Only primary data can't fulfill the requirement of the research work. If it be possible, there need to face several problems. So, adoption of secondary data are also suitable to accomplish the objectives of study. The following procedures of collection of secondary data were adopted:

(i) Library
(ii) Companies publications
(iii) Books and Journals/Magazines
(iv) Booklets, and
(v) Internet and websites etc.

The output of the research work depends upon accuracy of the applied data. So, the researcher had been tried to collect up to data and accurate data as far as possible.

1.9 Limitations of Study

Each and every research has some limitations. Basically, not availability of required data and information would be the major limitations of the study. The study has been conducted with the following limitations:

(i) Only four years financial data has been used (FY 2056/57-2060/61 B.S.),

(ii) All financial information are adopted from audited annual report of the company accepted in AGM,

(iii) The accuracy of the result has been depended upon the accuracy of the secondary data provided by the company,

(iv) Use of C-V-P analysis tool, which is depended upon some assumptions,

(v) C-V-P Analysis is computed in the overall form of the company and selected product lines only.

2.0 Organization of Chapters

This study has divided into five parts viz. introduction, review of literature, research methodology, presentation and analysis of data, and summary and recommendation.

The first chapter has included background of the study, C-V-P analysis, profile of HDL, statement of problem, objectives of study and organization of chapters.

Similarly, the second chapter has included approaches to C-V-P analysis, extension of C-V-P analysis, C-V-P analysis for a multiple product firm, and for segments, brief description of distillery business, industrial development in Nepal with liquor industry, it's contribution into revenue and other aspects, review of book journals and articles and review of previous research and reports with research gap etc.

The third chapter has included research design, population and sample, source of data, variable studies, tools of data analysis and limitations of study etc.

The fourth chapter has included analysis of sales, fixed costs, variable costs and semi-variable costs. In addition, computation of BEP, CM analysis,

MOS and P/V analysis are also computed for analysis and interpretation to fulfill objectives of the research. Major finding are also pointed out.

The last chapter has included summary, conclusion and recommendation where the researcher has attempted to provide valid recommendation for the improvement of HDL as far as possible.

CHAPTER TWO
REVIEW OF LITERATURE

2.1 Approaches to C-V-P Analysis

There are two approaches to C-V-P analysis, which are described as follows:

2.1.1 Cost and Revenue Approach

One approach to C-V-P analysis is the cost and revenue approach. This approach can be used to project estimated profits at various sales volumes.

The zero profit volume that separates the loss and profit zone is referred to as the break-even point. The term break-even analysis and C-V-P analysis are sometimes used inter changeably. BEP is an application of C-V-P analysis; however it does not reflect a firm's primary objectives.

The BEP is used as a measure of risk by comparing sales at the BEP to estimate sales. This comparison yields the margin of safety, which is the amount that sales could fall below the estimated sales level before the BEP is reached. The margin of safety may also be stated as the percentage by which sales could fall before the BEP is reached. The margin of safety percentage is computed as follows.[21]

$$\text{Margin of safety percentage} = \frac{\text{Expected sales} - \text{BE sales}}{\text{Expected sales}}$$

2.1.2 Contribution Approach

The term contribution has a special meaning in account and can be said to be the difference between the sales value and variable cost. The definition applies equally to one unit as to a product line or service. Contribution is

[21] Fisher, Paul M. and Frank Werner G., Cost Accounting, South Western Publishing Co. Cincinnati, Ohio. P. 110.

therefore a kind of profit before all the fixed costs are taken into account, and probably lies some where between gross profit and net profit in most organization.[22]

An alternative approach to C-V-P analysis is based on the contribution margin as a function of volume. The contribution margin of a unit is the net donation each unit makes towards covering fixed costs. It is calculated as follows:[23]

Contribution margin per unit = Selling price per unit – Variable cost per unit.

The contribution approach should be used only within the ultimate relevant range since its net revenue against cost.

Companies that separately identify and measure the fixed and variable components of cost often use a contribution margin approach on their periodic income statement prepared for internal management uses. These income statements provide financial data that are uniquely useful for management planning purpose because of the emphasis on fixed and variable costs. Most of the managerial decisions that relate to operations (either directly or indirectly are based in some way to knowledge of the fixed and variable components of cost.[24]

Total contribution margin will change if any one of the following variables changes:

a) Volume (Units sold),
b) Sales price, or
c) Variable cost ratio

[22] Moh, Garaham, According for Managers, Kogan Page Limited, London, Ed. 1995 (Re-print) p. 119.
[23] Fischer, Paul M and Frank, Werner G. Op cit. pp. 110-111.
[24] Welsch, Glen A, Ronald W. Hilton, and Paul N. Gordon, Budgeting: PPC, Prentice Hall of India, New Delhi, Ed- 5th (1995), pp. 498-499.

A budgeted contribution margin income statement makes it possible to answer numerous "what if" questions. For internal management purpose, a contribution margin income statement is preferable.

2.2 Extension and computation of C-V-P Analysis

2.2.1 Break-even Analysis

Break-even analysis is the term used to study of the relationship between cost, volume and profit at various level of activity. It is the most widely known from of the C-V-P analysis.[25] Break-even analysis is a special case of C-V-P analysis.

Break-even analysis uses the same concepts as contribution analysis; however, it emphasizes the level of output or productive activity at which sales revenue exactly total costs that is there is no profit or loss. Break-even analysis rests upon the foundation of cost variability-separate identification and measurement of the fixed and variable components of cost. It is usually applied on a "total company" basis.[26]

The more significant aspect of the C-V-P analysis is to examine the effects of changes in costs, volume, and price on profits and use this information in improving the profit plan.

Break-even analysis is used to determine the level of sales mix of products required to just recover all cost incurred during the period.[27]

2.2.1.1 An alternative form of Break-even Analysis

An alternative form of break-even analysis includes Break-even point (BEP) in units and amounts, BEP with desire profit and cash BEP in amount etc.

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[25] Dangol, R.M., Management Accounting, Taleju Prakashan, Kathmandu, Ed. 2058 B.S. p .50.
[26] Welsch, Op.cit p. 501.
[27] Hammer, Lawrence H., Carter, William K. and Usry, Miton F. Cost Accounting, South Western Publishing co. Cincinnati, Ohio, Ed. 11th p. 592

(A) Break-even point (BEP)

The break-even point is that point where total revenue equals total costs incurred. Thus it is the point at which a company begins to earn a profit.[28] There is neither a profit nor a loss at the BEP. Although management typically plans for a profit each period, the break-even point is concern, if sales fall below the BEP, losses are incurred. Management must determine the break-even point in order to compute the margin of safety. When planning new venture or product lines, management can quickly measure the likelihood of success finding the projects BEP.

Determining the Break-even point

The following two approaches can be used to compute the break-even point:

a) Formula approach, and
b) The chart approach.

(a) Formula approach:

The BEP can be computed in term of units, or in terms of monetary value (i.e. rupees, dollars, or pounds) of sales volume or as a percentage of estimated capacity.

(i) BEP in Units:

The breakeven point may be calculated for a single product firm in terms of units of products. The break-even point in terms of units will be reached when units sold create sufficient revenue to cover their total costs-fixed and variable. Each unit of the product sold will cover its own variable cost and leave a balance, called contribution, (or marginal income), to cover

[28] Needles Jr. Belverd E., Anderson, Henry R. and Cald well, James C. Principles of Accounting, Hourghton miffilin company Boston, Ed.-2nd (1984), p. 944.

fixed costs and profit. The break-even point will occur when enough units have been sold so that the contribution is just equal to total fixed costs. All the break even point, profit is zero. Note that contribution margin per unit is the difference between selling price per unit and variable cost per unit; total contribution margin is equal to unit contribution margin multiplied by units sold and profit is derived when fixed costs are subtracted from total contribution. Thus:

Unit contribution margin = unit selling price – unit variable cost

Total contribution margin = Unit contribution margin × units sold

Total contrition margin = Total fixed cost + profit

At BEP, profit will be zero and therefore, total contribution margin will equal to total fixed costs. The BEP in terms of units can be computed by dividing fixed costs by contribution margin per unit. The formula for BEP is as follows:

$$\text{BEP (in units)} = \frac{\text{Total Fixed costs}}{\text{Selling price per unit - variable cost per unit}}$$

For positive BEP, the selling price be greater than the variable cost per unit. Mathematically, if the selling price is less than the variable cost per unit, a solution for BEP in terms of negative sales volume does exist, but the negative sales volume in practice is an unacceptable solution. In case of selling price equals variable cost per unit, no BEP can exist unless firm has zero fixed costs. Under zero fixed costs situation, every sales volume point will be a BEP, because revenue would be exactly equal to total costs at any sales volume.

(ii) BEP (in rupees)

The break-even point for a single product firm can also be calculated in terms of rupee value of sales volume, which is as follows:

$$\text{BEP in Rs.} = \frac{\text{Total Fixed Costs}}{1 - \dfrac{\text{Variable cost per unit}}{\text{Selling price per unit}}}$$

BEP in rupees also could be obtained by multiplying the BEP units by selling price per unit. The advantage of BEP in Rs. is that it can be used with both the per unit information as well as total information. This is so because the variable cost to sales ratio will remain same for any sales volume as both variable costs and sales revenue change in direct proportion to sales volume.

Using total sales and total variable costs information BEP in Rs. is particularly significant for the multi product firms. These firms find difficulties in measuring volume in terms of any common unit of products. For such firm, the BEP will be calculated in terms of total rupee sales.

$$\text{BEP in Rs.} = \frac{\text{Total Fixed Costs}}{1 - \dfrac{\text{total variable cost}}{\text{total sales revenue}}}$$

(b) The Chart Approach

The BEP can also be computed graphically. A break-even chart portrays a pictorial view of the relationship between costs, volume, and profit. The BEP indicate in the chart will be one at which total cost line and total sales line intersect

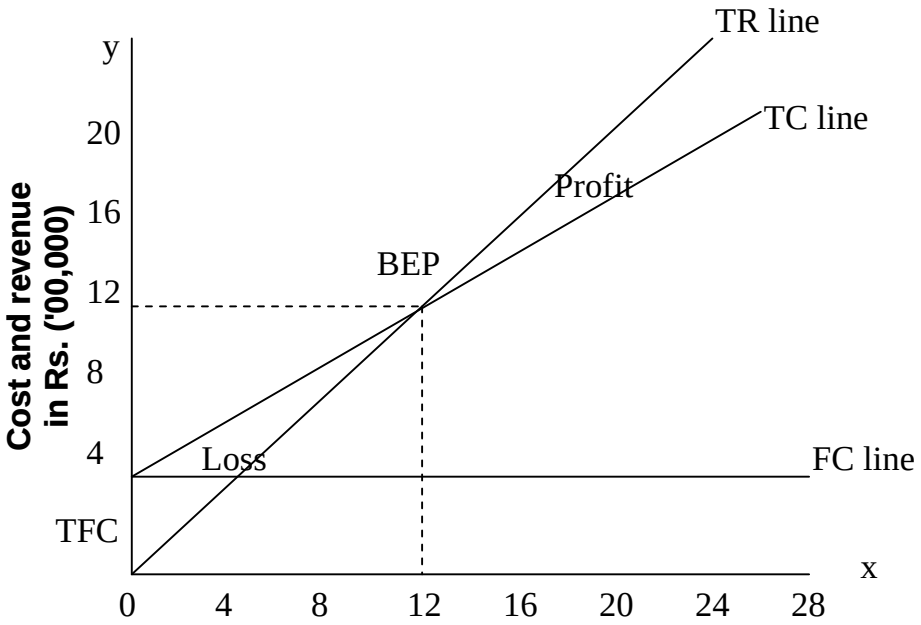

Figure 2.1: Break-even chart

The following steps are involved in constructing the BE chart[29] (for cost and revenue approach):

1. Sales line: Sales volume is plotted on horizontal axis. Sales volume may be expressed in terms of rupees, units or as a percentage of capacity. Equal distances are cut a long the horizontal line to show sales volume at different activity levels.

2. Cost and Revenue Lines: Vertical axis is used to represent revenue and fixed and variable cots. The vertical line is also spaced in equal parts. A similar vertical line may be drawn on the right hand side of the chart to complete the requirement.

3. Fixed cost line: The FC line, parallel to the horizontal axis, can be drawn through the fixed cost point.

[29] Matz, A. and Usry, M.F., Cost Accounting: Planning and Control, South-Western Publishing Company, 1976, pp 745-746.

4. Sales and cost lines: The total sales and total cost line can be drawn by marking budget level (of total sales, Rs. 1200000 and total cost Rs. 1200000 on the right hand vertical line. To draw total sales, the zero sales point should be connected with the sales budget point (Rs. 1200000) on the right hand vertical line. Similarly total cost line can be drawn by connecting fixed costs point (Rs. 400000) with the total cost budget point (Rs. 1200000) on the right- hand vertical line.

5. Angle of 45^{o}: If the vertical and horizontal lines are spaced equally with the same distances, sales line will be connected the opposite corners of the graph at angle of 45 degree.

The point of intersection between sales and total cost lines is the BEP. The angle formed by the intersection of sales and total costs lines in known as the angle of incidence. Large this angle, lower the BEP and vice-versa. The area to the left of the BEP is the loss area and represents the uncovered fixed costs, while to the right of it, there is the profit area. The variable cost is represented by the gap between the total cost and the fixed cost.

BEP can be computed by contribution approach as:

1. Break-even line: The break even line, parallel to the horizontal axis can be drawn through the zero contribution point.
2. Fixed cost: The fixed are located in the negative vertical line.
3. Contribution line: It is drawn from the fixed cost point and forwarded by intersecting BE line where BEP lies.

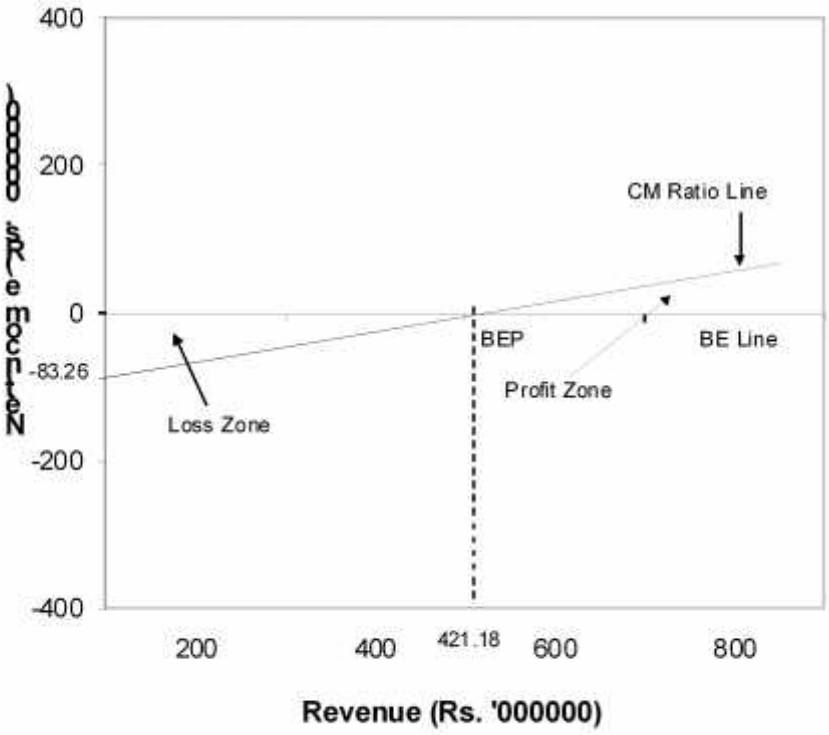

Figure 2.2: BE Graph by Contribution Approach

(B) BEP as a percentage of capacity

Many firms are interested to compute the break even point as a percentage of the estimated sales or capacity. This can be done by dividing the break even sales by the estimated sales or capacity. It would be computed by following formula:

$$\text{BEP (\% of capacity)} = \frac{\text{BEP in Units}}{\text{Estimated sales or capacity}} \times 100$$

(C) Cash Break-even point

Some of the firm's fixed costs are non cash outlays, and for a period, some of its revenue may be in receivable. It may be therefore important to find BEP on a cash basis for accounting and financial decision making.

An equation for the cash BEP based on sales revenue can be derived from the equation for the profit BEP. If non cash items are eliminated from revenues and costs, the BE analysis on cash basis can easily be computed. In most cases, depreciation would be the non-cash expenses included in the fixed costs. The cash break even point (BEP) can be computed by the following formula.[30]

$$\text{Cash BEP} = \frac{\text{FC - Non cash outlays}}{\text{CM Ratio}}$$

$$\text{Where, CM ratio} = 1 - \frac{\text{Variable cost}}{\text{Sales revenue - Non cash items}}$$

If non cash outlays are very close to total fixed costs, the cash BEP approaches zero. Other thing beings same, a company with a larger proportion of its fixed costs in the form of non-cash costs will have a lower cash BEP, and more strength to face business downturn than a company whose fixed costs consist mainly of cash items.

2.2.2 Contribution Margin Analysis

Contribution margin is the excess of revenue over all variable costs related to a particular sales volume. A product line's contribution margin represents its net contribution to paying off fixed costs and to profit.

Adding contribution margin into C-V-P analysis changes the make up of the equations as well as the format of the income statement. The equation now becomes:[31]

S-VC = CM – FC = NI (i.e. contribution)

[30] Weston, J, Fred and Copeland, Thomas E., Managerial Finance, The Dryden Press, Florida, Ed.-8th (1989), p. 221.
[31] Needles and cold well op.cit pp. 946-947.

Contribution margin may be expressed as total absolute amount, a unit absolute amount, a ratio, and a percentage. The variable cost ratio or variable cost percentage is defined as all variable costs divided by sales. Thus a contribution margin ratio of 20% means that the variable cost ratio is 80%.[32]

The formula for contribution margin ratio may be written as follows:

$$\text{Contribution margin ratio} = \frac{\text{Sales - variable cost}}{\text{Sales}}$$

$$= \frac{\text{sales}}{\text{sales}} - \frac{\text{Variable cost}}{\text{sales}}$$

$$= 1 - \frac{\text{variable cost}}{\text{sales}}$$

The C.M. ratio of 20% or 0.20 indicates that 20% of sales is available to cover fixed costs and generate profit. In other words, Re 0.20 of Re 1 sales is available to cover fixed costs and earn a profit. Since profit at the BEP is zero, dividing fixed costs by the contribution margin ratio gives the sales volume that is necessary to cover total fixed costs.

2.2.2.1 Difference Among Contribution Margin, Contribution and Gross Margin

Some people use contribution in the similar sense of contribution margin. Actually C.M is the excess amount of sales over all variable costs related to a particular sales volume. And contribution is the remain amount, when variable costs and fixed costs are subtracted from sales revenue. The following equation shows the difference between two terms:

Contribution margin = sales – variable costs

Contribution = sales – variable costs – fixed cost.

[32] Horngren, C.T. and Sundem, G.L. Introduction to Management Accounting, Prentice Hall of India Pvt. Ltd, New Delhi, Ed-9th (1995), p.49.

Similarly, P/V ratio or contribution ratio is also taken instead of CM ratio. Where P indicates profit and V indicates volume. But after understanding, the difference between CM and contribution, the term P/V ratio or contribution ratio never be equivalent to CM ratio.

Too often people confuse the term contribution margin and gross margin. Gross margin (which is also called gross profit) is the excess of sales over the cost of goods sold (that is the cost of the merchandise that is acquired or manufactured and then sold). It is a widely used concept, particularly in the retailing industry.[33]

Gross margin = sales price – cost of goods sold.

Contribution margin focus on sales in relation to all variables costs, where as gross margin focuses on sales in relation to cost of goods sold.

2.2.3 Margin of Safety

The excess of actual or budgeted sales over the break-even sales is known as the margin of safety. The margin of safety (M/S) can be expressed as a percentage of sales:[34]

$$\text{Margin of safety} = \frac{\text{Budgeted sales - BE sales}}{\text{Budgeted sales}}$$

The margin of safety indicates the extent to which sales may fall before the firm suffers a loss. Larger the margin of safety, safer the firm. A high margin of safety is particularly significant in times of depression when the demand for the firm's product is falling. A low margin of safety may result for a firm which has a low contribution margin ratio. When both the margin of safety and the C.M. ratio low, management should think of the possibilities of

[33] ibid
[34] Pandey, I.M., Management Accounting, Vikash Publishing House Pvt. Ltd. Ed.-3rd (Revised), 1999, p. 239.

increasing the selling price, provided it does not adversely affect the sales volume, or reducing variable costs by bringing improvement in the manufacturing process.[35]

2.2.4 Profit Volume Analysis

A modification of the break-even formula result in a tool that relates profit to sales at different operating levels. By writing the break-even formula so that fixed costs are replaced by both fixed costs and profits, the manager can solve for sales volumes needed to produce desired profit levels. The general form of the formula would be.[36]

$$\text{Sales in amount} = \frac{\text{FC} \Gamma \text{Profit}}{\text{MC \%}}$$

$$\text{Sales in Unit} = \frac{\text{FC} \Gamma \text{Profit}}{\text{SP - VC}}$$

The formula recognize the fundamental relationship between sales and profits. The excess of sales over costs, or marginal contribution, is the direct profit from operations. This excess may be used to cover fixed costs that are not related to the volume of sales or operations. It is also available to cover any financing charges-such as interest on mortgage – to pay federal income taxes and to provide a profit to share holders.[37]

The profit-volume formulas may be applied to different measures of profit. The basic meaning of profit in the formula is EBIT. But EBIT may be broken out to reflect two other profit measures as follows:[38]

EBIT = Net Income + Interest + Taxes

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[35] Ibid
[36] Hampton, John J, Financial decision making, Prentice-Hall of India Pvt. Ltd., New Delhi, Ed-4th (1990), p. 140.
[37] Ibid
[38] Ibid

If there are needed of sales volume to earn desired amount of after tax profit, then the following changed formula should be used:

$$\text{Sales volume to earn desired amount of after tax profit} = \frac{\text{fixed cost } \Gamma \dfrac{\text{DPAT}}{\text{1 - tax rate}}}{\text{CM ratio}}$$

2.2.5 C-V-P Analysis for a Multi Product Firm

C-V-P analysis can be developed for each product separately or for multiple product. It is also developed by separating and non separating fixed costs.

2.2.5.1 C-V-P Analysis for Segments by Separating Product Wise Fixed Costs

C-V-P analysis by products is helpful to segment managers in designing the mix of products which will provide the maximum contribution to common fixed costs. When it is likely that a segment will have demand in excess of its capacity, managers will also be concerned with maximizing the contribution per unit of constraining resources.[39]

One the optional product mix has been determined, production and promotional efforts can be planned. For planning purposes, it is usually assumed that within properly defined relevant range, the proportions in which the various products are produced and sold will remain fairly constant[40].

To illustrate the application of CVP analysis to segment of a firm, assume that Division Z produces 4 products, A, B, C, and D. Each product's BEP point is calculate as follows:

[39] Fisher and Frank, op cit p 116.
[40] ibid pp. 116-117.

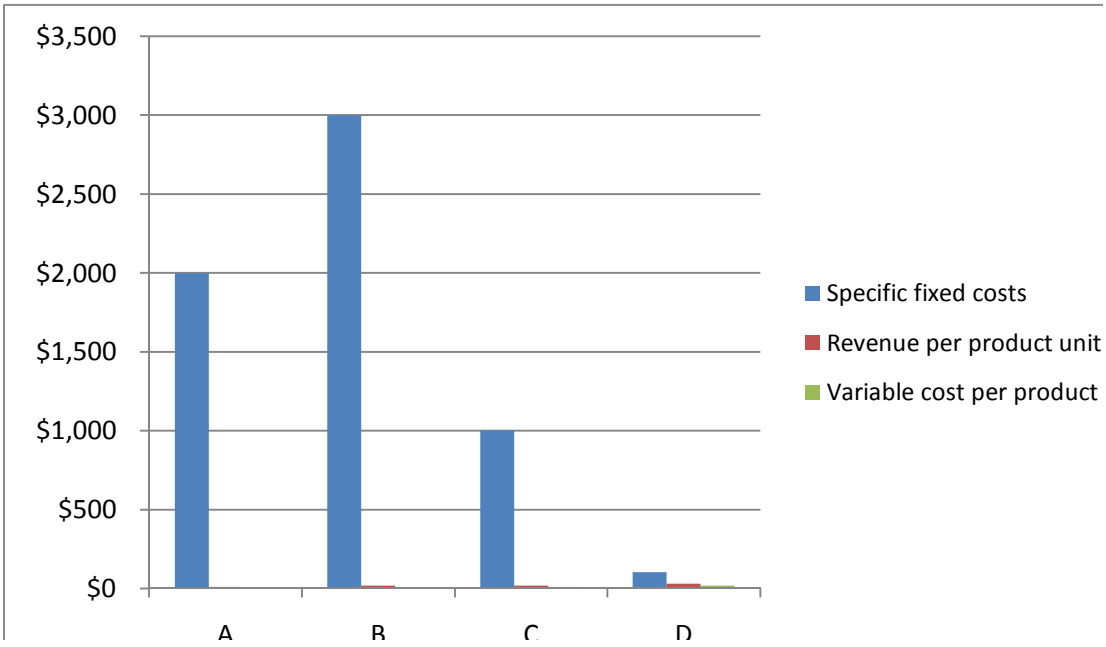
Table No. 2.1: Illustration of BEP for Multiple Product

Products	Specific fixed costs	Revenue per product unit	Variable cost per product Unit	Contribution margin	BEP in units
A	$ 2000	$10	$5	$5	400 units
B	3000	15	6	9	333
C	1000	16	8	8	125
D	100	28	15	13	77

Source: Complied by the researcher.

In the above case, BEP for the each product can be calculated only if total fixed costs of the firm are distributed and fixed cost for each product is known.

Graph No. 2.3: Illustration of BEP for Multiple Product



The cost of BEP product show the result of our multiple product value and fixed costs of firm are distributed show in graph bar diagram .

2.2.5.2C-V-P Analysis for Segments by Setting Standard Sales mix and in total fixed cost

In this case, it has assumed that the firm is producing a number of products and the sales mix is constant. The relative proportion of sales of product is called the sales mix or the product mix. The firm's overall BEP can be calculated by dividing total fixed costs by the CM ratio for the firm. The multi-product firm's CM ratio for all the products, the weights being the relative proportion of each product's sale. The CM ratio for the multi product firm can also be calculated by dividing total contribution from all products by total sales.

The calculation should be done by following illustration;

Table No: 2.2: Illustration of BEP in Overall and Productwise

Particular	Product A	Product B	Product C	Product D	Total
(a) Sales mix	16%	24%	40%	20%	100%
(b) Sales revenue (Rs.)	2000	3000	5000	2500	12500
(c) variable costs (Rs.)	1200	2100	3500	1500	8300
(d) Contribution margin (Rs.) (b-c)	300	900	1500	1000	4200
(e) Fixed costs (Rs.)	-	-	-	-	5000
(f) Contribution (Rs.) (d-e)	-	-	-	-	(800)
(g) CM ratio #	0.4	0.3	0.3	0.4	0.336*
(h) BEP in Rs. (e/g)	2381**	3571	5953	2976	14881

Source: Complied by the researcher.

CM ratio = 1- v/s

* Overall CM ratio = $1 - \frac{\text{total V.C.}}{\text{Total sales}}$ or (Total sum of product of sales mix and CM ratio)

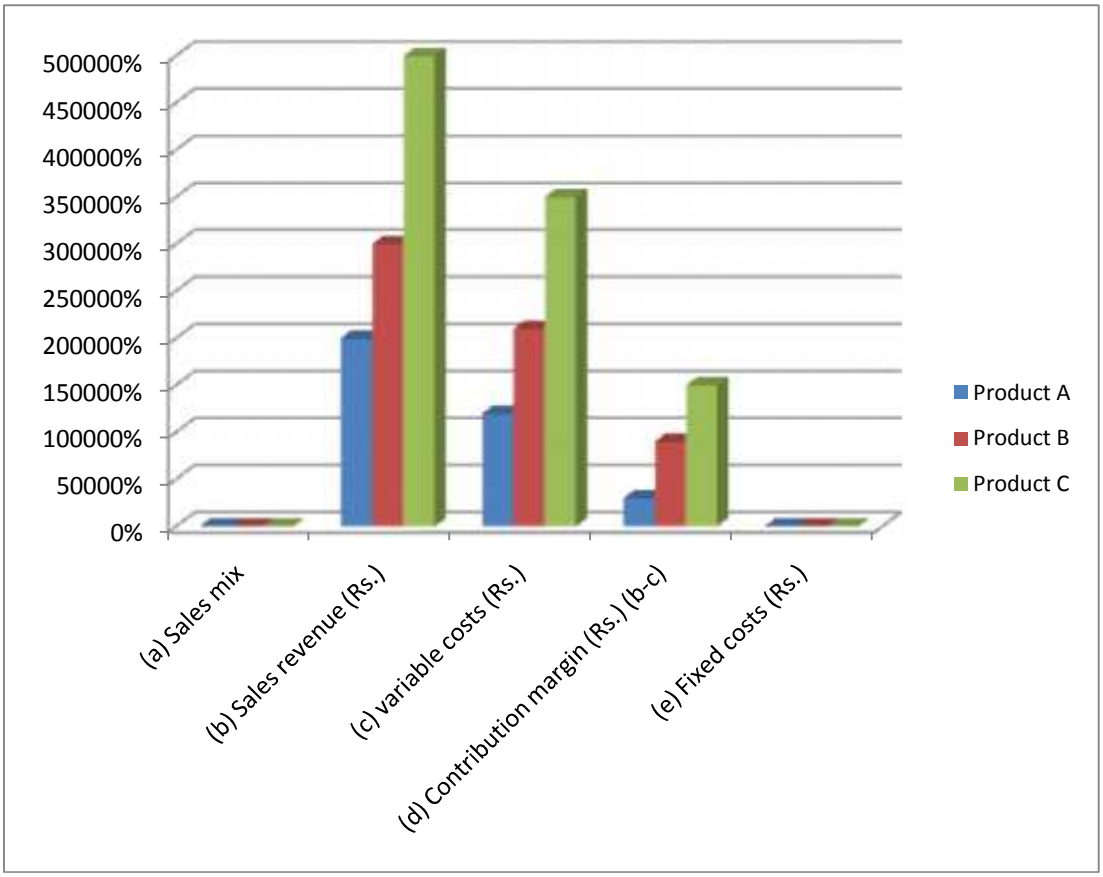
= (0.4 x 16 % + 0.3 x 24 % + 0.3 x 40% + 0.4 x 20%) = 0.336

** BEP of product A = total BEP x corresponding sales mix

= Rs 14881 x 16%

= Rs. 2381

Chart No: 2.4: Illustration of BEP in Overall and Productwise graph



The graph show the releation of product A,B,C are the mixed with many costed value and their revenue costs. They show their sales mix value and their all cost increase value less than or more than product value of all product .

2.2.6 Assumptions of C-V-P analysis

C-V-P analysis is based on a specific set of assumptions that should be clearly understood. These underlying assumption are as follow:

(a) Cost Classification

All cost can be classified in to two parts, fixed cost and variable cost. There is no cost other than fixed and variable. Some of the costs can be easily identified as fixed, such as rent of building or variable such as direct material cost. But a large number of costs belong to the mixed category. Such costs, known as semi-variable or semi fixed costs, consist of fixed as well as variable elements and are difficult to separate. Further more, some costs are difficult to determine.

(b) Constant sales price

The sales price does not change as unit of sales change. It hardly remains constant. It may remain constant under perfect competition. But in real market situation of monopolistic competition or oligopoly, selling price will have to be reduced to increase the sales volume. Thus, sales revenue will not change in direct proportion with output.

(c) Single product or constant sales mix

Another C-V-P assumption is the firm produces only one product or in the case of multiple products, that sales mix among products remain constant. The constant sales mix helps to calculate valid BEP in overall case.

(d) Constant fixed costs

The fixed costs are constant over a relevant range of activity and would increase or decrease in a step wise fashion.

(e) Short run focus

The C-V-P analysis is a short run technique of profit planning. In this technique the basic management policies about operation will not change-materially.

(f) That total variable costs change in proportion to change volume (i.e., the variable cost per unit is constant over the range of activity being analyzed)

Further, the general price level (i.e. inflation and deflation) will remain essentially stable. Similarly the inventory remains essentially constant or zero and the efficiency and productivity per person will remain essentially unchanged.

If any of the above assumption were changed, revised budget would be needed for a new analysis.

2.2.7 Special Problems in C-V-P Analysis

There are three special problems in C-V-P analysis that are as follows[41]

a) The activity base
b) The change in inventory
c) The non operating expenses and income etc.

(a) The activity base

When two or more production or activities are combined for breakeven analysis, the activity base is usually in amount. Product unit is used for single product. The activity base must be in additive units using a common denominator of volume or output in multiple products. For the company as a whole, net sale amount are usually the only satisfactory common denominator

[41] Fago, Ghanendra, Profit Planning and Control, Buddha Academic Publishers and Distributors Pvt. Ltd. Kathmandu, Nepal, Ed-1st (2003), pp 235-236.

because manufacturing. Selling and administrative activities are expressed in combination.

(b) The change in inventory

Usually, the budgeted change in inventories (i.e. finished goods and work-in-process) is immaterial in amount and thus may be disregarded in C-V-P analysis. On the other hand, when the change in budgeted inventory is significant, it should be included in the analysis.

Management policy in inventory change is:

- Disregard the inventory changes,
- Include the inventory changes.

(c) The non operating incomes and expenses

The non operating income and expenses (extra ordinary gains and losses) cause another problem in C-V-P analysis. The main problem is that whether they should be included or excluded in the analysis.

Management policy may be to:

- Include the non operating income and expenses,
- Exclude the non operating income and expenses.

2.2.8 Use and Application of C-V-P Analysis

C-V-P analysis can be used to determine the level of sales necessary to achieve a variety of profit objectives. These profit objectives may be either fixed or variable, with respect to volume. A fixed profit objectives is an absolute desired profit not related to sales, and is commonly expresses as a

percentage return on a assets. A variable profit objective is stated as a function of sales.[42]

C-V-P analysis is used and applied to fulfill following purposes:

i. To plan future operation of the business organization,
ii. To apply budgeted amount and control operations
iii. To analyze past performance, etc.

The following table gives details of the growth of manufacturing establishments and industrial employment in the country:

Table No. 2.3: Growth of Manufacturing Establishments and Employments

Census	Number of Establishments	Number of persons employed
2002-2003	1260	14397
2003-2004	2434	47638
2004-2005	4903	81050
2006-2007	9359	152579
2008-2009	4271	123463
2010-2011	3557	196708
2012-2013	3213	181943

Source: CBS, Census of manufacturing establishments (2002-03 to 2012-13) Kathmandu, Nepal.

Similarly the following table shows the number of new industries registered from 2004-2005to 2012/2013

[42] Fischer and Frank Op cit- p. 111

Table No. 2.4: No. of new Industries registered

(2004-2005to 2012/2013 15 Feb)

Year	Public Limited	Private Limited	Partnership	Proprietorship	Total
2004-2005	2	147	2	6	157
2006-2007	2	140	1	1	144
2008-2009	4	124	0	11	139
2010-2011	0	102	1	5	108
2012-2013	4	80	0	1	85

Source: CBS, statistical pocket book, Kathmandu, Nepal 2013, p. 199

The growth rate of industrial establishments are negative since 7th year plan. Now-a-days, the proportion of manufacturing establishment of fabricated metal products, machinery and equipment has gone up because of the introduction of various\types of electronic industries. Similarly the number of handicraft and ornament making industries has gone up. The liberal and outward- oriented policies of the government have encouraged the growth of these industries.

2.3 Liquor Industries in Nepal

In a general sense, liquor means any distilled, any alcoholic drinks, spirits and hard drinks.

In Nepalese context, brewery and distillery both are included in liquor industries. Some time liquor industries are separated as follows:

i. Distill, rectify and blending of spirits, and
ii. Manufacture of malt liquor and malt.

2.3.1 History of Alcoholic Drink in Nepal

In traditional era it can be estimated that there were produced alcohol in local standard by using local skill and raw materials within certain casts and culture. Further the fact that many people produce the required quantity of alcohol for self consumption in their own home. It had happened in most casts that the art of distillation of wine is passed from mother to daughter and a good knowledge of art was considered to be, a certificate of merit for the bride.

Of course, crude method was used to in local liquor distillation. The same principle of fermentation by yeast and subsequent distillation was applied in a primary nature.

Yeast was prepared as follows: wheat is pressed in jatto, so to expose the cells and then it is subjected to a stream of water vapour (steam). The wheat or rather boiled means was spreaded on the floor and kept covered for about a week. The resultant dried mass after that period of time would have a green fungi covering it. And it is used to yeast to prepare wine.

The development of modern liquor industries started from the establishment of Nepal Brewery Pvt. Ltd. at 1942 A.D. Then HMG of Nepal has made provision during third plan for liquor industries. So the legal business of liquor was started from the establishment and production of Hetauda beer factory. On the other way, some sugar factory has also started to produce alcohol by using bi-product of sugar like molasses. In this way, Nepal's largest distillery factory had established at Jawalakel Lalitpur named Jawalakhel distillery Pvt. Ltd. at 1972 A.D.

2.3.2 Selling and Distribution Procedure of Liquor Product

The sale of country liquor was controlled by the government there by marking only the licensed contractors, the sole authority for the sale of liquors. The contractors were zonal wise, and pay royalties to the HMG of Nepal. The

amount paid by the contractors to the government in the fiscal year 2023-2024 (B.S.) runed as high as Rs. 6405508 to these authorized dealers, there were innumerable unlicensed (illegal) wine products whose total sale was raising the above figure of total consumption.

The alcoholic drink, provided by the "inns" (Bhatti) were poor quality obviously.

From July 2004, the Inland Revenue Development (IRD) has issued a notice introducing strict control on the sale and distribution of alcoholic beverages.

To come to effect from July 16, 2004, the new rule require the firm that deals in liquors (including import) to clearly declare its place of business. And such place are required to be exclusively for alcoholic beverage. Only the department stores are granted an exception to this rule, if they create a separate counter for the sale of such beverages.

The business firms dealing in alcoholic beverage are also required to put up a notice, clearly visible by all, declaring whether it is a producer, sole distributor, dealer, wholesalers or retailers.

According to IRD notice, the producers of alcoholic beverage can sell only to the authorized role distributors or dealers who in term can sell only to the licensed wholesalers. And the wholesaler can sell only to the licensed retailers.[43]

2.3.3 Demand of Liquor Products

There are not clear available data about demand of liquor products cause of unregistered illegal and illicit market and business.

[43] Nubiz, July 2004 p. 64

At the end of eight plan (2064-2069 B.S.), the target production of liquor products are shown in table below to meet the demand.

Table No. 2.5: Target Production of Liquor Products

Industry	Units	2064/65 (base year)	2068/069	Expected increment rate
Alcohol				
Modern	Kelo Leter	2460	6000	16.02%
Local	Kelo Leter	N.A.	12000	-
Beer	Kelo Leter	6838	1300	11.30%

Source: Eighth plan (2064-2069 B.S.), HMG of Nepal, National planning commission, 2064 B.S. Ashadh.

2.3.4 Supply of Liquor Products

Nepal consumes a large quantity of alcoholic drinks. Owe it to the climatic conditions or the hilly terrain of the kingdom, every nook and corner of the country is furnished with at least an "inn" (Bathi), even though other more important market may be missing. The demand is met from the three main sources:

i. Home or local made,
ii. India or overseas, and
iii. Distilleries and brewery etc.

i. Home or local made

These drinks, cheap but poor in quality, are those with maximum consumption. Distillation still in a crude from is more an art than science to the many who produce them with the available equipments.

ii. India and overseas

Alcoholic drinks imported from India constitute about 10% of the local consumption and is yearly increasing at a reality faster rate. Foreign overseas-liquors from only a fraction of the total consumption as they are of higher cost and a man of average means can not afford them.

iii. Distilleries and Brewery

At present, there are 32 players in distillery and 6 players in brewery, which make alcoholic drinks by blending alcohol. Based on different kinds of raw materials and technology, they used to sell their products in the market under related patent. The players are selling and distributing cheap alcoholic drinks, medium and high priced whisky, gin, rum, vodka, wine and beer etc.

2.3.5 Production of Liquor Products

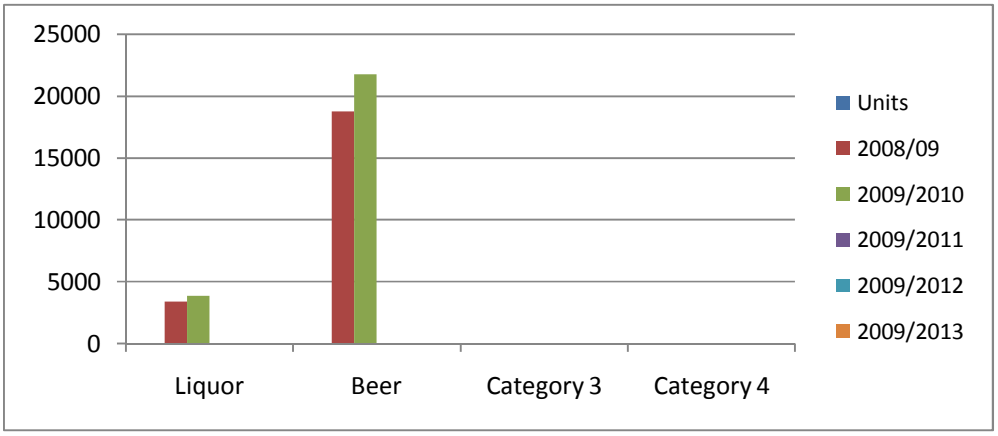
There are increasing trend of demand of liquor products. But lack of proper information, only modern liquor and beer's products are shown in the table, there are not included local made:

Table No. 2.6: Production of Liquor Industry

Industries	Units	2008/09	2009/2010	2010/2011	2011/2012	2012/2013
Liquor	Th. liter	3345	3847	3885	3700	4003
Beer	Th. liter	18753	21725	23354	22800	23096

Source: FNCCI, Nepal and the world, A statistical profit 2013, Kathmandu Nepal p. 29.

Chart No. 2.5: Production of Liquor Industry



The chart show the relation of liquor and Beer of production industry liquid,Beer ,category3 and similarly show category 4 to year wise product wise value .

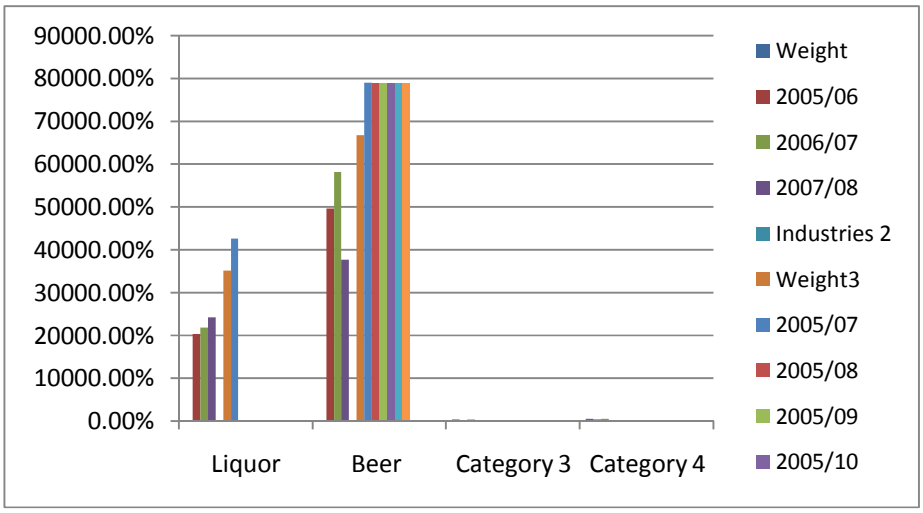
Similarly, the production index of liquor industry are follows:

Table No. 2.7: Production Index of Liquor Industry (base:2005/06)

Industries	Weight	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Liquor	2.23%	203.27	218.24	241.62	260.71	299.82	302.61	288.39	312.03
Beer	0.51%	495.13	581.16	376.67	506.97	587.32	631.36	616.38	624.40

Source: FNCCI, Nepal and the world, A Statistical Profit 2003, Kathmandu, Nepal p. 30.

Chart No. 2.6: Production Index of Liquor Industry (base:2005/06)



The chart show the relation of liquor and Beer of production index of Liquor, Beer of production industry liquid,Beer ,category3 and similarly show category 4 to year wise product wise value .some time the product will rise or more less than less that should be rises vaiue.

2.3.6 Establishment of Liquor Industry

Although, there are small market for the liquor industry, but entrance of new players is rapid. Even some players are in collapsing conditions course of over competition, primitive production style, entrance of new technology and MNCs.

In Nepal, there are so many category of industries and liquor industry lies under agro and forest based industries. These industries need to passion for establishment and operation.[44] No industries in Nepal is more strictly controlled by government than in the liquor and tobacco industries. The government defines these products as "products injurious to health".

By the way, the following number of establishments are shown in the table.

Table No. 2.8: Establishment of liquor Industry (2012-13)

Industries	Total			Total
	Under operation	Closed	Under construction	
Liquor (Modern)	10	-	3	13
Beer	5	-	1	6

Source: Pant, 2013, p. 220.

[44] FNCCI, Op. cit pp. 20-21

Similarly, the other survey show about establishments of liquor industry in detail which is in the table below:

Table No. 2.9: Establishment of Liquor Industry (2012-13)

Bases	Distill, rectify and blending of spirits		Manufacture of malt liquors and malt	
	No. of establishments	No. of persons engaged	No. of establishment	No. of person engaged
Kingdom of Nepal	12	1134	6	728
All municipality	2	N.A.	2	N.A.
All V.D.C.	10	768	4	383
Legal Status				
Personal Nepal	-	-	-	-
Partnership Nepal	2	N.A.	-	-
Pvt. Ltd. Nepal	8	896	5	659
Public Ltd. Nepal	2	N.A	1	N.A.
Fixed Assets				
Less than 1 crore	4	146	1	N.A.
1 crore – 5 crore	3	183	1	N.A.
5 crore and above	5	805	4	617
Size of Persons				
10-19	3	54	1	N.A.
20-49	1	N.A.	-	-
50-99	4	291	3	221
100-199	3	458	1	NA

Contd.

200 and above	1	N.A.	2	NA
Ownership				
Private Nepal	9	681	2	NA
Foreign Nepal	2	NA	1	NA
Joint with Govt. Nepal	-	-	-	-
Foreign and Pvt. Nepal	1	NA	3	561
Other Nepal	-	-	-	-

Source: CBS, Census of manufacturing establishments (2001-2002), National level Nepal pp 1-34.

Similarly, capacity utilization of the Nepalese liquor industry are shown in the table below:

Table No. 2.10: Capacity Utilization of the liquor Industry (2012-2013) by quantity and percentage)

Particulars	Liquor (Modern)	Beer
No. of Industry	8	5
Approved annual production capacity of industry in operation (Th. ltrs)	19793	45,000
Production (2058/59 B.S.)	8587	28795
Capacity utilization (%)	43%	64%
Estimated Employeement (Nos.)	6512	715

Source: FNCCI, Nepal and the world, A statistical profile (2013), Kathmandu Nepal p. 28.

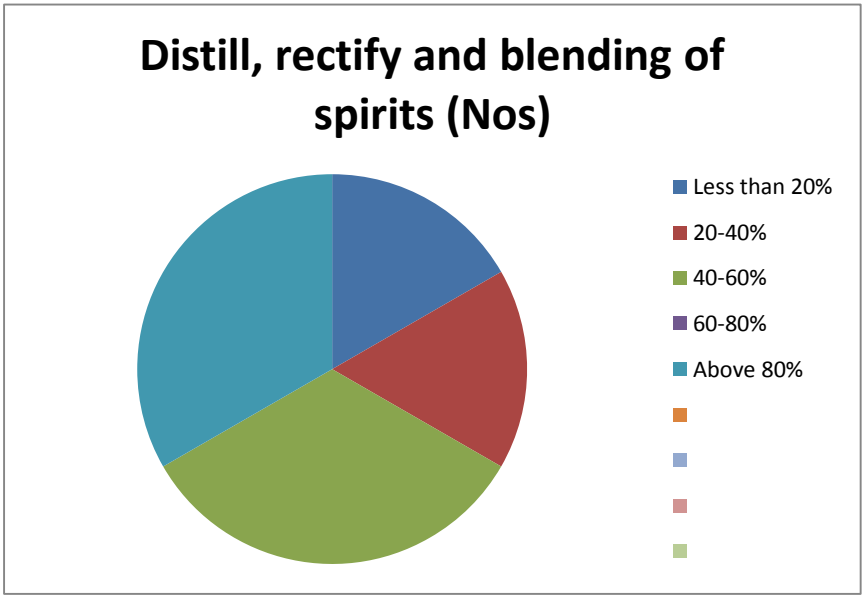
Similarly other survey shows, the capacity utilization of the Nepalese liquor industry, are show in the table below:

Table No. 2.11: Capacity utilization of the Liquor Industry by Percentage and Nos (2012-2013)

Range	Distill, rectify and blending of spirits (Nos)	Manuf. Of Malt liquor and Malt (Nos)
Less than 20%	2	2
20-40%	2	2
40-60%	4	0
60-80%	0	2
Above 80%	4	0
Total Nos.	12	6

Source: CBS, census of manufacturing establishments (2012-2013), National Level, Nepal, p. 72

Chart No. 2.7: Capacity utilization of the Liquor Industry by Percentage and Nos (2012-2013



The pie-chart show the relation of Distill ,rectify and Blending of spirits production index of yearly production industry similarly show increase to year wise product wise value .some time the product will rise or more less than less that should be rises vaiue for the product ot graphical value .

2.3.7 Contribution to National Revenue by Indirect Tax

In Nepal, liquor industry pays huge amount as VAT, excise duty, import/ export duty and other indirect taxes to the government. The government charges high tax rate in the above items except VAT. The indirect tax paid by the liquor industry are shown in the table below:

Table No. 2.12: Total Indirect Tax Paid by the Industry

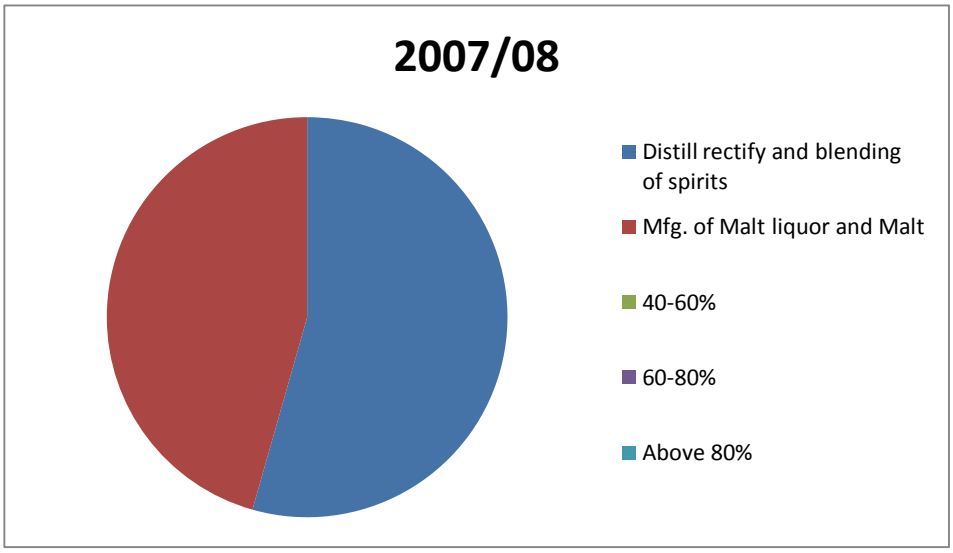
(Value in Rs. '000)

Product Area	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Distill rectify and blending of spirits	190093	160437	214993	388967	391827	1083655
Mfg. of Malt liquor and Malt	159422	197649	294922	824761	754677	1093649

Source: FNCCI, Nepal and the world, A statistical Profile (2003), Kathmandu Nepal, pp. 34-36.

The tax shown in above table, there are included VAT, excise duty, custom duty, local tax and miscellaneous tax and there are having 10 or more persons engaged in an establishments.

Chart No. 2.8: Total Indirect Tax Paid by the Industry



The pie-chart show the relation of Distill ,rectify and Blending of spirits production index of yearly production industry similarly show increase to year wise product wise value .some time the product will rise or more less than less that should be rises vaiue for the product ot graphical value .

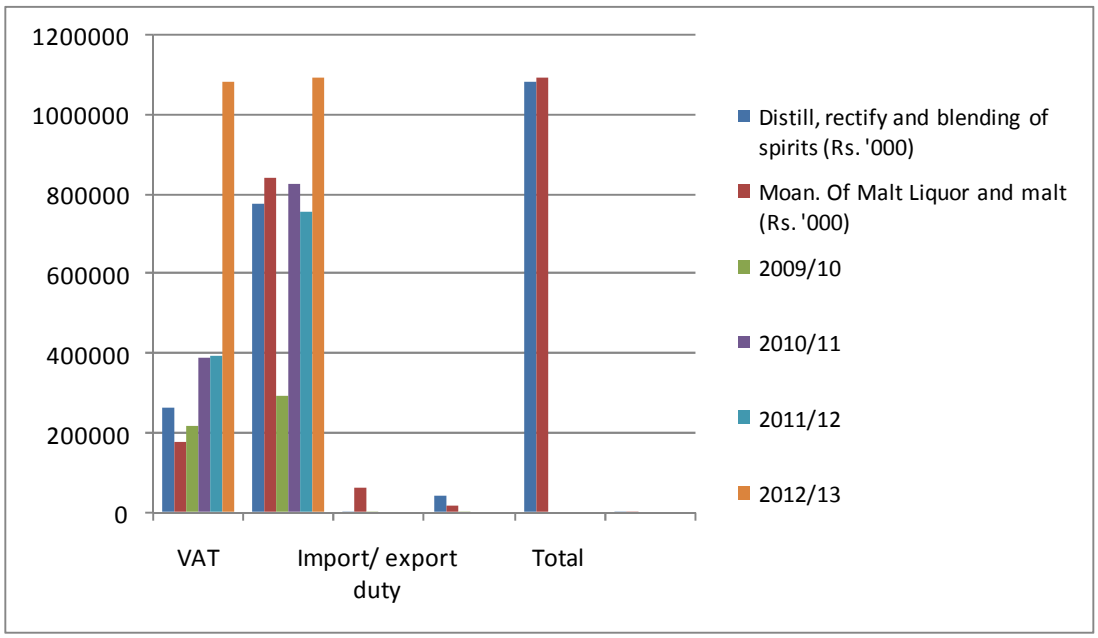
Similarly, another survey shows the indirect tax paid by the liquor industry in detail for 2012-2013 is shown below:

Table No. 2.13: Indirect Tax paid by the Liquor Industry

Particular	Distill, rectify and blending of spirits (Rs. '000)	Moan. Of Malt Liquor and malt (Rs. '000)
VAT	261985	175817
Excise duty	776993	843051
Import/ export duty	2491	61361
Other indirect tax	42136	13420
Total	1083655	1093649

Source: CBS, Census of manufacturing establishments (2001/2002), National Level, Kathmandu Nepal, p. 70

Chart No. 2.9: Indirect Tax paid by the Liquor Industry



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production index of yearly production industry similarly show increase to year wise product wise value .some time the product will rise or more less than less that should be rises vaiue for the product ot graphical value .

The following table shows the contribution of total revenue total indirect tax revenue and indirect tax paid by the liquor industry in to inland revenue:

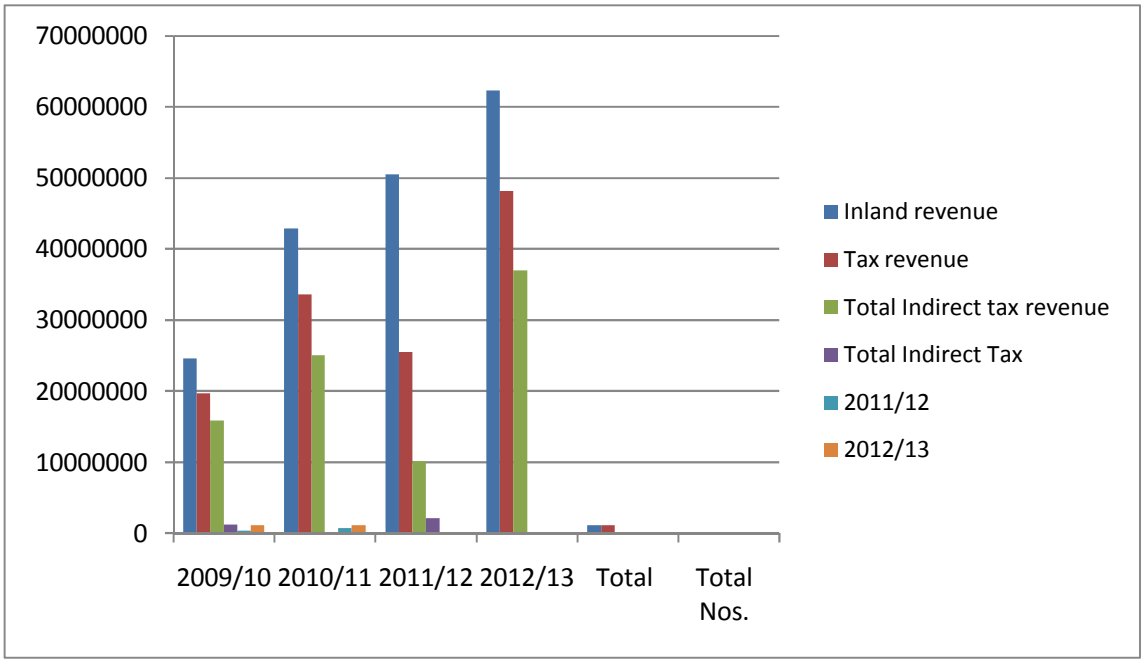
Table No. 2.14: Contribution of Total Indirect Tax into Inland Revenue by Liquor Industry

(Rs in '000)

Fiscal year	Inland revenue	Tax revenue	Total Indirect tax revenue	Total Indirect Tax
2009/10	24575181	19660144	15875566	1213728
2010/11	42893680	33585751	25092802	N.A.
2011/12	50445461	25537690	10168690	2177304
2012/13	62331096	48173269	36961003	N.A

Source: HMG; MOF, IRD, Annual Report (2068-69), Budget speech 2069, Economic Review, NRB, 2013 April, CBS and FNCCI.

Chart No. 2.10: Contribution of Total Indirect Tax into Inland Revenue by Liquor Industry



Another table shows the contribution of liquor industry in to excise duty

Table No. 2.15: Contribution of liquor Industry in to Excise duty

Industry	2064/65	2065/66	2066/67	2067/68	2068/69
Total Excise duty collected (Rs. '000)	3127600	3771200	3807730	4785244	6226724
High quality liquor	28.04%	20.644%	24.36%	24.25%	20.31%
Low quality liquor	0.03%	0.024%	0.021%	0.023%	0.034%
Beer	20.00%	16.872%	21.148%	21.576%	15.78%

Source: IRD, HMG, MOF, Annual report of FY 2060-61.

Above all table shows, the liquor industry pays more indirect taxes which assists to increase inland revenue of government.

2.3.3 Prospectus and possible problems of liquor Industry

In fact, with an annual growth rate of around 11 percent, the Nepalese liquor market is registering as faster rate of growth than the Indian market. Market wise, gin is said to be the faster evolving category and is second whisky in terms of sales volume. In constract, the vodka market has researched at saturation and is a non-growing segment. Rum has a market in several European countries. The domestic players are also assisting expert prospects. With WTO and SAFTA trade norms likely to come in to effect not too in the distant future export potentials are realistic. India is obviously a potential market. China and Burma has also potential market. Vodka is the largest segment in the world. So, the concerned entity should attempt to conduct export promotion activities.

Presently finished products of alcohol are on a negative list for export to India but this will change in a due course of time. Because WTO is a reality and once the borders open up the players send their products to India. So the domestic brands will also enter India.

Businessmen believe that most local brands will be wiped out in the face of competition from MNCs. For, if local manufacturers will simply run out of resources to be able to ride the competition in the long run on the one hand, quality (or the lack of it) will push them out of the race on the other. This also underlines the importance of tie ups with international actors.

Either way, local players are aware that it is ultimately going to be a battle of multinational companies.

The following table shows the major domestic players of liquor industry. These are not separated as parent, holding, subsidiary and sister company or firms.

Table No. 2.16: Major Players of Liquor Industry in Nepal

Name	Name	Name
Allied brothers	Makalu	Shah distillery
Bhavani Distillery	Mohini distillery	Shankar Distillery
Chandalika Distillery	Mc Dowell Nepal Ltd.	Shiddha Baba Distillery
Chinnamasta Distillery	Mt. Everest Brewery P. Ltd.	Shree Distillery
Dhanusha Distillery	Mohini Hygiene	Snow land
Golden Globe liquors	Mustang Distillery	Summy Distillery
Gorkha Brewery Pvt. Ltd.	Nepal Brewery co. (P.) Ltd	The Nepal Distillery
Highland Distillery	Nepal Distillery	Trijuga Distillery
Himalayan Brewery Co. (P) Ltd.	Nepal Liquors	Trishakti Distillery
Himalayan Distillery Ltd.	Rapti Distillery	Triveni Distillery
Himali Distillery	Rupendehi Distillery	Udayapur Distillery
Jawalakhel Distillery	Sarada Distillery	

Source: Nubiz, A survey of Sale of Liquor Industry, 2005, Feb, p.50.

2.4 Review of Books, Journals and Articles

The review of some books are as follows:

"The Study of the interrelationship of sales cots and net income is usually called cost-volume-profit analysis."[45]

"CVP analysis examines the responses of profit to changes in volume. It relies on linear cost analysis and on linear revenue assumptions. To gain an understanding of CVP analysis, the common example of a firm which produces only a single product will be used. The analysis will be expanded to cover firms with several products produced by multiple division."[46]

"CVP analysis is a means of predicting the effect of changes in costs and sales level on the income of business"[47]

[45] Horngren, T. Charles, op cit. p. 207
[46] Fischer and Frank, op cit. p. 109
[47] Pyle and Larson, op cit. p. 836

"C-V-P analysis is concerned with determining the sales volume and mix of products necessary to achieve a desired level of profit with available resources. It is an analytical tool that provides management with important information about the relationship among cost, profit, product mix, and sales volume"[48]

"Break-even analysis used to determine the level of sales mix of products required to just recover all costs incurred during the period. The BEP is the point at which costs and revenue are equal. There is neither a profit nor a loss at the BEP. Because the objectives of C-V-P analysis is to determine the level of sales and the mix of products required to achieve a target level of profit. If sales fall below the BEP, losses are incurred".[49]

"The relationship among costs, volume of output, and profit are studied through cost-volume-profit analysis. They are usual for predicting future operating results. Cost-volume-profit analysis is based on the relationship among operating costs, sales volume, sales revenue, and target net income."[50]

"The BEP is that point where total revenue equals total costs incurred. Thus it is the point at which a company begins to earn a profit."[51]

"C-V-P analysis consists essentially in examining the relationship between changes in volume (output) and changes in profit. The scope of C-V-P analysis ranges from the determination of the optimal output level of a single-product department to the determination of the optimal output mix of a large multi product firm. All these decision rely on the simple relationship between changes in revenues and costs and changes in output levels (mixes). Output should be expanded or the out-put mix altered if the incremental revenue resulting from the change exceed the incremental costs of making the change.

[48] Hammer, and Carter and Usry op cit. p. 592
[49] ibid
[50] Needles, Anderson and Cald well Ibid 944
[51] Ibid

Thus all cost-volume profit analysis are characterized by their emphasis on cost and revenue behaviour over various ranges of output levels and mixes."[52]

The point at which there is no profit or loss is designed as the BEP. The BEP serves as a base indicating how many units of product must be sold if a company is to operate without loss. At the BEP the profit if zero, that is the contribution margin is equal to the fixed costs. If the actual volume of sales is higher than the break-even volume, there will be profit"[53]

"The management of the company wants reasonably correct answer to those questions about future operations: 'At what level of sales will the firm just cover all costs and expenses, that is break even? If selling price is changed or if costs and expenses are changed, what will be the effect on profits? In order to earn a certain dollar profit, how much will sales have to be?"[54]

The review of some journal and articles are as follows:

"No Profit no Loss" Theory or Break even Principle".[55]

The statement that a public enterprises fix the price with a view to neither incurring losses, nor earning profits basically implies two things:

(a) first, the enterprises should cover all the charges current as well as capital and (b) secondly, the relative prices charges should correspond to relative costs.

The view that the public enterprises should be run at 'no profit no loss' principle seems to have been based upon the people (implying that there is no social cost involved), and not to make profit and exploit the consumer. But

[52] Dopuch, Nicholas; Birnberg, Jacob G; and Demski, Joel, Cost Accounting, Harcourt. Brace Javanovich, Inc. Ed-2nd (1974) p. 107.
[53] Moore, Carl H. and Jaedicke, Robert K., Managerial Accounting, South-Western Publishing co, Cincinnati, ohio Ed-2nd (1967) pp. 427-428.
[54] Bradley, Joseph F., Administrative Financial Management, Holt, Rinehard and Wiston, Inc. USA, 1964 p. 96.
[55] Pathak, J.K. Nepalese Management Review, Public Enterprises Pricing: Some issues, 1995, vol XI No. 1 pp. 35-36.

government enterprises are also to recover all costs, and not be dependent on subsidies. These basic notions distinguish the public sector from the private sector enterprises whose basic motive is to maximize profit. Thus the public enterprises should adjust the prices of their product in such a way as to make neither profits nor losses. Lewis supports the view that public enterprises should neither make profit nor losses on the ground that this principle helps to check to over or under expansion of the enterprises. If this principle is not adopted, it will contribute either to inflation or to deflation.

Lewis goes even further and advocates that each part of the service should pay its way, showing neither profit nor loss. He says, "Uniformity of charges where there is no uniformity of cost is the return of the lazy mind.

However Lewis visualizes the situation of loss under certain circumstances. To take some examples: (a) he justifies a loss if the corporation is over-captialized, (b) he defends a loss on the ground of saving foreign exchange, (c) a subsidy to the consumers, and (d) also if the subsidy is given for the consumes, and (d) also if the subsidy is given for the purpose of defence.

In the present day world, the concept of 'no profit no loss' is not applicable because the state has been actively participating in the economic activities. The governments in under developed countries have started investing in various economic fields with a view to earning returns for accelerating the pace of economic development. In such a situation, if the break even price policy is the hole process of capital formation will be slowed down, and the aim of some countries to establish a socialist society will remain a distant dream.

"Nepal is very much a Growing Market".[56]

[56] Business Age, April 2004 pp 77-.78.

The liquor business requires a lot of funding and manufacturing capacity and if it had the backing of large group like UB the business be even more successful. Despite the internal situation, the Nepali liquor market has been growing. They believe that the Nepal made foreign liquor market has been growing at around 12% per annum which is a very healthy rate.

2.5 Review of previous related Research

In context of Nepal, there are not conducted enough research on the similar topic cost-volume profit analysis. The researcher had attempted to search thesis, dissertation or reports on related topics from different sources like central department of management library, TUCL and other related library of colleges. The researcher had found only one thesis and other reports concerned with current topic of the thesis. The brief review of previous related thesis and reports are as follows:

2.5.1 Review of Thesis

Mr. Madhav Rijal had conducted his MBS level thesis on the topic "Cost-Volume Profit as a Tools to Measure Effectiveness of Profit Planning and Control (A Case Study of NEBICO Private Limited) and submitted to Shankar Dev Campus, TU, Kathmandu on 2nd February 2005.

The main objectives of that research was as follows:

(i) To study relationship of cost, volume and profit as a applicable tools of budgeting,
(ii) To evaluate the profitability, financial position and sensitivity of NEBICO's activities,
(iii) To analyze the cost, volume and profit of the company and it's impact in profit planning, and
(iv) To provide suggestions and recommendations for improving NEBICO's condition etc.

To achieve all above objectives, he had adopted case study research design, by using historical data of the concerned company. He had also used primary as well as secondary sources of data.

Mr. Rijal had pointed out some major findings in his research. Although most of his findings were out of objectives of the study. There were 20th major findings available. Some findings are as follows:

(i) The company's sales trend has fluctuation but not satisfactory trend of increasing,
(ii) The company's variable cost is in high proportion than fixed cost in comparison with total cost, which contribute for lower contribution margin.
(iii) NEBICO had no any plan to reduce cost,
(iv) The profit trends of the company was not satisfactory,
(v) The company had not effective inventory policy,
(vi) There were not effective sales forecasting techniques,
(vii) NEBICO Pvt. Ltd had not practice of segregating the cost in to fixed, variable and controllable or non-controllable.
(viii) Net profit margin, profitability ratios and others things were not satisfactory,
(ix) The company has not utilized it's capacity etc.

Further, the following points are selected from his recommendations:

(i) The use of profit planning and controlling tools were recommended,
(ii) The company had required to classify their cost,
(iii) The company should consider BEP and effective inventory policy,
(iv) The company should stress on effective utilization of fixed costs, and
(v) All personnel should be participated on decision making and planning process etc.

2.5.2 Review of Reports

A report submitted by S.D. Tuladhar (chemical engineer) and P.P. Lamsal in to Birgunj Sugar Factory in the year 1967 on the topic "Feasibility report on 2000 gallon per day distillery plant".

According to that old report, the main objectives of the study was feasible or not to produce 2000 gallon alcohol per day.

The major findings of the report was, there was feasible to install distillery plant for the profitability of the factory.

Similarly, next reports submitted to 'Research division, T.U. Kirtipur, Nepal' by Chirika Shova Tamrakar on the topic, "A Brief Investigation on Some Qualitative and Quantitative aspect of home made alcohol and its production" in the year 1996 A.D.

The major objectives of the study were to find out production techniques of home made liquor, their raw materials and percentage of alcohol in their alcoholic drinks.

She found that the home made liquor was more harmful than modern liquor. Home made liquors are used to produce for personal use and for selling purpose. There are not certain measurement of productive process. She found that homemade liquors had 20-50% of alcohol.

She had recommended for local makers, the liquor products must produce in certain measurements. She had further recommended that there were need of knowledge of ingredients and their combinations. It was noted that the alcoholic drinks must have 11.4% to 35% V/V of alcohol. She also recommended that subscriptions of local liquors are more risky than modern liquors for health.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

The basic aim of the study was analysis and interpretation of cost, volume and profit analysis of Himalayan Distillery Ltd. where the study had needed to follow an appropriate research methodology, to achieve objectives of the study. The chapter has focused on research design, nature and size of population and sample, sources of data, variable studies, tools for analysis, and limitations of the study.

3.2 Research Design

The research design is the strategy for conducting research. It describes the general framework for collecting, analyzing and evaluating data after identifying (i) what the researcher want to know, and (ii) what has to be dealt with thin order to obtain required information.[57]

The study had been concentrated to examine Cost-Volume-Profit analysis of HDL. At the planning stage of the research; identification, selection and formulation of a research problems were accomplished. Then objectives were prepared to tackle the problem. To achieve these objectives, required information and data were collected from different sources. Basically, these sources of data were divided into two parts i.e. primary data and secondary data. Collected data were filtered by classification and tabulation. These were applied and analyzed for main purpose. At last major findings were pointed out and valid recommendations and suggestions were also attempted to provide for further improvements.

[57] Wolff, H.K. and Pant, P.R., Social Science Research and Thesis Writing, Buddha, Academic Publisher and Distributor Pvt. Ltd, Kathmandu, Nepal Ed. 2nd (1999), p. 209.

In this way, the researcher wants to say that this research is historical and managerial analytical research. Historical research, in this sense because there were used past data to solve the research problem. And managerial research, in this sense because it is concerned with the problem solution through proper decision making. By using profit planning tool, it was attempted to improve managerial effectiveness through valid recommendations.

3.3 Population and Sample

The research had been defined nature and size of population and sample, which are as follows:

3.3.1 Nature and Size of Population

The nature of population was included liquor business of all over of Nepal. And size of population was included all players in liquor business. Where legal and illegal all business were taken. In other words, local manufacture of liquors (who makes for personal use and for selling purpose or not production under Nepal Bureau of standard and metrology), brewery and distillery were consisted for population size.

3.3.2 Nature and Size of Sample

To convenient the research, it was conducted in only one company. The company is a part of liquor industry. Similarly, C-V-P analysis tool was applied in the form of top three segment and entire form.

While selecting the product items, special precaution had been exercised to take top three most profitable products and which are sold in huge quantities.

In addition to this, the overall BEP of the company (taking total sale in to consideration) has also been calculated to achieve our objectives of research in total perspective.

3.4 Variables Studies

A variable is a symbol to which numerals or values are assigned. In other words, a variable can take on values. The researcher had used two types of variables-independent and dependent variables. Variables studies are as follows:

(i) Independent Variables: It is the variables which can change other variables. In other words, causes of it changes others.

(ii) Dependent Variables: It is the opposite of independent variables. It depends upon other variables. It changes causes of other variables.

The researcher has been defined the term C-V-P Analysis in the first chapter. There are three factors (i.e. Cost, Volume and Profit) of C-V-P analysis, which are interconnected and depend on one another. So, these three factors are dependent variables. But, testing relationship between these variable following criteria are assumed:

Table No. 3.1: Classification of Variables

	Independent Variables		Dependent Variables
a.	Cost	a.	Profit
b.	Volume (Sales)	b.	Profit
c.	Cost and Volume	c.	Profit

Source: Complied by the researcher.

3.5 Tools of Data Analysis

Collected data must be explained and analyzed to clear objectives of the study. Basically, following two techniques are used to explain the collected data.

3.5.1 Descriptive Techniques

This techniques were used to simplify the research report for better understanding as well as analysis and interpretation of collected data in theoretical form.

3.5.2 Quantitative Techniques

Descriptive techniques would not be enough to prepare excellent research report. To fulfill the gap, or make the research report attractive and for better understanding the following profit planning tools were used:

C-V-P Analysis Tools

C-V-P analysis was included the following extension computations:

(i) BEP in Units = $\frac{\text{Total fixed costs}}{\text{SPPU} - \text{VCPU}}$

(ii) BEP in Rs. = $\frac{\text{Total fixed costs}}{1 - \frac{\text{Variable Cost}}{\text{Sales Price}}}$

(iii) Contribution margin = Sales - Variable Cost or FC + Profit

(iv) Contribution margin ration = $1 - \frac{\text{Variable Cost}}{\text{Sales}}$

(v) BEP (% of Capacity) = $\frac{\text{BEP}}{\text{Total Capacity}}$

(vi) Cash BEP in Rs. = $\frac{\text{Fixed Costs} - \text{Non Cash outlays}}{1 - \frac{\text{Variable Cost}}{\text{Sales} - \text{Non cash items}}}$

(vii) Sales in Units for desire profit = $\frac{\text{FC} + \text{Profit}}{\text{SPPU} - \text{VCPU}}$

(viii) Sales in amount for desire profit = $\frac{\text{FC} + \text{Profit}}{\text{MC\%}}$

(ix) Sales in amount (to earn desired profit after tax) = $\frac{FC + \frac{DPAT}{1 - Tax\ rate}}{CM\ ratio}$

(x) Margin of Safety = Planned or Actual Sales - BEP

(xi) Margin of Safety = $\frac{Planned\ or\ Actual\ Sales - BEP}{Planned\ or\ Actual\ Sales}$

Statistical Tools

The Statistical tools were included the following techniques to examine the relationship between the variables; and analysis:

(a) Tables and Figures

(b) Mean, Standard Deviation and C.V.

Mean $(\bar{X}) = \frac{X}{N}$

Standard Deviation (σ) = $\sqrt{\frac{U^2}{N} - \left(\frac{U}{N}\right)^2}$

C.V. = $\frac{\sigma}{\bar{X}} \times 100$

(c) Correlation Analysis

Coefficient of Correlation (r) = $\frac{N.\ UV - U.\ V}{\sqrt{N.\ U^2 - (U)^2}\ \sqrt{N.\ V^2 - (V)^2}}$

Probable Error of r (P.E.) = $0.6745 \times \frac{1 - r^2}{\sqrt{N}}$

Where, X = distribution

N = No. of distribution

U = X – assumed Mean

V = Y – assumed Mean

CHAPTER FOUR
PRESENTATION AND ANALYSIS OF DATA

The presentation of data is the basic organization and classification of the data for analysis. After, data collection was completed, the data were classified for general purpose. The analysis of data assist to interpret then discussion and fulfill the objectives of the study by using different tools and techniques.

This chapter has included analysis of sales, fixed costs, variable costs and semi-variable costs. The computation section is included computations of CVP analysis where it's extension tools are applied. The extension computations are BEP (in amount and units), BEP percentage of capacity or budgeted sales, cash BEP, contribution margin analysis, MOS, profit-volume analysis for future operation or profit planning.

Above all computations are done for analysis and interpretation of the company regarding objectives of the study, for major findings and to provide valid recommendations.

4.1 Analysis of Sales

Sales refers to exchange of goods and service for money. The profit making objectives of a business is achieved by selling goods and services at a price higher than their cost. In some industries profit depend upon high sales volume. If each unit of product is sold at a relatively low contribution margin, profit can be made only by selling in large quantities. This will be all the more true when the fixed costs are high.

Following table shows the actual and budgeted sales trend of HDL

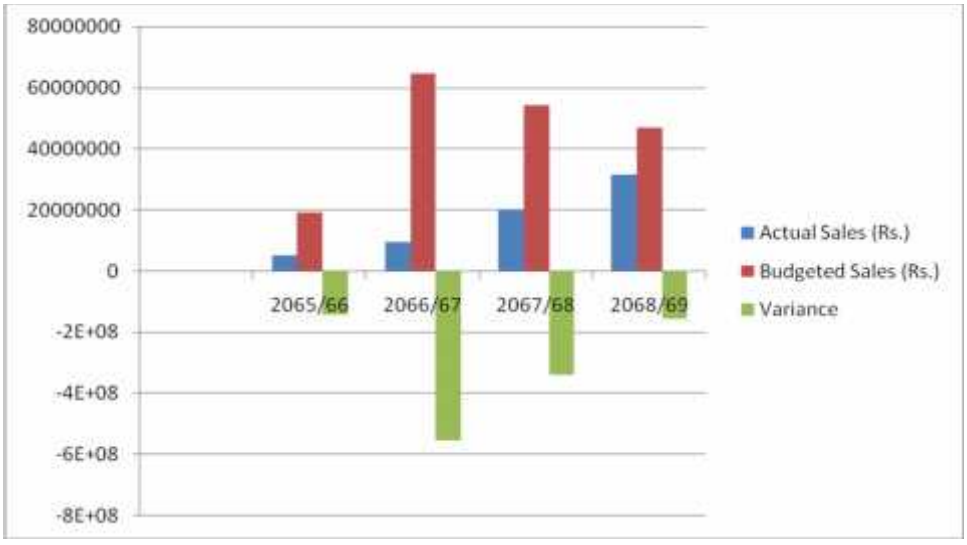
Table No. 4.1: Actual and Budgeted Sales Trend of HDL

Fiscal Year	Actual Sales (Rs.)	Budgeted Sales (Rs.)	Variance		
			Rs.	%	Remark
2065/66	51,274,070	193,270,106	(141,996,036)	276.94	U
2066/67	94,865,090	646,846,800	(551,981,710)	581.86	U
2067/68	203,585,108	543,148,000	(339,562,892)	166.79	U
2068/69	314,578,626	469,312,000	(154,733,374)	49.19	U

Sources: Annual Reports of HDL (FY 2065/66 to 2068/69).

The actual sales shown on the table above are according to invoice issued. The sales are not included excise duty, VAT and other tax. The taxation and charges were shown in the balance sheet of the company as current liabilities.

Chart No. 4.1 Actual and Budgeted Sales Trend of HDL



The actual sales of fiscal year 2065/66 was low than other fiscal years. Because, it is assumed that the mass operation of the company was started from 1st Baishakh 2068 B.S. Before it, the company was being operated under private Ltd.

The above table shows that there is high gap between actual sales and budgeted sales. The sales trends have unfavorable because actual sales of all fiscal years' are very less than budgeted sales. But the percentages of variance are decreasing. So, it can be expected that the gap between actual sales and budgeted sales will be fulfilled in future.

Another way, the actual sales volume is in increasing trend. To find out the nature of variability of actual sales and budgeted sales of different fiscal year, it is necessary to calculate the arithmetic mean, standard deviation and coefficient of variation. The actual and budgeted sales figure of FY 2057/58 are avoided because of non-mass operation. So, three fiscal years' data are applied. The following table shows the summary of statistical calculation.

Table No. 4.2: Summary of Statistical Calculation

Particular	Actual Sales (X)	Budgeted Sales (Y)
Mean (Rs. '000000)	204.34	553.10
Standard Deviation (∃) (Rs. '000000)	89.70	72.82
Coefficient of Variation (C.V.)	43.90%	13.17%
Correlation Coefficient (r)	-0.99 β -1	
Probable error of r (P.E.)	0.0077	

Source: Appendix-I.

Table No. 4.2 shows that the C.V. of budgeted sales is less than that of actual sales. So, actual sales are variable and budgeted sales are constant.

Similarly, the correlation coefficient between two variables (i.e. actual sales and budgeted sales) are -0.99 β -1. It shows there is negative perfect correlation between two variables.

The probable error of correlation coefficient (P.E.) is the measure of testing the reliability of the calculated value of r. It is used in interpretation whether calculated value of r is significant or not. The value of r is less than

P.E. (i.e. -0.99 < 0.0077). So, the calculated value of r is insignificant and it indicates that perhaps there is no evidence of correlation.

4.1.1 Analysis of Sales for Selected Product Lines

Three product lines viz. Royal Stag, Ruslan Vodka and Blue Diamond are selected for further analysis and interpretation. The following table shows the sales figure of selected product lines.

Table No. 4.3: Sales Figure of Selected Product Lines

Fiscal Year	Royal Stage			Ruslan Vodka			Blue Diamond		
	Rs. ('000)	Cases	USP (Rs.)	Rs. ('000)	Cases	USP (Rs.)	Rs. ('000)	Cases	USP (Rs.)
Reference	1	2	1⎤2=3	4	5	4⎤5=6	7	8	7⎤8=9
2065/66	29,269	15,074	1,941.69	-	-	-	-	-	-
2066/67	60,817	30,519	1,992.76	-	-	-	-	-	-
2067/68	141,048	64,819	2,176.03	9,623	7,982	1,205.59	17,739	20,640	859.45
2068/69	253,978	127,450	1,992.76	22,769	19,560	1,164.06	42,147	64,525	653.19

Sources: Compiled by the researcher based on Annual Reports of HDL (FY 2065/66 to 2068/69).

The above table shows that the sales figure is in increasing trend. Higher sales volume recovers higher portion of fixed cost, and it assists to maximize profit. The Unit Selling Price (USP) is calculated by dividing total cases sold (unit) to total sales revenue. Total sales and total cases are not separated as different sizes like 750 ml, 375 ml and 180 ml. The company had not proper sales record of different size of product lines. The unit selling price of the Royal Stag were in fluctuation condition; Ruslan Vodka and Blue Diamond

had increasing pattern. The number of unit sold of selected product lines was growing trend.

4.2 Analysis of Cost

Cost is the amount of expenditure, actual (incurred) or notional (attributed), relating to a specific thing or activity. The specific thing or activity may be product, job, service, process or any other activity.

Cost is the amount of resources given up in exchange for some goods or services. The term ‘cost’ itself is without any significant meaning, and therefore, it is always advisable to use it with an adjectives or phrase.

Expenses are expired costs, incurred and totally used up in generation of revenue. Examples of expired costs are cost of goods expenses, administrative expenses and selling and distribution expenses. Expenses need not necessarity have to be paid in cash immediately; even a promise to pay could be made for the benefits obtained. The manufacturing costs are capitalized in the form of finished goods inventory and when a sale is made, they expire (becoming expenses). The cost of unsold inventory which was an assets earlier, now becomes expenses (cost of goods sold) as it has contributed to the generation of revenue.

Factory (or manufacturing) overhead is treated as cost become this is included in the cost of finished goods inventory which is a current asset unless sales is made.

Conventional CVP analysis requires that cost be classified as earlier fixed or variable. Some costs are definitely fixed in nature. Other are strictly variable. But, when costs are examined, some are observed to be neither completely fixed nor completely variable.

The company had not practice of classification of costs into fixed cost and variable cost. To fulfill the objectives of the study costs are classified into fixed costs and variable cost.

4.2.1 Analysis of Fixed Costs

A fixed cost remain unchanged in total amount over a wide range of production levels. For example, if the factory building is rented for, say $1000 per month, this costs remains the same whether the factory operates on a one-shift, two shift, or an around the clock basis. Likewise, the cost is the same whether one hundred units of product are produced in a month, one thousand units are produced, or any other number up to the full production capacity of the plant. Note, however that while the total amount of a fixed cost remains constant as the level of production changes, fixed cost per unit of product decrease as volume increase. For example, if rent is $1000 per unit and two units of product are produced in a month, the rent cost per unit is $500, but if production is increased to 10 units per months, rent cost per unit decreases to 500 units per months. The total fixed cost appear on the graph as a parallel of x-axis.

Following the table shows the detail fixed costs of HDL.

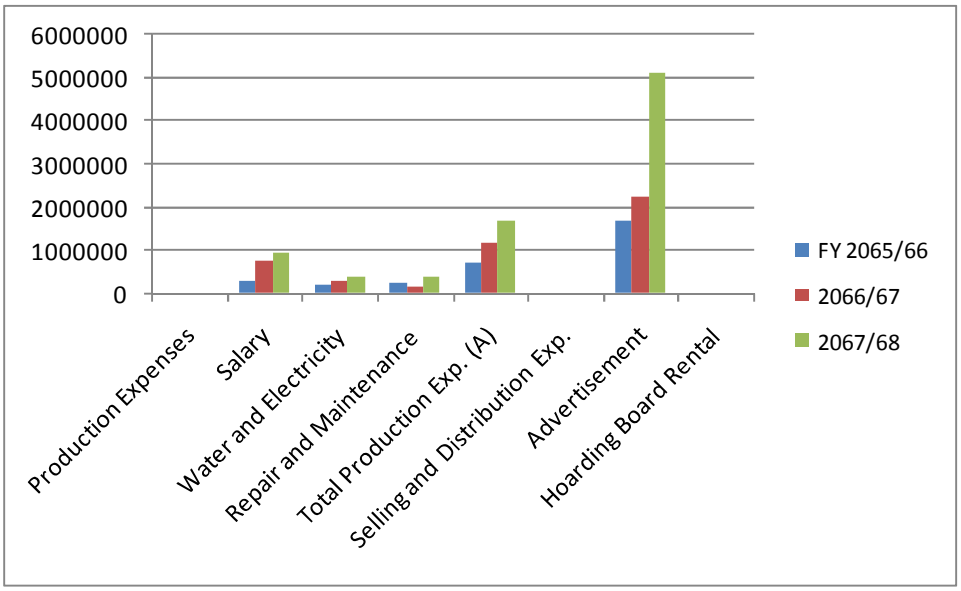
Table No. 4.4: Statement of Detail Fixed Costs

Particulars	FY 2065/66	2066/67	2067/68	2068/69
Production Expenses				
Salary	301798	735390	907036	1359046
Water and Electricity	181715	275133	383072	339920
Repair and Maintenance	210042	135801	371129	339863
Total Production Exp. (A)	693555	1146324	1661237	2038829
Selling and Distribution Exp.				
Advertisement	1694605	2233518	5107918	2780922
Hoarding Board Rental	-	-	-	604915
Distributors Meeting Exp.	-	-	370671	460576
Total Selling and Distribution Exp (B)	1694605	2233518	5478589	3846413
Administrative Expenses				
Salary and Allowance	5684396	7959503	8327639	11191531
P/F Contribution	58108	221475	217661	271503
Printing and Stationary	257471	364575	429685	518615
Water and Electricity	33218	44637	201038	266592
Communication Expenses	1159870	1539852	1284442	2610051
Bank Charges	317657	246594	403446	636796
Repair and Maintenance	245179	1077383	1295111	2878677
Meeting Fee	19500	48552	75000	65000

Traveling Expenses	372645	1673583	2781221	2896891
Conveyance and Fuel Exp.	699048	741053	794174	1825888
Computer Software Exp.	-	-	90000	24000
AGM Expenses	-	13000	143964	43456
Rent	629507	716588	659823	1057164
Tax and Fees	215937	134992	263902	376100
Audit Fee	80000	80000	80000	90000
Guest Entertainment	364995	364184	459053	660584
Notice and Publication Expenses	3360	-	39375	80137
Security Expenses	-	1046404	1049886	1135035
Members Fees and Subscription	96443	132553	88704	139438
Legal and Professional Fees	473462	2609119	3141898	1621147
Insurance Premium	1437253	3292833	2161014	2079253
Training and Recruitment Exp.	34500	17500	30246	8000
Miscellaneous expenses	337436	1048448	759968	288469
Total Administrative Exp. (C)	12519985	23372728	24774250	30764327
Depreciation (D)	5144651	21190039	21626888	22072743
Interest on Long term Loan (E)	5830242	25493333	25493333	24535798
Total Fixed Costs (A+B+C+D+E)	25883038	73435942	79034297	83258110

Sources: Compiled by the researcher based on Annual Reports of HDL (FY 2065/58 to 2060/61).

Chart No. 4.2 Statement of Detail Fixed Costs



The items included in the fixed production expenses where salary had fixed; and water electricity repair and maintenance were semi variable cost. The amount shown in the table above regarding water and electricity and repair and maintenance were segregated into fixed cost. Similarly, the items included in the fixed selling and distribution expenses and administrative expenses, all are fixed cost nature.

Salary of production department were increasing trend. Water and electricity of production department were increased up to FY 2065/66 and decreased at FY 2066/67. Repair and maintenance costs were fluctuation condition. In aggregate it was increasing trend.

The advertisement expenses were increased up to FY 2065/66 and decreased at FY 2066/67. Separate hoarding board rental was introduced at FY 2063/64. The distributors meeting expenses were increasing pattern.

The items of administrative expenses, salary and allowance was included salary of office staff, their allowances and allowances for directors of the company. Salary and allowance, and P/F contribution were increasing trend. Printing and stationary, and water and electricity were also increasing

trend. The communication expenses, bank charges, repair and maintenance expenses, traveling expenses, fuel were increasing. The rent expenses were also increasing. Tax and fees, security expenses were also increasing trend. Out of these were either slightly increased/decrease or fluctuation condition. In aggregate administrative expenses were increasing annually.

Similarly, depreciation were also increasing and the amount of interest on long term loan (mortgage loan) constant at FY 2065/66 and FY 2066/67 and decreased at FY 2067/68.

The amount of depreciation and interest on long term loan of FY 2069 were only for three months (Baishakh to Ashadh) because the mass production and operation were started from 1st Baishakh 2069. So, there were not able to compare with other fiscal years' financial figures.

In aggregate, total fixed costs were highly increasing annually. Advertisement, salary and allowance, communication expenses, insurance premium, depreciation and interest on long term loan were taken higher portion of total fixed costs.

4.2.1.1 Analysis of Fixed Costs for Selected Product Lines

The specific fixed cost for selected product lines are shown in the table below.

Table No. 4.5: Specific Fixed Costs for Selected Product Lines

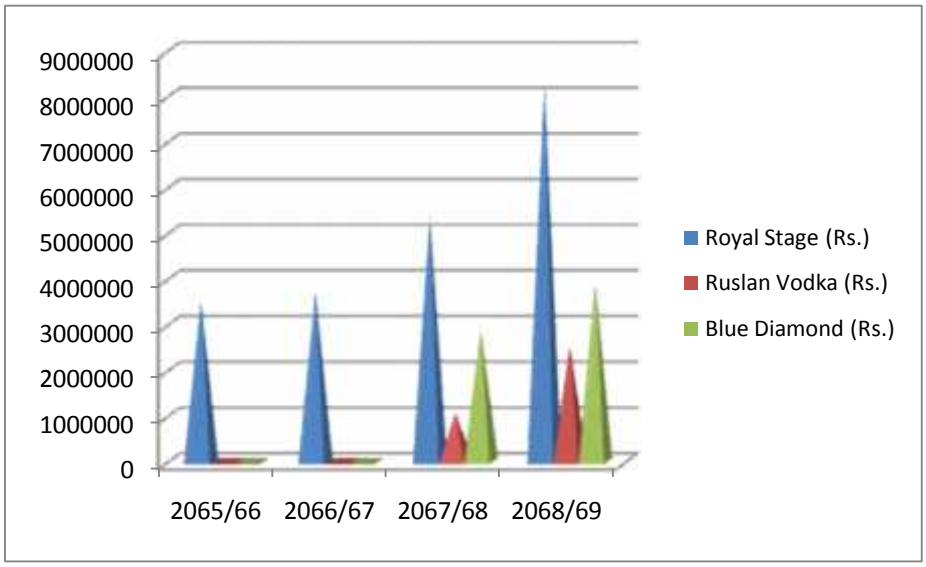
Fiscal Year	Royal Stage (Rs.)	Ruslan Vodka (Rs.)	Blue Diamond (Rs.)
2065/66	3517900	-	-
2066/67	3714460	-	-
2067/68	5363240	1065758	2883832
2068/69	8238578	2540842	3896783

Sources: Based on Direct Interview by Questionnaire.

The specific fixed costs of the selected product lines were segregated on the basis of machine hour, working hour and production.

The specific fixed costs of selected product lines were increasing annually.

Chart No. 4.3 Specific Fixed Costs for Selected Product Lines



4.2.2 Analysis of Variable Cost

A variable cost changes in total amount as production volume changes. For example, the cost of the materials that enters in to a product is a variable cost. If material cost are $20 is required in the production of one unit of product is manufactured, $40 if two units are manufactured, $60 if three units are manufactured, and so on up for any number of units. In other words, the variable cost per unit of production remains constant while the total amount of variable cost changes in to direct proportion to changes in the level of production. Variable costs appear on a graph as a straight line with a positive slope; the line rises as the production volume increases.

To produce finished goods and transfer these goods to the market, the company bears different types of variable costs. Following the table shows the detail variable cost of HDL.

Table No. 4.6: Statement of Detail Variable Costs

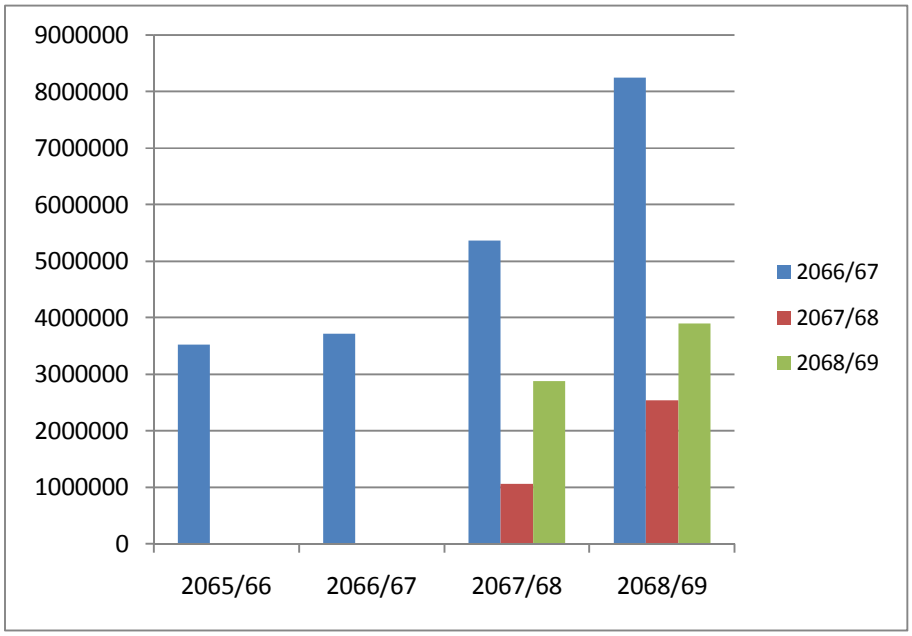
Particulars	FY 2065/66	2066/67	2067/68	2068/69
Cost of Goods Sold				
Materials Consumed	27938129	52791589	100430437	110696440
Direct Expenses of Purchase	-	-	-	27624338
Salary and Wages	1207194	2941560	3628142	5436182
Royalty	7037660	16677566	39353267	59558440
Water and Electricity	1332578	2017644	2809196	2492744
Repair and Maintenance	840170	543205	1484517	1359451
Blending Charges	2038204	1317783	720270	1281035
Other Expenses	197965	127993	174894	799610
Total (A)	40591900	76417340	148600753	209248240
Selling and Distribution Exp.				
Transportation and Insurance Exp.	1295691	1589167	4473749	8588130
Traveling Expenses of Sales man	1056124	2258036	2457080	2869649
Complementary Expenses	373047	130733	2696753	4300342
Sales promotion Expenses	661655	2671160	9513773	23138079
Leakage and breakage	85039	476803	947845	4343515
Other expenses	15244	53932	3120	-
Total (B)	3486800	7179831	20092320	43239715
Total Variable Cost (A+B)	44078700	83597171	168693073	252487955

Sources: Compiled by the researcher based on Annual Reports and audited financial statement of HDL (FY 2065/66 to 2068/69), schedule No: 16 and 18.

The cost of material consumed were included raw materials and packaging material. The cost of material consumed of FY 2065/66 to FY 2066/67 was included direct expenses of purchase but it is shown separately in

the FY 2067/68. The direct expenses of purchase was included clearing and forwarding, custom duty, freight, local development tax and special duty of raw material as well as packaging material. Salary and wages, water and electricity, repair and maintenance was semi-variable cost nature. It was separated as fixed and variable cost; and variable cost portion is shown in the table above. Out of these items were variable cost nature.

Chart No. 4.4 Statement of Detail Variable Costs



Similarly, all items included under selling and distribution expenses were variable cost nature.

Material consumed, salary and wages, royalty, transportation and insurance expenses, traveling expenses of sales, sales promotion expenses, leakage and breakage were increasing annually. Water and electricity were increased up to FY 2065/66 to 2067/68 and decreased at FY 2068/69. Repair and maintenance, and complementary expenses were in fluctuation condition. Blending charges was decreased up to 2067/68 and increased at FY 2068/69. Other expenses of cost of goods, and selling and distribution expenses were increasing and decreasing respectively.

Higher portion of total variable cost was covered by material consumed, direct expenses of purchase, royalty, sales promotion activities, transportation and insurance expenses, salary and wages, leakage and breakage and complementary expenses, traveling expenses, and water and electricity items.

Since, increase at production units, materials, taxation, custom duty, fuel and competitive activities; the total variable cost was increasing annually.

4.2.2.1 Analysis of Variable Cost for Selected Product Lines

The variable cost for different product lines were not same. Different product line had different combination of material, labour and other expenses. Since, not availability of detail variable cost item of each product lines, the total variable cost and unit variable cost of selected product lines are presented at total form in the table below:

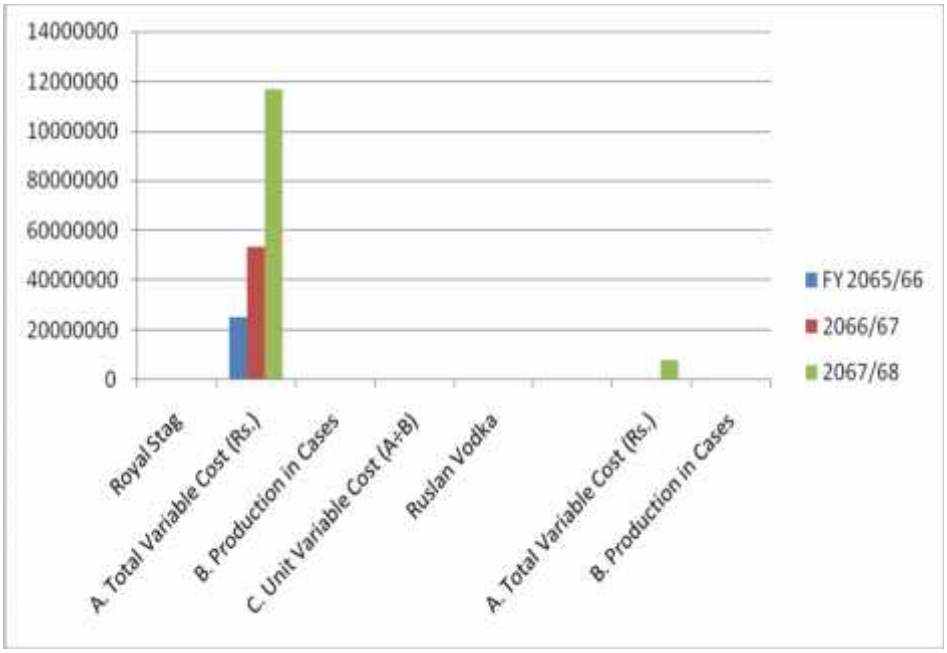
Table No. 4.7: Statement of Variable Costs for Selected Product Lines

Particulars	FY 2065/66	2066/67	2067/68	2068/69
Royal Stag				
A. Total Variable Cost (Rs.)	25161636	53593257	116874072	203848515
B. Production in Cases	15742	30519	64151	127450
C. Unit Variable Cost (A÷B)	1578	1756	1822	1599
Ruslan Vodka				
A. Total Variable Cost (Rs.)	-	-	7973734	18274917
B. Production in Cases	-	-	7982	19610
C. Unit Variable Cost (A÷B)	-	-	999	932
Blue Diamond				
A. Total Variable Cost (Rs.)	-	-	14698749	33828140
B. Production in Cases	-	-	20640	64750
C. Unit Variable Cost (A÷B)	-	-	712	522

Sources: Compiled by the researcher based on Annual Reports of HDL (FY 2065/66 to 2068/69) and Questionnaire interview.

The total variable costs of selected product lines were increasing causes of increase in production units. The unit variable cost of Royal Stag was increased up to FY 2059/60, but decreased at FY 2060/61. Similarly, unit variable cost of Ruslan Vodka and Blue Diamond were decreased. Internal and external business environment, managerial decision, production process and technology factors affect to change in variable cost. Increasing unit selling price and decreasing unit variable cost is the positive signal of higher CM per unit. It helps to maximize operating profit.

Chart No. 4.5 Statement of Variable Costs for Selected Product Lines



4.2.3 Analysis of Semi-Variable or Semi-Fixed Costs

Semi-variable expenses are significant portion of company expenses. Semi-variable expenses also change with change in output or activity but not in proportion to changes in activity or output. Semi-variable expenses have some of the characteristics of both fixed and variable costs. Semi-variable expenses are caused by combined effect of passage of time, activity or output and management discretion decision.

The company HDL had also incurred some costs like semi variable or semi fixed cost nature, which are shown in the table below.

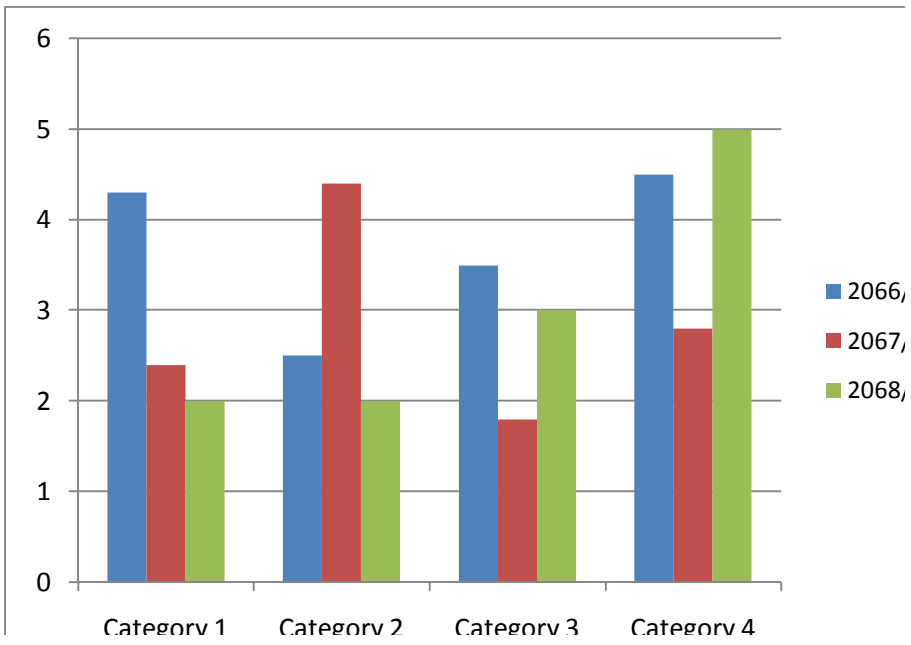
Table No. 4.8: Statement of Semi-Variable Costs

Particulars	FY 2065/66	2066/67	2067/68	2068/69
Production Expenses				
Salary and Wages	1508992	3676950	4535178	6795228
Water and Electricity	1514293	2292777	3192268	2832664
Repair and Maintenance	1050212	679006	1699314	1855646

Sources: Annual Reports of HDL (FY 2065/66 to 2068/69).

The company had not practice of classification of semi-variable costs in to fixed and variable cost. Neither they had any proper basis for classification of these cost nor detail raw records. So, item wise costs were in sum total.

Chart No. 4.6 Statement of Semi-Variable Costs



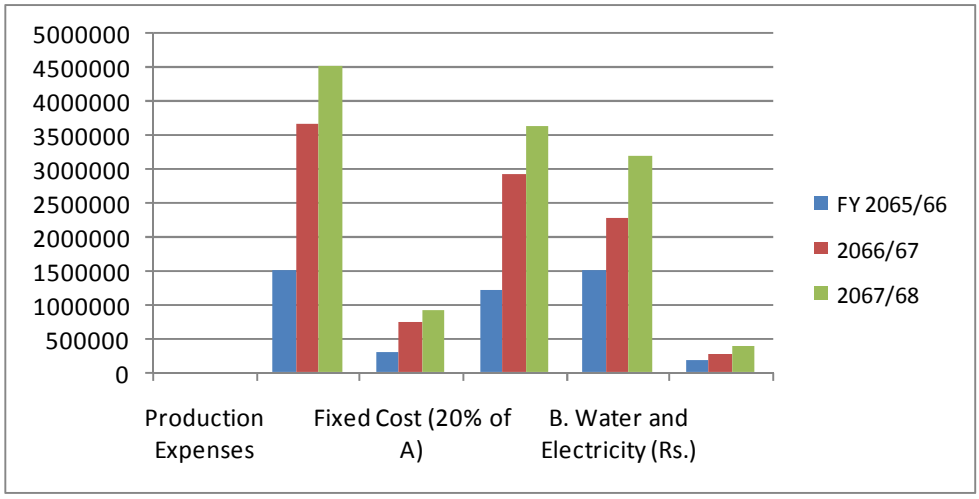
To simplify the problem discussion were done with chief of finance of HDL. At last, the following assumptions were adopted to segregate semi-variable costs.

Table No. 4.9: Classification of Semi-Variable Cost

Particulars	FY 2065/66	2066/67	2067/68	2068/69
Production Expenses				
A. Salary and Wages (Rs.)	1508992	3676950	4535178	6795228
Fixed Cost (20% of A)	301798	735390	907036	1359046
Variable Cost (80% of A)	1207194	2941560	3628142	5436182
B. Water and Electricity (Rs.)	1514293	2292777	3192268	2832664
Fixed Cost (12% of A)	181715	275133	383072	339920
Variable Cost (88% of A)	1332578	2017644	2809196	2492744
C. Repair and Maintenance (Rs.)	1050212	679006	1699314	1855646
Fixed Cost (20% of A)	210042	135801	371129	339863
Variable Cost (80% of A)	840170	543205	1484517	1359451
D Total Semi-Variable (A+B+C)	4073497	6648733	9426760	11483538

Sources: Compiled by the researcher based on questionnaire interview.

Chart No. 4.7 Classification of Semi-Variable Cost



4.3 Inventory Consideration of HDL

Inventory is most important thing for smooth running of manufacturing business. It includes raw materials, packaging material, work in progress,

finished goods, and spare parts. It plays vital role in production and supply of goods to meet the demand of the consumers. That is why most of manufacturers invests their working capital in to inventory to reduce uncertainty. But for profit planning, proper mechanism must be adopted to control inventory costs. The following equation shows the computation of inventory.

Raw Material:

Purchase = Raw material Consumed + Closing Inventory - Opening Inventory

Finished Goods:

Production = Sales + Closing Inventory - Opening Inventory

So, the changes in any items of above equation changes the value of another. Since the assumption of C-V-P analysis, the inventory must be constant or nil. For the evaluation purpose of Inventory of HDL, only selected product lines inventory of finished goods are shown in the table below.

Table No. 4.10: Statement of Finished Inventory

(For Selected Product Lines Only)

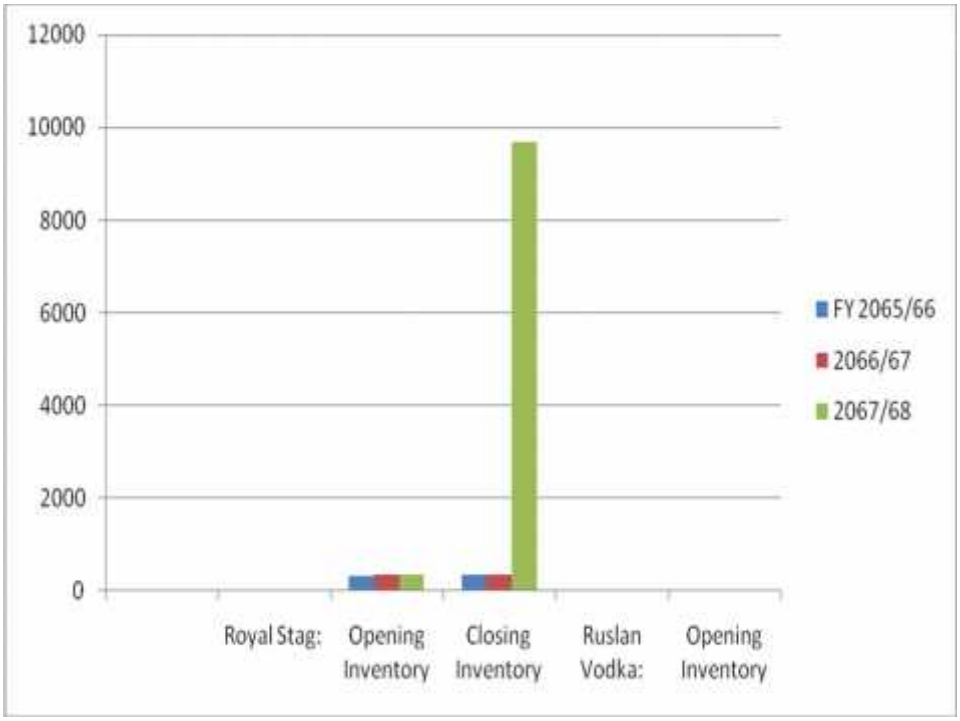
Particulars	FY 2065/66 Case	2066/67 Case	2067/68 Case	2068/69 Case
Royal Stag:				
Opening Inventory	328	340	340	9672
Closing Inventory	340	340	9672	960
Ruslan Vodka:				
Opening Inventory	0	0	0	0
Closing Inventory	0	0	0	0
Blue Diamond:				
Opening Inventory	0	0	0	0
Closing Inventory	0	0	0	42

Sources: Annual Reports of HDL (FY 2065/66 to 2068/69).

Above the table shows that, Royal Stag had nearly constant inventory and fully constant inventory at FY 2065/66 and FY 2066/67 respectively but, variable at FY 2067/68 and FY 2068/69.

Similarly, Ruslan Vodka had zero inventory and Blue Diamond had also zero inventory up to FY 2067/68, but variable at FY 2068/69.

Chart No. 4.8 Statement of Finished Inventory



So, the inventory of some fiscal years' were nearly constant.

4.4 Computation of C-V-P Analysis

C-V-P Analysis helps to determine the minimum sales volume to avoid losses and the sales volume at which the profit goal of the firm will be achieved. As an ultimate objectives, it helps management in seeking the most profitable combination of fixed, costs, variable costs, volume and selling price.

4.4.1 Computation of BEP

To fulfill the objectives of the study, BEP and other related computations are necessary to complete. These are BEP in Rs. for the entire form of the company, BEP in units and amount of selected product lines, BEP percentage of capacity, and cash BEP etc.

4.4.1.1 Computation of BEP in Rs. for the Entire Company

Locating the point where total revenue equals total costs incurred, the following formula is used:

$$\text{BEP in Rs.} = \frac{\text{Total Fixed Cost}}{\text{CM ratio}}$$

Following the table shows the computation of BEP in Rs. of HDL .

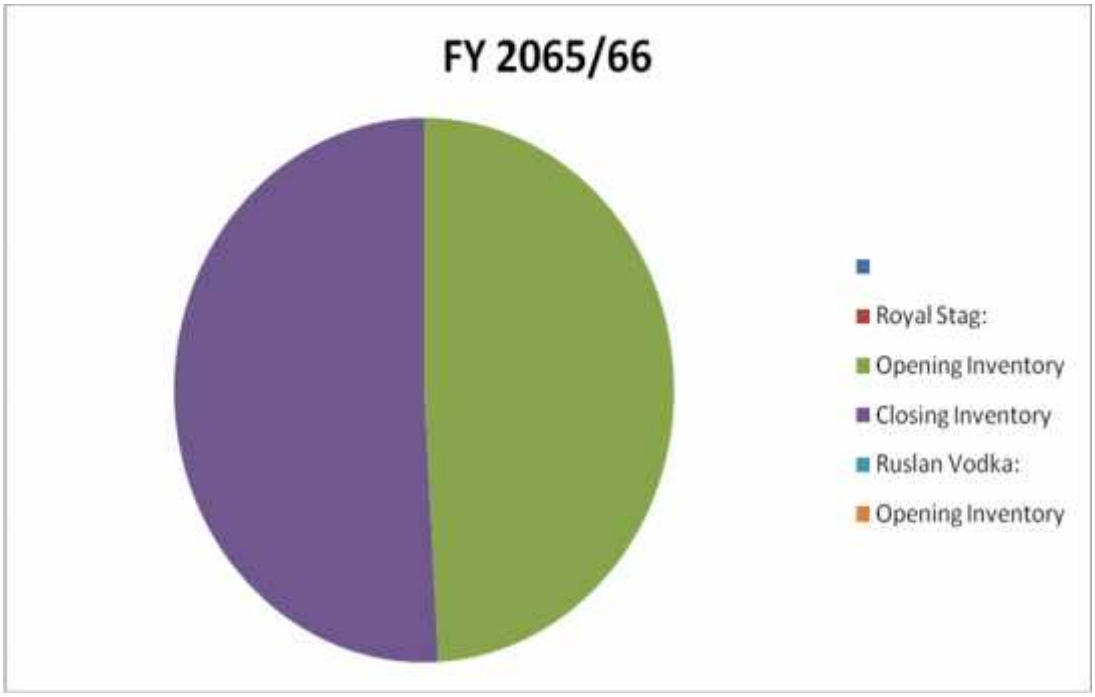
Table No. 4.11: Computation of BEP in Rs. for the HDL

Particulars	FY 2065/66	2066/67	2067/68	2068/69
A. Fixed Cost (Rs.)	25883038	73435942	79034297	83258110
B. Sales Revenue (Rs.)	51274070	94865090	203585108	314578626
C. Variable Cost (Rs.)	44078700	83597171	168693073	252487955
D. CM (B-C)	7195370	11267919	34892035	62090671
E. CM Ratio (D÷B)	0.1403	0.1188	0.1714	0.1974
F. BEP in Rs. (A÷E)	184442037	618260324	461142662	421822174
(B-F)	(158558999)	(523395234)	(257557554)	(107243548)

Sources: Compiled by the researcher based on table no. 4.1, 4.4 and 4.6.

The BEP in Rs. of each fiscal years were very high than actual sales. In other words, the actual sales of each fiscal years were not reached at BEP. It indicates that the company has not reached at that point where total sales revenue recovers total costs.

Chart No. 4.9 Computation of BEP in Rs. for the HDL



The actual sales of FY 2065/66, 2066/67, 2067/68 and 2068/69 were loss than BEP by Rs. 158558999, Rs. 52339524, Rs. 257557554 and Rs. 107243548 respectively.

Causes of Higher BEP

1. **Low Actual Sales and High Variable Cost:** Since actual sales of each fiscal year was low. This results the lower contribution margin course of higher variable cost.

2. **Low CM Ratio:** Since, low sales and low contribution margin, the CM ratios were less than 20%. The low CM ratio recovers low portion of fixed costs, this results there were need of high sales revenue to reach at BEP.

3. **Higher the Fixed Cost:** The fixed cost to variable cost ratio be not more than 50%. But the ratio was high in the FY 2065/66 and FY 2066/67 and low at the FY 2067/68 and 2068/69. Not recovery of higher portion of fixed cost results higher BEP.

Comparatively low difference between actual sales and BEP sales were the result of increasing CM ration and decreasing fixed cost to variable cost ratio.

4.4.1.2 Computation of BEP for Selected Product Lines

To find out either sales revenue of selected product lines were met the BEP or not, BEP in units and BEP in Rs. both computation are done. The computation of BEP for selected product lines assist to analyze which product is profitable and which one is poor, or which need to push, or continue, or drop.

The following tabular computation shows the BEP of selected product lines.

Table No. 4.12: Computation of BEP for Selected Product Lines

Particulars	FY 2065/66	2066/67	2067/68	2068/69
Royal Stag:				
A. Specific Fixed Costs (Rs.)	3517900	3714460	5363240	8238578
B. Unit Selling Price (Rs.)	1942	1993	2176	1993
C. Unit Variable Cost (Rs.)	1598	1756	1822	1599
D. CM per Unit (B-C) (Rs.)	344	237	354	394
E. CM Ratio (D÷B)	0.1771	0.1189	0.1627	0.1977
F. BEP in Units (A÷D)	10226	15673	15150	20910
G. BEP in Rs. (B×F)	19859773	31235944	32967261	41673822
H. Actual Sales in Units	15074	30519	64819	127450
(H-F)	4848	14846	49669	106540
Ruslan Vodka:				
A. Specific Fixed Costs (Rs.)	-	-	1065758	2540842
B. Unit Selling Price (Rs.)	-	-	1206	1164
C. Unit Variable Cost (Rs.)	-	-	999	932
D. CM per Unit (B-C) (Rs.)	-	-	207	232
E. CM Ratio (D÷B)	-	-	0.1716	0.1993
F. BEP in Units (A÷D)	-	-	5149	10952
G. BEP in Rs. (B×F)	-	-	6209199	12748018
H. Actual Sales in Units	-	-	7982	19560
(H-F)	-	-	2833	8608
Blue Diamond:				
A. Specific Fixed Costs (Rs.)	-	-	2883832	3896783
B. Unit Selling Price (Rs.)	-	-	859	653
C. Unit Variable Cost (Rs.)	-	-	712	522
D. CM per Unit (B-C) (Rs.)	-	-	147	131
E. CM Ratio (D÷B)	-	-	0.1711	0.2006
F. BEP in Units (A÷D)	-	-	19618	29746
G. BEP in Rs. (B×F)	-	-	16851862	19424422
H. Actual Sales in Units	-	-	20640	64525
(H-F)	-	-	1022	34779

Sources: Compiled by the researcher based on table no. 4.3, 4.5 and 4.7.

The BEP in units of Royal Stag was lower than actual sales of all fiscal years. In other word, the actual sales of Royal Stage were crossed the BEP. The actual sales were excess than BEP by 4848 units, 14846 units, 49669 units and 106540 units of FY 2065/66, 2066/67, 2067/68 and 2068/69 respectively. So Royal Stag was in profitability condition. The BEP in Rupees was also calculated in the table abov

The contribution margin per units was in fluctuation condition. Although the contribution margin ratio was lower, but actual sales was crossed the BEP. The main causes of that was lower the fixed cost. The product was established many years ago, so additional fixed cost were not needed to charge. Another way, the product had produced at huge quantity, where high portion of fixed costs were utilized that directly increase the operating profit.

Similarly, Ruslan Vodka and Blue Diamond were started to produce and distribute from FY 2067/68. The contribution margin of Ruslan Vodka and Blue Diamond were decreased at FY 2068/69, but CM ratio was increased. Increasing the CM ration indicates utilization of higher portion of fixed cost. In this way actual sales of Ruslan Vodka and Blue Diamond were also crossed the BEP. The actual sales of Ruslan Vodka was higher than BEP by 2833 units and 8608 units of FY 2067/68 and 2068/69 respectively. The actual sale of Blue Diamond was also higher than BEP by 1022 units and 34799 units of FY 2067/68 and 2068/69. So, these two product lines were also in profitability.

The two product lines Ruslan Vodka and Blue Diamond are producing and distributing under franchising agreement with Jawalakhel Distillery Pvt. Ltd. The products were well established so many years ago. As a result, extra product launch cost, advertisement and other fixed costs were saved. Causes of lower fixed costs, mass production and monopoly market, the Ruslan Vodka was crossed the BEP. In addition, the Blue Diamond was also crossed the BEP.

In conclusion, the selected production lines was crossed the BEP and all these three were profitable.

BEP in graph for entire company and selected product lines are shown below: (FY 2068/69 only)

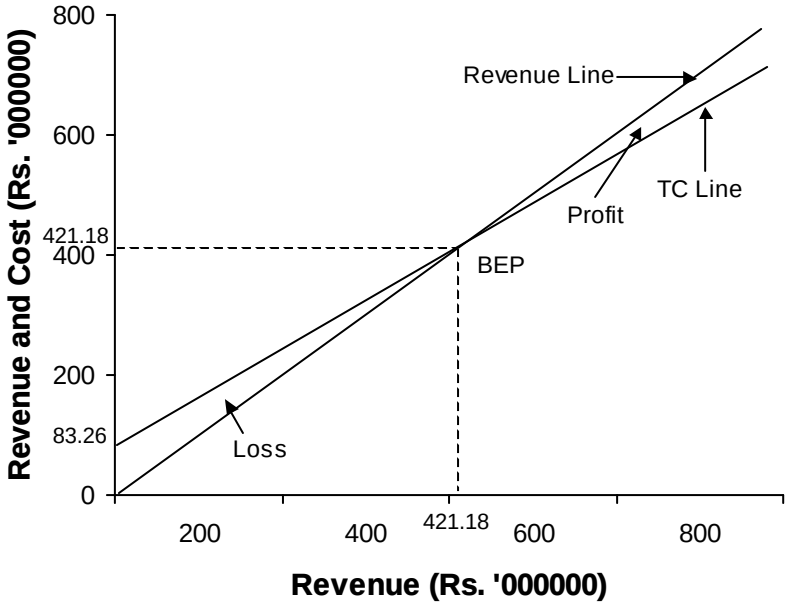


Figure 4.10: BEP Graph of HDL in Entire Form (By Cost and Revenue Approach)

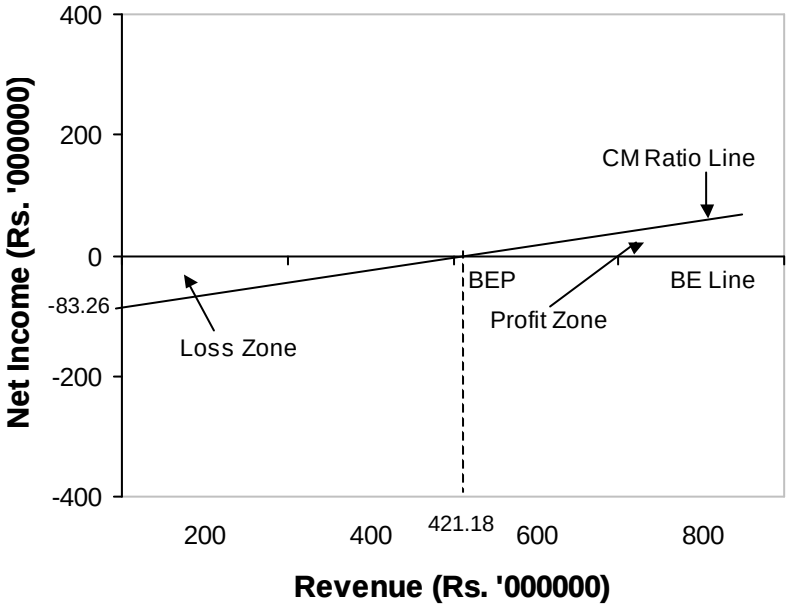


Figure 4.11: BEP Graph for HDL in Entire Form (By Contribution Approach)

BEP Graph for Selected Products (By Cost and Revenue Approach Only)

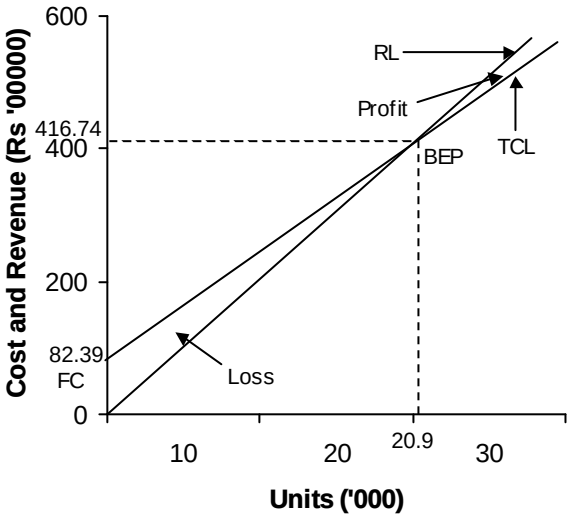


Figure 4.12: BEP Graph of Royal Stage

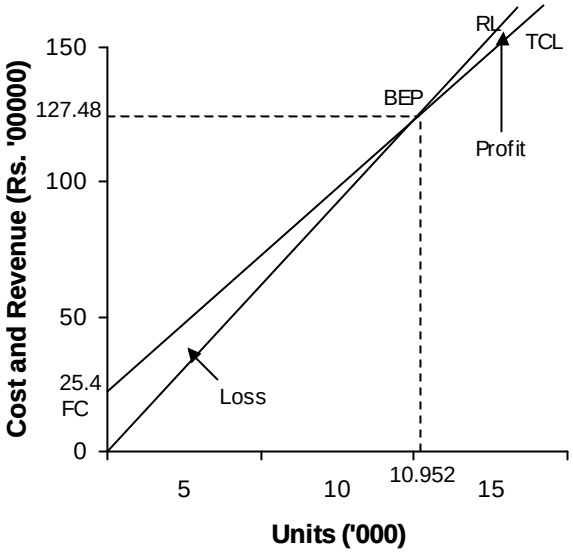


Figure 4.13: BEP Graph of Ruslan Vodka

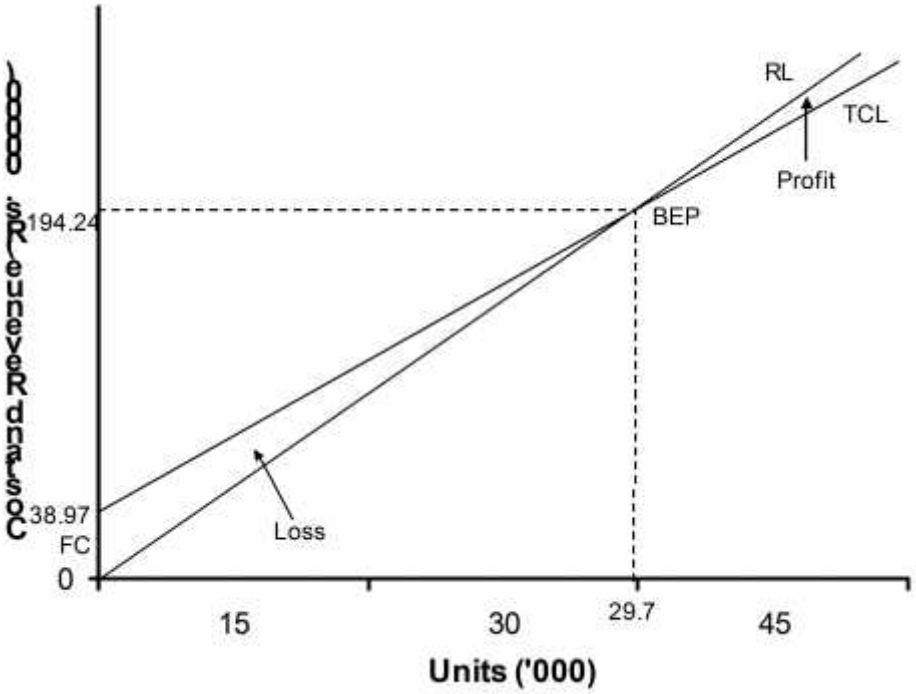


Figure 4.14: BEP Graph of Blue Diamond

4.4.1.3 Computation of BEP as Percentage of Capacity

In the case of entire form of the company, the computation of BEP as percentage of estimated sales may be more suitable rather than capacity. It is known that HDL is the manufacturer of multiple products. The BEP of HDL had calculated in Rupees for entire form. The following table shows the computation of BEP as percentage of estimated sales of the HDL.

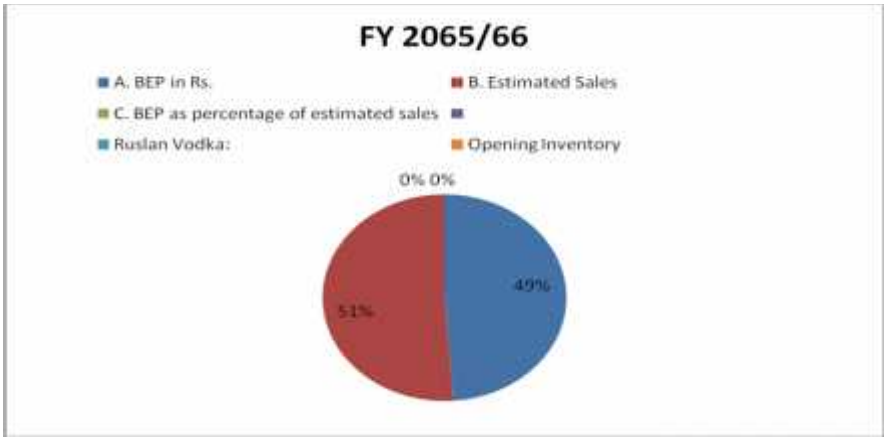
Table No. 4.13: Computation of BEP as Percentage of Estimated Sales of HDL

Particulars	FY 2065/66	2066/67	2067/68	2068/69
A. BEP in Rs.	184442037	618260324	461142662	421822174
B. Estimated Sales	193270106	646846800	543148000	469312000
C. BEP as percentage of estimated sales $\frac{A}{B} \mid 100$	95.43%	95.58%	84.90%	89.88%

Sources: Compiled by the researcher based on table no. 4.1 and 4.11.

From the above table, BEP in Rs. of FY 2065/66, 2066/67, 2067/68 and 2068/69 was 95.43%, 95.58%, 84.90% and 89.88% of corresponding estimated sales. If the company would be met the estimated sales, there would be profit.

Chart No. 4.15 Computation of BEP as Percentage of Estimated Sales of HDL



Similarly, computation of BEP as percentage of capacity had possible to compute regarding selected product lines. The production capacity of HDL is to produce 2500 cases daily where six category of products - Ruslan Vodka, Royal Stag, Ultimate, J. Dry Gin, Playboy, Blue Diamond are produced in the combine form regularly. The total production of six products might be not more than 2500 cases daily. Following the computation shows the annual production capacity.

Annual Production Capacity = Daily Production Capacity × Working days in Year
= 2500 cases × 280 days (assumed)
= 700000 cases.

Following the table shows the computation of BEP as percentage of capacity for selected product lines.

Table No. 4.14: Computation of BEP as Percentage of Capacity for Selected Product Lines

Particulars	FY 2065/66	2066/67	2067/68	2068/69
A. Annual Production Capacity (Cases)	700000	700000	700000	700000
Royal Stag: B. BEP in Units (Cases)	10226	15673	15150	20910
C. BEP/production capacity $\frac{B}{A} \mid 100$	1.46%	2.24%	2.16%	2.99%
Ruslan Vodka: D. BEP in Units (Cases)	-	-	5149	10952
E. BEP/production capacity $\frac{D}{A} \mid 100$	-	-	0.74%	1.56%
Blue Diamond: F. BEP in Units (Cases)	-	-	19618	29746

G. BEP/production capacity $\frac{F}{A} \mid 100$	-	-	2.80%	4.25%
H. Total BEP in cases (B+D+F)	-	-	39917	61608
I. Total BEP/Production capacity $\frac{H}{A} \mid 100$	-	-	5.70%	8.80%

Sources: Compiled by the researcher based on table no. 4.12 and memorandum of the company.

From Table No. 4.14, BEP in cases of Royal Stag was recovered only 1.46% and 2.24% of total production capacity at the fiscal year 2056/66 and 2066/67 respectively. The percentage was decreased at FY 2067/68 rather than FY 2068/69. But, BEP as percentage of capacity was increased at FY 2068/69 by nearly 3%.

The Ruslan Vodka's BEP as percentage of capacity was 0.74% and 1.56% of FY 2067/68 and FY 2068/69 respectively. It's percentage was also increased at FY 2068/69.

Similarly, BEP as percentage of capacity of Blue Diamond was 2.80% and 4.25% for FY 2067/68 and 2068/69 respectively. It's percentage was also increased at FY 2068/69. The percentage was more than remaining products - Ruslan Vodka and Royal Stag at FY 2068-69.

The total BEP in cases of selected product lines were 39917 cases and 61608 cases of FY 2067/68 and FY 2068/69 respectively. Selected three product lines were utilized the total production capacity by 5.70 and 8.80% at FY 2067-68 and 2068/69 respectively.

4.4.1.4 Computation of Cash BEP of HDL

The cash BEP in Rupees was computed at entire form of the company. The following tables shows the computation of cash BEP in Rs. of HDL for FY 2065/66 to FY 2068/69.

Table No. 4.15: Computation of Cash BEP of HDL

Particulars	FY 2065/66	2066/67	2067/68	2068/69
A. Total Fixed Cost (Rs.)	25883038	73435942	79034297	83258110
B. Depreciation (Rs.)	5144651	21190039	21626888	22072743
C. Net F.C. in Rs. (A-B)	20738387	52245903	57407409	61185367
D. Total Actual Sales (Rs.)	51274070	94865090	203585108	314578626
E. Debtors (Rs.)	-	3737110	949413	1360867
F. Cash Sales Rs. (D-E)	51274070	91127980	202635695	313217759
G. Variable Cost in Rs.	35375849	64339630	125352387	186464785
H. Contribution Margin (F-G)	15898221	26788350	77283308	126752974
I. CM ration (H÷F)	0.3101	0.2940	0.3814	0.4047
J. Cash BEP in Rs. (C÷I)	66876450	177707153	150517591	151186971
K. F-J	(15602380)	(86579173)	52118104	162030788

Sources: Compiled by the researcher based on table no. 4.1, 4.4, 4.6 and annual reports of the company.

The cash sales of initial two fiscal years were not reached at Cash BEP. But cash sales were crossed the cash BEP at later two fiscal years. The excess amount were Rs. 52118104 and Rs. 162030788 at FY 2067/68 and FY 2068/69. So, out of depreciation and debtors, the company had at profitability condition at FY 2067/68 and FY 2068/69.

4.4.2 Analysis of Contribution Margin

The analysis of contribution margin is divided in to two parts, which are

1. Analysis of contribution margin in entire form of HDL, and
2. Analysis of contribution margin for selected production lines.

4.4.2.1 Analysis of Contribution Margin in Entire Form of HDL

The contribution margin was increasing trend from FY 2065/66 to FY 2068/69 according to previous table no 4.11. The contribution margin ratio was also increasing trend except FY 2066/67. Increasing the CM ration was indicated that recovery of higher portion of fixed cost. But these ratio was less than 20%. Since higher fixed costs at increasing trends; and lower CM ratio, the company's actual sales were not reached at BEP. For higher CM ratio, sales must be increased and variable cost must be decreased. Other way fixed cost should be constant or controlled, or sales and production should be done in mass.

4.4.2.2 Analysis of Contribution Margin for Selected Product Lines

According to table no. 4.12, the contribution margin of Royal Stag was at fluctuation condition. The CM ratio was increased except FY 2066/67. The CM ratios were less than 20%, but the CM ration of FY 2068/69 was nearly 20%. In spite of lower CM ratio, the actual sales of Royal Stage were crossed the BEP causes of lower fixed costs and comparatively maximum production and Sales.

Similarly, the contribution margin of Ruslan Vodka was increasing. The CM ration was also increasing and were nearly 20%. Since, lower fixed costs and market monopoly sales, the product had also crossed the BEP.

Another product, Blue Diamond —– the contribution margin was decreased, but CM ration was increased. The CM ration of FY 2068/69 was higher than 20%. Since lower fixed costs and mass production and selling, Blue Diamond had also crossed the BEP.

In this way, the CM ratio of selected product lines were nearly 20%. To increase the CM ratio sales should be high and variables Cost should be minimized as far as possible by using proper decision making.

4.4.3 Margin of Safety Analysis

Although the HDL was not reached at BEP and its CM ratio was also low. In addition to find out either high or low margin of safety of HDL, it was needed to compute margin of safety. It is known that high margin of safety is particularly significant in times of depression.

Following the table shows margin of safety in entire form of the company.

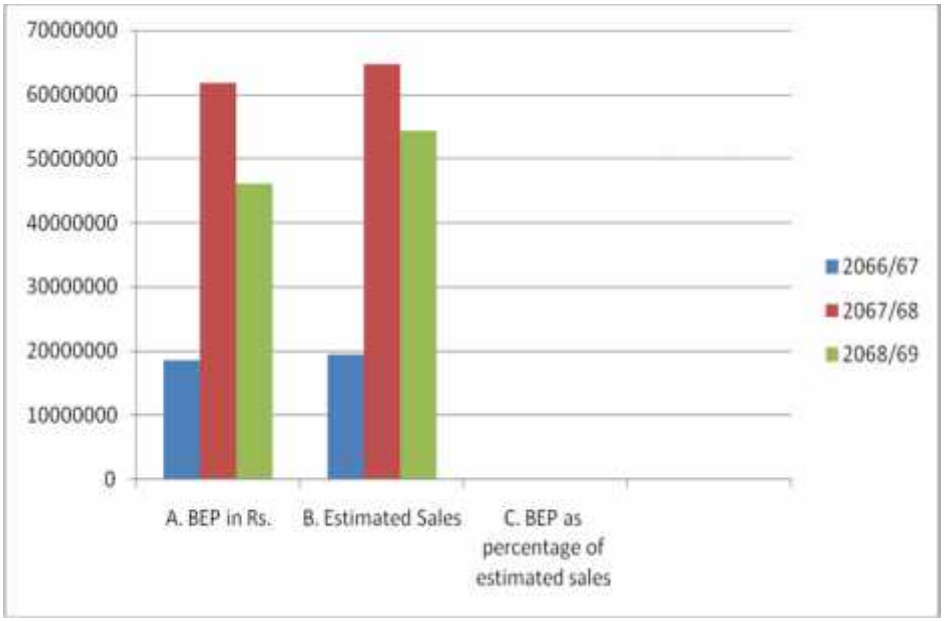
Table No. 4.16: Computation of MOS of HDL

Particulars	FY 2065/66	2066/67	2067/68	2068/69
A. Budgeted Sales (Rs.)	193270106	646846800	543148000	469312000
B. BEP in Rs.	184442037	618260324	461142662	421822174
C. Margin of Safety (A-B)	8828069	28586476	82005338	47489826
D. MOS ratio $\frac{C}{A} \mid 100$	4.57%	4.42%	15.10%	10.12%

Sources: Compiled by the researcher based on table no. 4.1 and 4.11.

According to table 4.16, MOS ratio was low. The low MOS ratio was the result of low CM ratio. Since, low actual sales comparatively than BEP, there were not arised condition of suffering loss regarding sales fall. Because actual sales were increasing annually.

Chart No. 4.16 : Computation of MOS of HDL



When actual sales be crossed BEP and there be arised low CM ratio and MOS ratio then the management should be think of the possibilities of increasing the price of sales or reducing variable cost by adopting improvement in the manufacturing process.

Similarly, according to previous Table No. 4.12 shows, the difference amount of actual sales and BEP were highly positive at selected product lines. It was indicated that there were high MOS ratio. As a result, it could be ensure that selected product lines Royal Stage, Ruslan Vodka and Blue Diamond, would be profitable at depression period where demand of the products be lower or falling condition.

4.4.4 Profit-Volume Analysis

Since total BEP in Rs. of HDL was higher than actual sales of all presented fiscal years. For the short term profit planning the management should adjust the price, volume and costs. The actual sales must be nearly BEP, then profit volume analysis may be proper meaning. By the way, target profit,

required sales, and adjustable costs can be forecasted by using P/V analysis for future operation planning.

P/V Analysis is also divided into parts which are:

1. P/V Analysis in entire form of the Co.
2. P/V Analysis for selected product lines.

4.4.4.1 P/V Analysis in Entire Form of the HDL

For profitability of the company, the following computations are done.

Computation of Profit at Estimated Sales of FY 2068/69

Estimated sales for FY 2068/69= Rs. 375560000

F.C. will be constant at FY 2068/69= Rs. 83258110

and CM ratio will be 20% or 0.20

Now, Profit = (Estimated Sales × CM ratio) - FC
= (Rs. 375560000 × 0.20) - 83258110
= Rs -8146110

If, estimated or forecasted sales be Rs. 424060000 CM ratio and fixed cost be same of FY 2068/69, the Profit for the FY 2069/70 be

Profit = (424060000 × 0.1974) - 83258110
= Rs. 451334

In this way following the table shows the profit and sales at different alternatives for the operating planning of FY 2069/70 or next year.

Table No. 4.17: Computation of Sales and Profit at Different Alternatives

Particulars	Alt -I	Alt-II	Alt-III	Alt-IV	Alt-V
A. Fixed Cost Rs.	71185367	79500000	80000000	85250000	90000000
B. CM ratio	0.20	0.30	0.40	0.25	0.50
C. Actual Sales (given) Rs.	314578626	425050000	400000000	450000000	350000000
D. Profit [(C×B)-A] Rs.	(8269642)	48015000	80000000	27250000	85000000
E. Profit (Desired) Rs.	15500000	60000000	75000000	50000000	100000000
F. Req. Sales $\frac{A \Gamma E}{B}$ Rs.	433426835	465000000	387500000	541000000	380000000
G. Profit (x % of Sales assumed)	10% of C	10% of C	3% of C	2.5% of C	5% of C
H. Profit Amount (C×G) Rs.	31457863	42505000	12000000	11250000	17500000
I. Required Sales $\frac{A \Gamma H}{B}$ Rs.	513216148	406683333	230000000	386000000	215000000

Sources: Compiled by the researcher.

In this way, adopting P/V analysis or alternative techniques shown on the table above, the management of the company can profit plan by defining costs, volume, unit selling price and cost improvement manufacturing process/technology.

4.4.4.2 P/V Analysis for Selected Product Lines

Although selected product lines viz. Royal Stag, Ruslan Vodka and Blue Diamond were at profitable condition. In addition, further profit planning should be done for addition profit achievement or cost control purpose.

Following the table shows computation of desired profit and required sales of selected products at different alternatives.

Table No. 4.18: Computation of Profit and Sales for Selected Product Lines at Different Alternatives

Particulars	Alt.-I	Alt-II	Alt-III	Alt-IV	Alt-V
Royal Stag:					
A. Specific Fixed Costs (Rs.)	5363240	8238578	7000000	8500000	9000000
B. Contribution margin/cases (assumed)	250	395	-	-	-
C. CM ratio (assumed)	-	-	0.20	0.30	0.50
D. Sales in Units (assumed)	20000	30000	-	-	-
E. Sales in Rs. (assumed)	-	-	32500000	35000000	30000000
F. Profit [(D×B)-A] or [(E×C)-A]	(363240)	3611422	(500000)	2000000	6000000
G. Desired Profit in Rs. (assumed)	5000000	25000000	10500000	30000000	35000000
H. Required Sales $\frac{A + G}{B}$ or $\frac{A + G}{C}$	41453 units	84148 units	Rs. 87500000	Rs. 128333333	88000000
Ruslan Vodka:					
I. Specific Fixed Costs (Rs.)	2000000	250000	150000	3000000	2750000
J. C.M per cases (assumed)	220	250	-	-	-
K. CM ratio (assumed)	-	-	0.18	0.25	0.50
L. Sales in Units (assumed)	10000	10000	-	-	-
M. Sales in Rs. (assumed)	-	-	9000000	9000000	750000
N. Profit [(L×J)-I] or [(M×K)-I]	Rs 200000	Nil	120000	(750000)	12250000
O. Desired Profit in Rs. (assumed)	5000000	6000000	12000000	10000000	20000000
P. Required Sales $\frac{I + O}{J}$ or $\frac{I + O}{K}$	31818 units	34000 units	Rs. 75000000	Rs. 52000000	Rs. 45500000

Contd.

Blue Diamond:					
Q. Specific Fixed Costs (Rs.)	2500000	3000000	2800000	2750000	350000
R. Contribution margin/cases (assumed)	150	200	-	-	-
S. CM ratio (assumed)	-	-	0.20	0.40	0.50
T. Sales in Units (assumed)	25000	25000	-	-	-
U. Sales in Rs. (assumed)	-	-	20000000	10000000	15000000
V. Profit [(T×R)-Q] or [(U×S)-Q]	1250000	2000000	1200000	1250000	4000000
W. Desired Profit in Rs. (assumed)	2000000	3000000	2500000	1500000	5000000
X. Required Sales $\frac{Q\Gamma W}{R}$ or $\frac{Q\Gamma W}{S}$	30000 units	30000 units	Rs 26500000	Rs. 10625000	17000000

Sources: Compiled by the researcher.

By adopting above P/V analysis alternatives, management of the company can easily profit plan and estimate target profit at estimated sales. In addition, unit selling price and unit variable cost can also set for target profit with adjustable fixed costs.

Apart from above computations, the company's is profit after tax recovered sales volume can also be calculated by the following computation.

If desired profit after tax = Rs. 3750000

Income - Tax rate = 25%

Fixed Cost = Rs. 8000000

CM ratio = 0.30

Then

$$\text{Req. Sales to acquire DPAT} = \frac{FF\Gamma\frac{DPAT}{1Z\text{Tax rate}}}{\text{CM ratio}}$$

$$= \frac{8000000\,\Gamma\frac{3750000}{1Z0.25}}{0.30}$$

= Rs. 43333333.

4.5 Findings

Findings regarding research are divided in to two parts, which were major findings, and other findings the major findings are concern with objectives of study, and other findings are derived in course of conducting this research and are as such:

4.5.1 Major Findings

Data presentation and analysis was conducted to fulfill the objectives of study, where following points were found as major findings:

1. The company had not practice of classification of costs in to fixed costs and variable cost (refer page no 67 in this research)
2. The total fixed costs of the company was increasing annually, (refer page no 68 table no. 4.4 in this research)
3. Advertisement, salary and allowance, communication expenses, insurance premium, depreciation and interest on long term loan were higher portion of total fixed cost and the amount of these items were highly incremental condition, (refer page no 68 table no. 4.4 in this research)
4. The variable costs were also at increasing trends, and vital items were material with direct expenses on purchase, royalty, sales promotion expenses, transportation and insurance expenses, salary and wages,

leakage and breakage, complementary expenses, traveling expenses, and water and electricity (refer page no 72 table no. 4.6 in this research)

5. The unit variable costs of Royal Stag was fluctuating but Ruslan Vodka's and Blue Diamonds units variable cost was decreased, (refer page no 74 table no. 4.7 in this research)
6. The semi-variable or semi-fixed costs were classified into fixed and variable cost on the basis of estimation or assumption, (refer page no 76 table no. 4.9 in this research)
7. The actual sales of the company had not reached at BEP as a whole, (refer page no 78 table no. 4.11 in this research)
8. The CM ratio in about 20% which is much low to cover up its Fixed Cost, (refer page no 78 table no. 4.11 in this research)
9. The actual sales of selected product lines - Royal Stag, Ruslan Vodka and Blue Diamond were more than BEP at all presented fiscal year, (refer page no 80 table no. 4.12 in this research)
10. The CM ratio of selected product lines were also less than and nearly 20%, (refer page no 80 table no. 4.12 in this research)
11. Selected product lines were utilizing their specific fixed costs, (refer page no 80 table no. 4.12 in this research)
12. Since lower fixed costs and mass production and sales of selected product lines cause profitability, (refer page no 80 table no. 4.12 in this research)
13. The overall BEP was nearly 85% to 96% of estimated or budgeted sales figure, (refer page no 84 table no. 4.13 in this research)
14. The total BEP of selected product lines were utilized nearly 6% to 9% of total capacity, (refer page no 85 table no. 4.14 in this research)
15. The cash sales of initial two fiscal year were not reached at Cash BEP but it was increased from FY 2067/68. The difference amount was more than Rs. 162 million at FY 2068/69, (refer page no 87 table no. 4.15 in this research)

16. The CM ratio regarding cash BEP was 31% to 40%, (refer page no 87 table no. 4.15 in this research)
17. The MOS ratio was more than 10% at last year and 15% at previous year, (refer page no 89 table no. 4.16 in this research)
18. For profit achievement, the company should be adjusted fixed costs, variable cost, sales and profit by P/V Analysis, (refer page no 91 table no. 4.17 in this research)
19. The P/V analysis alternatives might be helpful for profit planning and corresponding sales etc. (refer page no 91 table no. 4.17 in this research)

4.5.2 Other Findings

1. There were perfect negative correlation between actual sales and budgeted sales, (refer page no 65 table no. 4.2 in this research)
2. The actual sales of selected product lines were increasing rapidly, (refer page no 66 table no. 4.3 in this research)
3. Royal Stag had constant and flexible both types of inventory, Ruslan Vodka and Blue Diamond had zero inventory, (refer page no 77 table no. 4.10 in this research)

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

Business organization establishes profit objectives and builds budget plans so that the objective may be realized. In profit planning, management must know the selling price of the a unit of product, the variable cost to make and sell it, and the difference between the selling price and the unit variable cost. In short management must know what the contribution margin is for each unit of each product line that is handled. Several factors affected profits. They are selling price, the number of unit sold (quantity), the unit variable costs, the total fixed costs and the combination in which the various product lines are sold. All these factors must be considered in profit planning.

Cost-Volume-Profit Analysis, a most important tool of profit planning means of predicting the effect of changes in costs and sales level on the income of business. In its simplest form, it involves the determination of sales level at which a company neither earns a profit nor incurs a loss, or in other word the point at which it breaks even. Often Break-even analysis is known as C-V-P Analysis. But Break-even Analysis is a special case of CVP analysis. However, C-V-P analysis techniques is included to find out sales volume to earn a zero profit or desired profit, to affect income by changes in selling price, to check income if new machine will be installed, to examine operating profit if fixed cost as well as unit variable cost will be changes etc. Solving such alternatives C-V-P analysis is more appropriate than Break-even analysis.

In this way company may use C-V-P analysis as planning tool when sales volume, unit selling price and variable cost and fixed cost are known, then to find out profit, as target profit at certain sales volume. By using C-V-P analysis tools, the management of the company can control the costs also.

The C-V-P analysis tool was applied in the Himalayan Distillery Ltd to find out whether the tool was practicing or not. Himalayan Distillery Ltd, one of the leading alcoholic manufacturer which is the largest player in Nepalese liquor market and for decades has been synonymous with quality product, had not practicing C-V-P analysis tool to forecast desire profit. Cause of non practicing the C-V-P analysis tools, costs were not segregated as fixed cost and variable cost where there were not proper mechanism to segregate semi-variable or semi-fixed costs in to fixed and variable costs. To solve the problems regarding C-V-P analysis and not application, some objectives was formulated: cost segregation as fixed and variable, unit variable by adopting suitable mechanism and computation of C-V-P analysis by its extension tools. To fulfill the objectives of the study, historical as well as managerial research design was adopted. Primary as well as secondary sources of data were used.

Hence, descriptive and quantitative techniques were used to analyse and interpretation the data. After it, some findings: major and others were also achieved.

5.2 Conclusion

Since, not adopting C-V-P analysis tool for profit planning, before and after operation of venture, the company had incurring loss up to FY 2068/69. The actual sales of the FY 2065/58 to FY 2068/69 were not reached at BEP. The huge amount had invested in to fixed costs. The contribution margin was very low cause of higher unit variable cost. Depreciation and interest on long term loan was increasing rapidly. Other controllable cost were also increasing. Since lower actual sales than BEP or estimated sales, the MOS ratio was satisfactory.

The actual loss of other products and departments were recovered by selected product lines' profit. Since, limited Nepalese liquor market and selling

and distribution activities, production and sales were comparatively low than production capacity.

Hence, avoiding C-V-P analysis tool and not utilizing full capacity, the company was bearing loss. Promoter and director, and staff of the company were enjoying by achieving allowance and salary respectively. Other part, general share holders were not achieving dividend and government could not claim for income tax since loss and loss recovery situation.

5.3 Recommendation

To solve the problems regarding C-V-P analysis the following points are recommended:

1. To achieve accurate result, the management should segregate costs in to fixed cost and variable cost, unit variable cost truly,
2. The company should adopt cost behaviour mechanism to segregate costs into fixed and variable cost,
3. The management of the company should adopt C-V-P analysis tool to achieve at least zero profit or loss,
4. To reach at BEP, the company should increase sales revenue,
5. The company should increase CM ratio to cover higher portion of fixed cost. It be possible either increasing unit selling price or decreasing unit variable cost,
6. The company should control fixed costs by following techniques:
    a. The management should control unnecessary staff. Only skilled, and qualified manpower should be involved,
    b. The company should install suitable automatic plant which consume low manpower, fuel, electricity and heat, and it should be maximum utilized,
    c. For short term profit planning, the company should not adopt high capacity machinery,

d. The company should adopt modern filing system,
e. The company should control fixed assets which increases long term loan or hire purchase loan that directly increases interest expenses,
f. The company should control printing, stationery, postage and telecommunication expenses,
g. The office equipment should operate when necessary. Useless operation increases fuel and electricity expenses and repair and maintenance also,
h. Useless space of building can provide on hire to others,
i. The company should use job evaluation and merit rating,
j. The directors of the company should act with out or with low allowances for certain fiscal years,
k. The company should operate training activities (scheme) for improvement in efficiency,
l. Time to time work study is also needed,

7. The company should also minimize variable cost by adopting following techniques:
    a. The company should select economic suppliers and transportation to minimize materials cost,
    b. The company should install new technology machinery and equipment for economic production process which consumes low fuel, electricity, produce low wastage, and provide expected output,
    c. The company should manage sound store management,
    d. The company should practice standard costing,
    e. The company should conduct production planning and control,
    f. Value analysis and design improvement should be done,
    g. Coding and classification and quality control should be also applied,
    h. The company should be control leakage and breakage,

i. The company should adopt PERT to minimize transportation cost,

8. Suitable sales promotion activities should be done to prevent damaging sales,
9. The company should practice profit-volume analysis at different alternatives to acquire desire profit or forcasted required sales for it,
10. The company should consult outsider expert regarding C-V-P analysis if the accounting/financing department have no time to practice profit planning tools,
11. Others:

    For over all profitability of the company, the company should analyse other profit planning tool i.e. decision making where department wise, product wise, make or buy, drop or continue, decision are provided. The company HDL is also multiple products producer and it produces some materials like ENA, denature spirit and GNA for self-consumption. There may be high cost rather than outsider suppliers. So, Decision making tools also can adopt for profit planning purpose.

Above recommendations are concerned with short term profit planning (C-V-P Analysis) which might be helpful to plan the profit and future operation for HDL. Hence, the recommendation would be helpful to improve C-V-P relationship of HDL.

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APPENDIX-I

Let actual sales and Budgeted sales be denoted by X and Y respectively.

Computation of Mean and S.D.

Fiscal Year	X (‘000000)	Y ('000000)	U=X-A	V=Y-B	U^2	V^2	UV
2058/59	94.87	646.85	-108.72	103.70	11820.04	10753.69	-11274.26
2059/60	203.59	543.15	0.00	0.00	0.00	0.00	0.00
2060/61	214.58	469.31	110.99	-73.84	12318.78	5452.35	-8195.50
N=3	ϕX=613.03	ϕY=1659.31	ϕU=2.27	ϕV=29.86	ϕU^2=24138.82	ϕV^2=16206.04	ϕUV=-1946976

Computation of Mean:

For Actual Sales

$$\text{Mean } (\bar{X}) = \frac{X}{N} = \frac{613.03}{3} = 204.34$$

For Budgeted Sales:

$$\text{Mean } (\bar{Y}) = \frac{Y}{N} = \frac{1659.31}{3} = 553.10$$

Let, A = Assumed Mean for X = 203.59

B = Assumed Mean for Y = 543.15

Computation of Standard Deviation ($\exists$)

For Actual Sales

$$\exists_x = \sqrt{\frac{U^2}{N} - \left(\frac{U}{N}\right)^2} = \sqrt{\frac{24138.82}{3} - \left(\frac{2.27}{3}\right)^2} = 89.70$$

For Budgeted Sales

$$\exists_y = \sqrt{\frac{V^2}{N} - \left(\frac{V}{N}\right)^2} = \sqrt{\frac{16206.04}{3} - \left(\frac{29.86}{3}\right)^2} = 72.82$$

Computation of C.V.

For Actual Sales

$$C.V._x = \frac{\exists_x}{\bar{X}} \times 100 = \frac{89.70}{204.34} \times 100 = 43.90\%$$

For Budgeted Sales:

$$C.V._Y = \frac{\exists_y}{\bar{Y}} \times 100 = \frac{72.82}{553.10} \times 100 = 13.17\%$$

Computation of Correlation Co-efficient (r)

$$r = \frac{N.\ UV - U.\ V}{\sqrt{N.\ U^2 - (U)^2}\ \sqrt{N.\ V^2 - (V)^2}}$$

$$= \frac{3 \times (-19469.76) - 2.27 \times 29.86}{\sqrt{3 \times 24138.82 - (2.27)^2}\ \sqrt{3 \times 16206.04 - (29.86)^2}}$$

$$= \frac{-58477.06}{269.09 \times 218.46} = \frac{-58477.06}{5878.40} = -0.99 \approx -1$$

$$\text{Probable Error of r (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{N}}$$

$$= 0.6745 \times \frac{1 - (0.99)^2}{\sqrt{3}}$$

$$= 0.6745 \times \frac{0.0199}{1.7321}$$

$$= 0.0077$$

APPENDIX-II

Graphical Presentation of BEP in entire form and HDL (FY 2065/66 to 2066/67) by cost and revenue approach

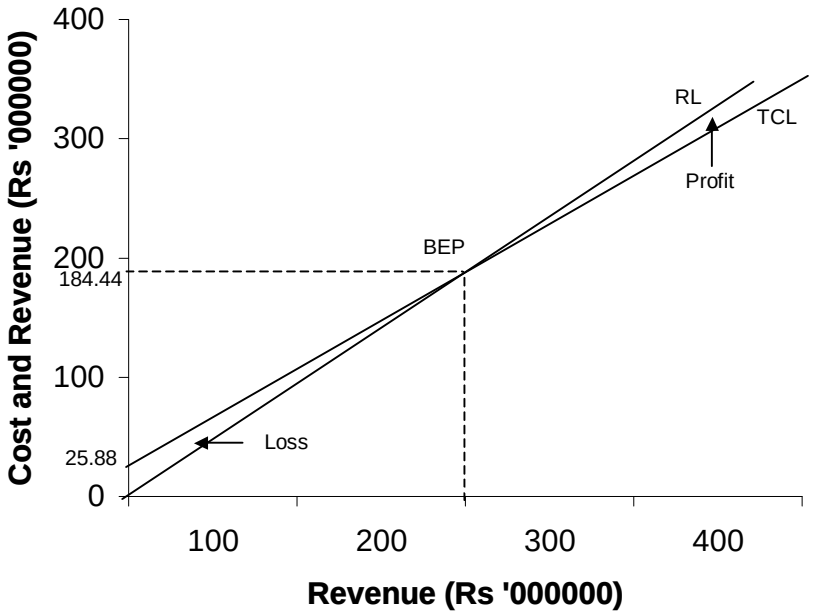

Fig. 4.1: BEP in Graph for FY 2066-67

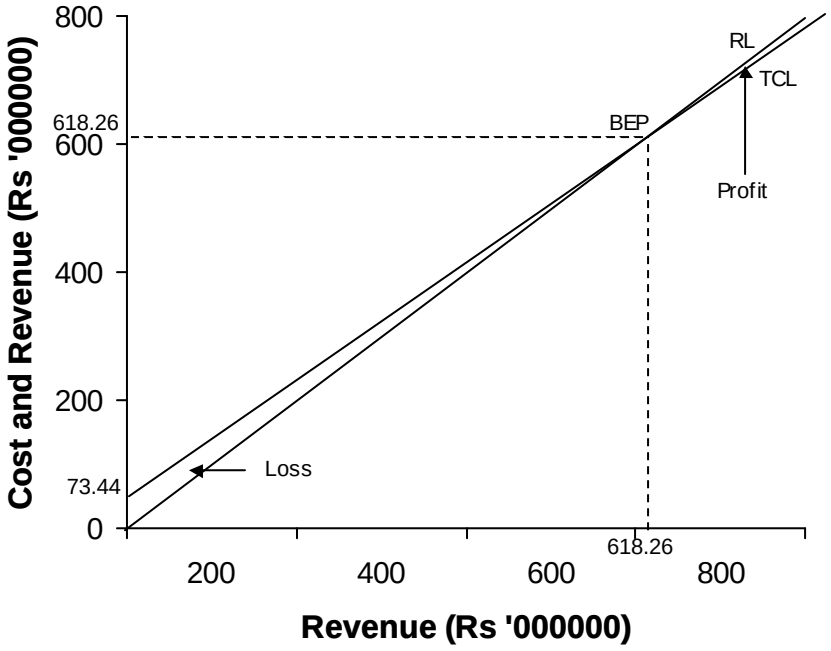

Figure 4.2: BEP Graph for FY 2058/59

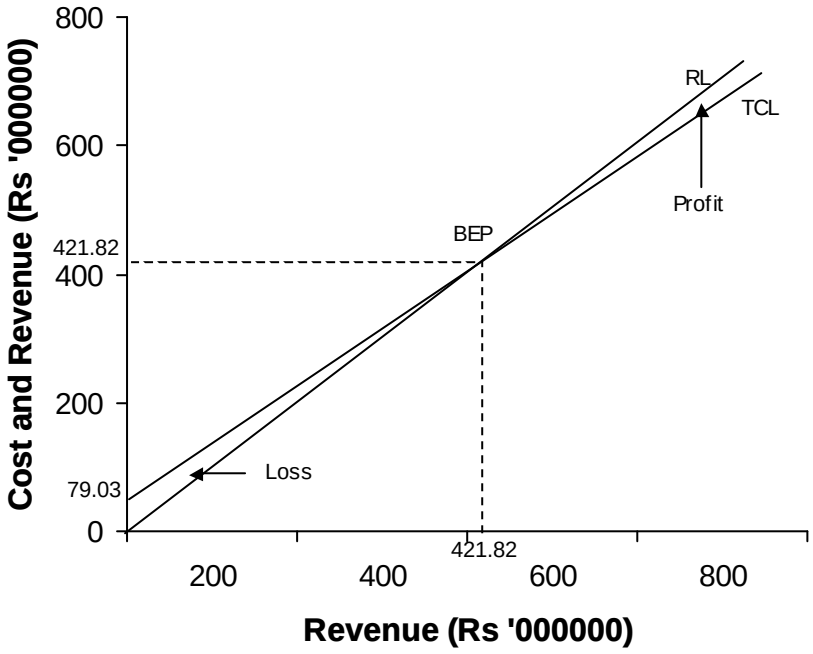

Figure 4.3: BEP Graph for FY 2067/68

APPENDIX-III

Graphical Presentation of BEP selected products of HDL

For Royal Stag

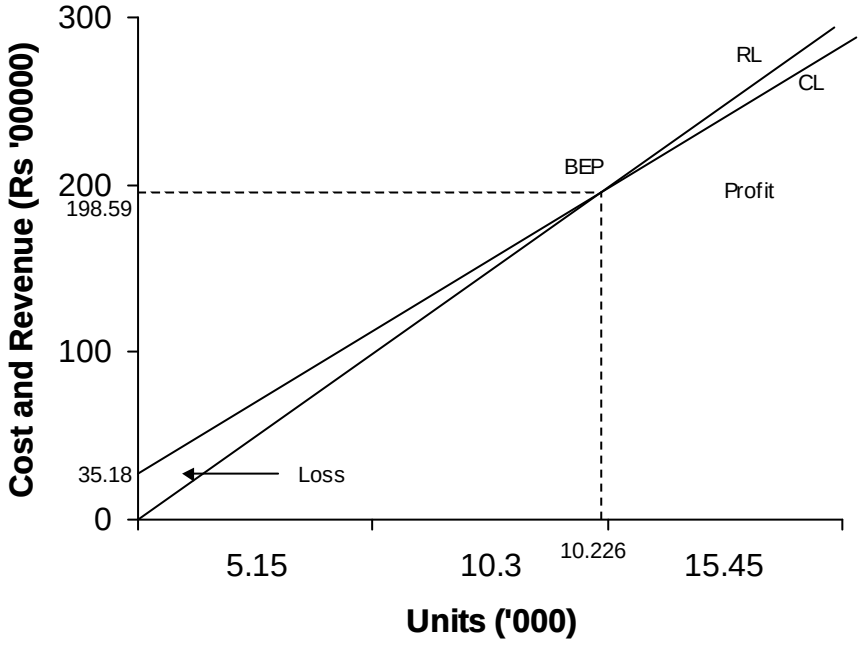

Figure 5.1: BEP in Graph of FY 2065-66

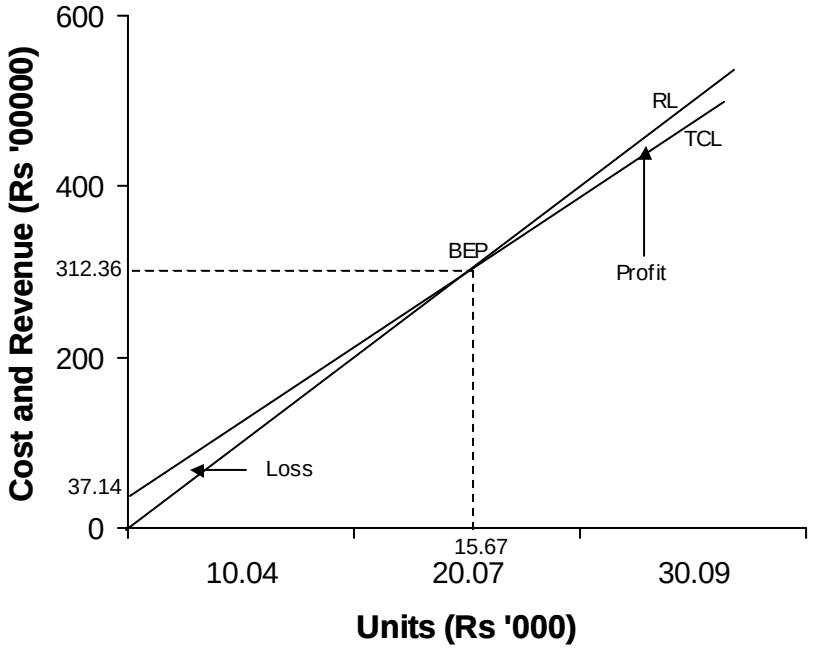

Figure 5.2: BEP in Graph of FY 2067-68

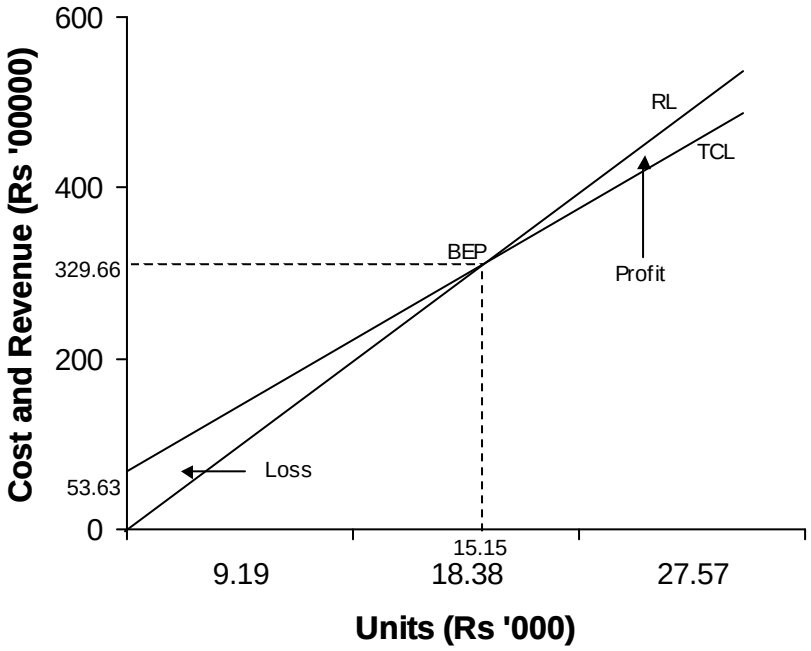

Figure 5.3: BEP in Graph of FY 2068-69

For Ruslan Vodka

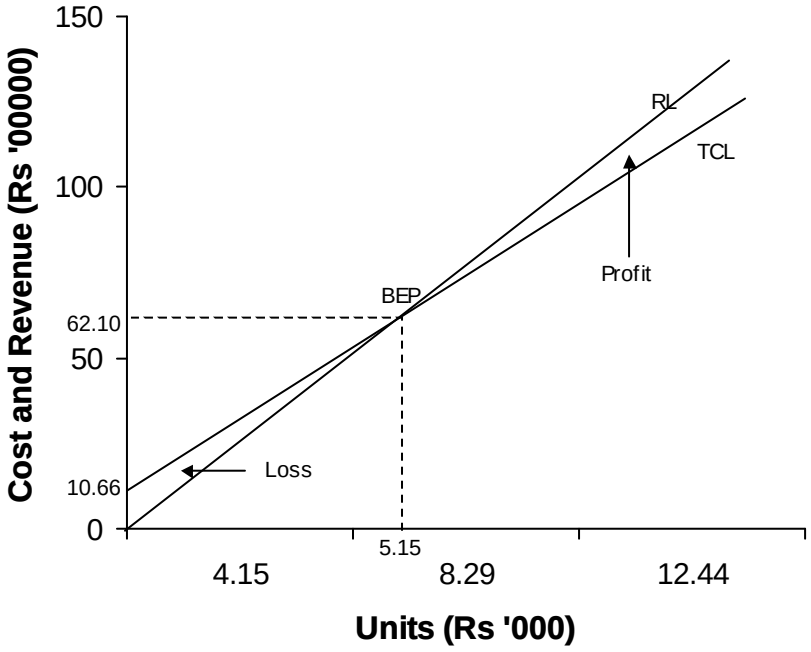

Figure 5.4: BEP in Graph of FY 2068-69

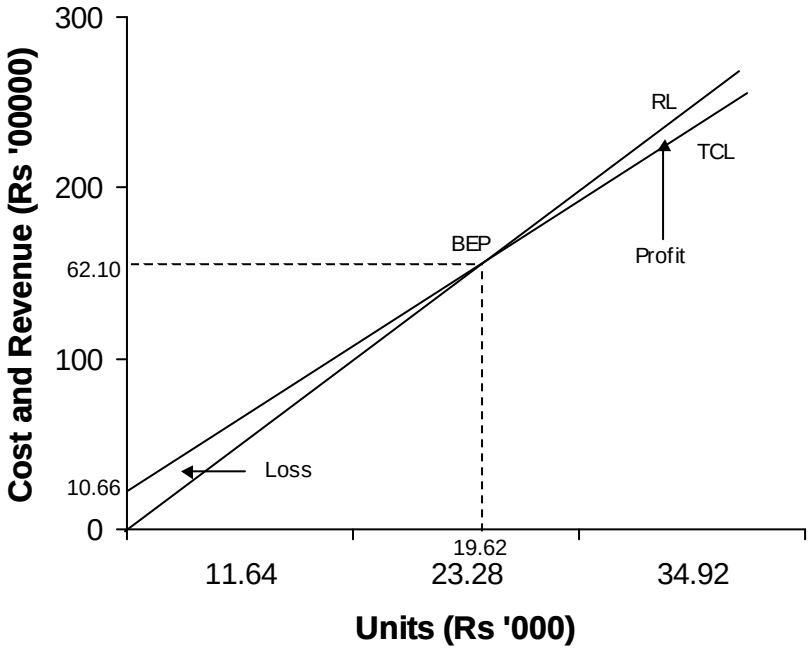

Figure 5.5: BEP in Graph of FY 2067-68

APPENDIX-IV

Questionnaires

1. When and where had Himalayan Distillery Ltd established?

   …… B.S., …… zone, …… Dist., ……. VDC Municipality

2. Where does the registered and contact office have located?

   a. …… zone, b. …… Dist., c. ……. VDC Municipality

3. What were the main objectives to establish this company?

   a. ……

   b. ……

   c. ……

   d. ……

4. What are the transaction of the company to achieve objectives?

   a. ……

   b. ……

   c. ……

   d. ……

5. What are the products of the company?

   a. …… b. …… c. ……

   d. …… e. …… f. ……

   g. …… h. ……

6. What kinds of raw materials are being used by HDL?

   a. …… b. …… c. ……

   d. …… e. …… f. ……

   g. …… h. ……

7. Who are the supplier of Raw materials?

   (a) Indigenous (b) Foreign

8. How the finished products are produced (i.e. production process)?

   ……

   ……

9. What type of Plant and Machinery have been installed?

   (a) Automatic (b) Semi-automatic

10. How many employee are engaged in this company?

    ……

    ……

11. What are the major market of the company's products?

    (a) All kinds of Hotels (b) Restaurant and Bar

    (c) Department Stores (d) Retail Outlets

12. What are the channel of distribution have adopted?

    ……

    ……

13. What are the organizational structure of the company?

    ……

    ……

14. What are the process of managerial decision making?

    (a) top to bottom (b) bottom to top (c) participating all staffs

15. Is the company practicing CVP Analysis tools to forecast or evaluate cost, volume and profit?

    (a) Yes (b) No (c) Occasionally

16. How the management of the company do segregate cost?

    (a) By nature (b) by behaviour (c) by operation

17. What criteria does the management adopt to classify semi-variable or sem-fixed costs?

    a. Level of output compared to level of expenses

    b. Range Method

    c. Degree of Variability method

    d. Least square method

    e. Others (like assumptions) ……

18. How the specific fixed costs and variable costs are segregated for specific product lines and what are their amounts?

……

……

19. What are the major difficulties faced when prepared C-V-P analysis?

a. ……

b. ……

c. ……

d. ……

20. Out of BEP, does the company practice P/V Analysis by different alternatives?

(a) Yes (b) No

21. What are the major difficulties regarding sales expansion?

a. …… b. …… c. ……

22. What are the largest top three product of the company?

(a) Royal Stag (b) Ruslan Vodka (c) Blue diamong

(d) Ultimate (e) J. Dry Gin (f) Play Boy (g) Old Carrier

23. Is the company going to drop or new launch any products?

(a) Yes (b) No

a. …… b. …… c. ……

24. Since, Nepal got the membership of WTO, how do you assess export potentials?

……

……

……

……

25. Is the government supporting any to liquor industries?

……

……

……

……

26. What are the problems faced by the liquor Industry?

……

……

……

……

27. Does the liquor business be satisfactory in Nepalese Context?

……

……

……

……

APPENDIX-I

Let actual sales and Budgeted sales be denoted by X and Y respectively.

Computation of Mean and S.D.

Fiscal Year	X (‘000000)	Y ('000000)	U=X-A	V=Y-B	U^2	V^2	UV
2058/59	94.87	646.85	-108.72	103.70	11820.04	10753.69	-11274.26
2059/60	203.59	543.15	0.00	0.00	0.00	0.00	0.00
2060/61	214.58	469.31	110.99	-73.84	12318.78	5452.35	-8195.50
N=3	ϕX=613.03	ϕY=1659.31	ϕU=2.27	ϕV=29.86	ϕU^2=24138.82	ϕV^2=16206.04	ϕUV=-1946976

Computation of Mean:

For Actual Sales

$$\text{Mean } \overline{X} = \frac{X}{N} = \frac{613.03}{3} = 204.34$$

For Budgeted Sales:

$$\text{Mean } \overline{Y} = \frac{Y}{N} = \frac{1659.31}{3} = 553.10$$

Let, A = Assumed Mean for X = 203.59

B = Assumed Mean for Y = 543.15

Computation of Standard Deviation ($\exists$)

For Actual Sales

$$\exists_x = \sqrt{\frac{U^2}{N} - \left(\frac{U}{N}\right)^2} = \sqrt{\frac{24138.82}{3} - \left(\frac{2.27}{3}\right)^2} = 89.70$$

For Budgeted Sales

$$\exists_y = \sqrt{\frac{V^2}{N} - \left(\frac{V}{N}\right)^2} = \sqrt{\frac{16206.04}{3} - \left(\frac{29.86}{3}\right)^2} = 72.82$$

Computation of C.V.

For Actual Sales

$$C.V._x = \frac{\exists_x}{\bar{X}} \times 100 = \frac{89.70}{204.34} \times 100 = 43.90\%$$

For Budgeted Sales:

$$C.V._Y = \frac{\exists_y}{\bar{Y}} \times 100 = \frac{72.82}{553.10} \times 100 = 13.17\%$$

Computation of Correlation Co-efficient (r)

$$r = \frac{N.\ UV - U.\ V}{\sqrt{N.\ U^2 - (U)^2}\ \sqrt{N.\ V^2 - (V)^2}}$$

$$= \frac{3 \times (-19469.76) - 2.27 \times 29.86}{\sqrt{3 \times 24138.82 - (2.27)^2}\ \sqrt{3 \times 16206.04 - (29.86)^2}}$$

$$= \frac{-58477.06}{269.09 \times 218.46} = \frac{-58477.06}{5878.40} = -0.99 \approx -1$$

$$\text{Probable Error of r (P.E.)} = 0.6745 \times \frac{1 - r^2}{\sqrt{N}}$$

$$= 0.6745 \times \frac{1 - (0.99)^2}{\sqrt{3}}$$

$$= 0.6745 \times \frac{0.0199}{1.7321}$$

$$= 0.0077$$

APPENDIX-II

Graphical Presentation of BEP in entire form and HDL (FY 2065/66 to 2066/67) by cost and revenue approach

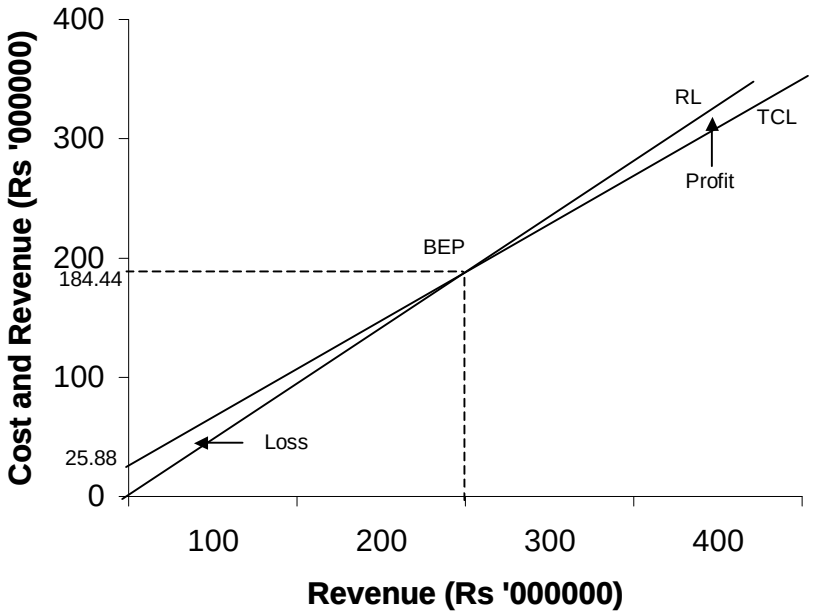

Fig. 4.1: BEP in Graph for FY 2066-67

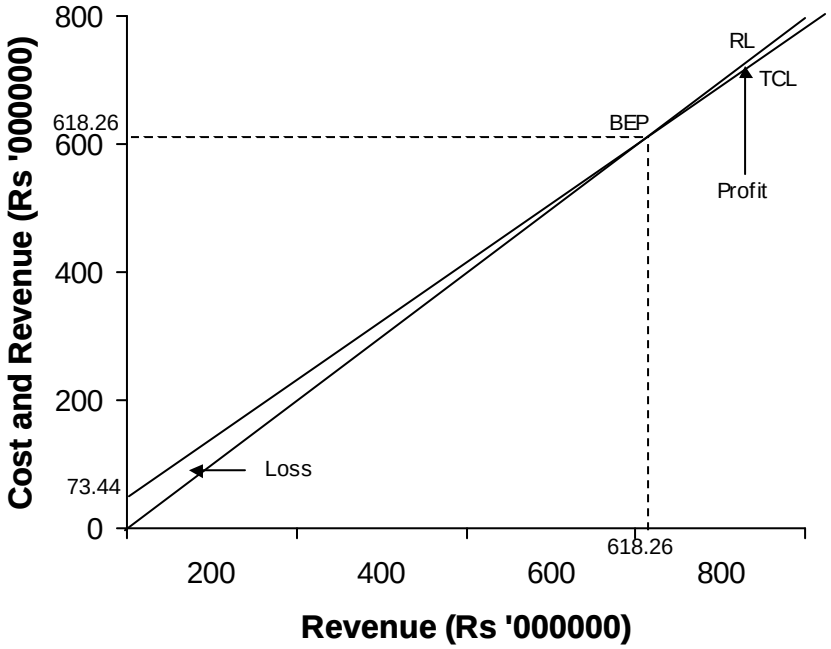

Figure 4.2: BEP Graph for FY 2058/59

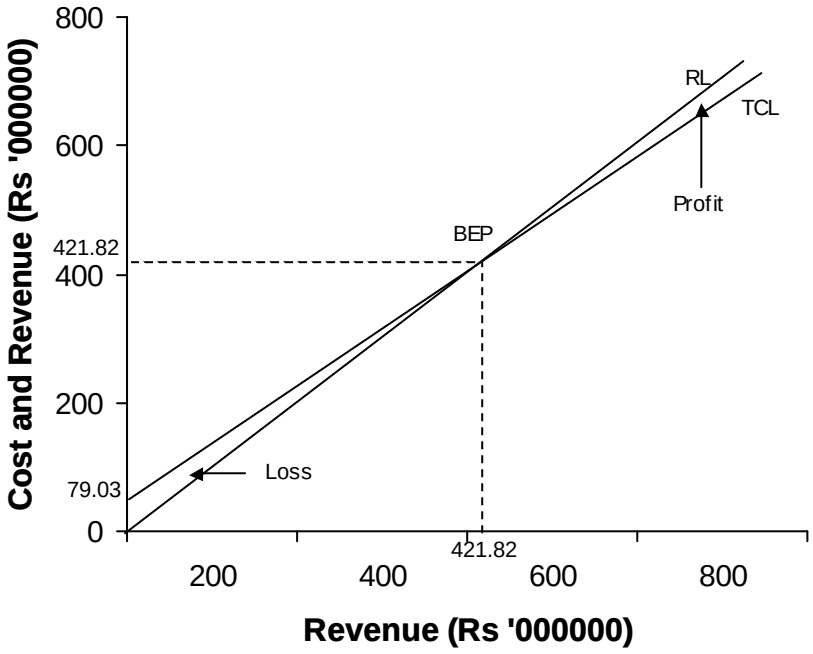

Figure 4.3: BEP Graph for FY 2067/68

APPENDIX-III

Graphical Presentation of BEP selected products of HDL

For Royal Stag

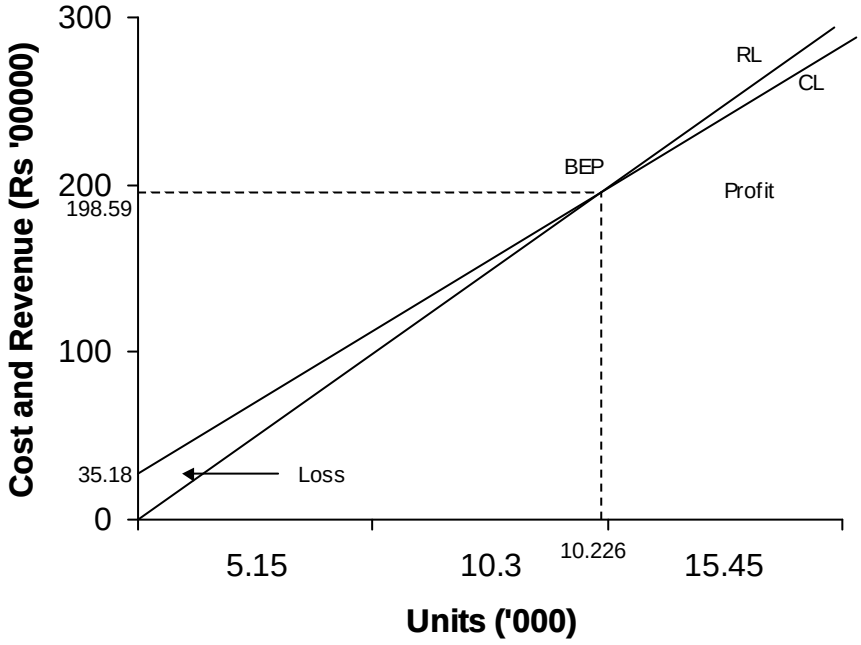

Figure 5.1: BEP in Graph of FY 2065-66

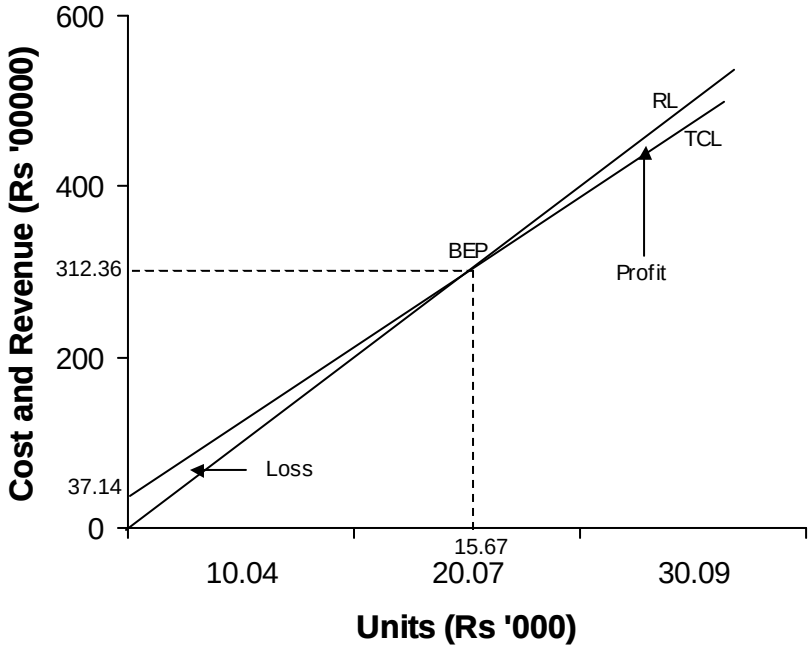

Figure 5.2: BEP in Graph of FY 2067-68

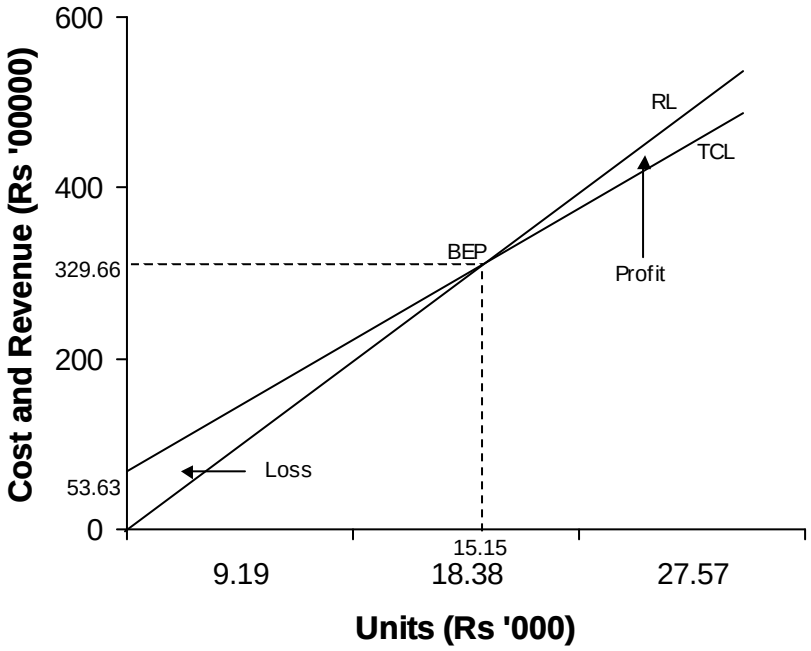

Figure 5.3: BEP in Graph of FY 2068-69

For Ruslan Vodka

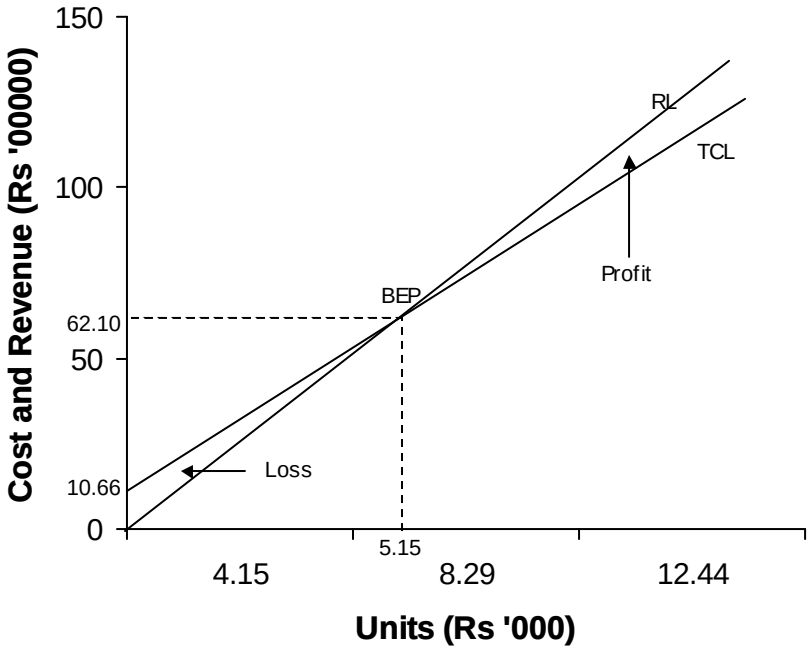

Figure 5.4: BEP in Graph of FY 2059-60

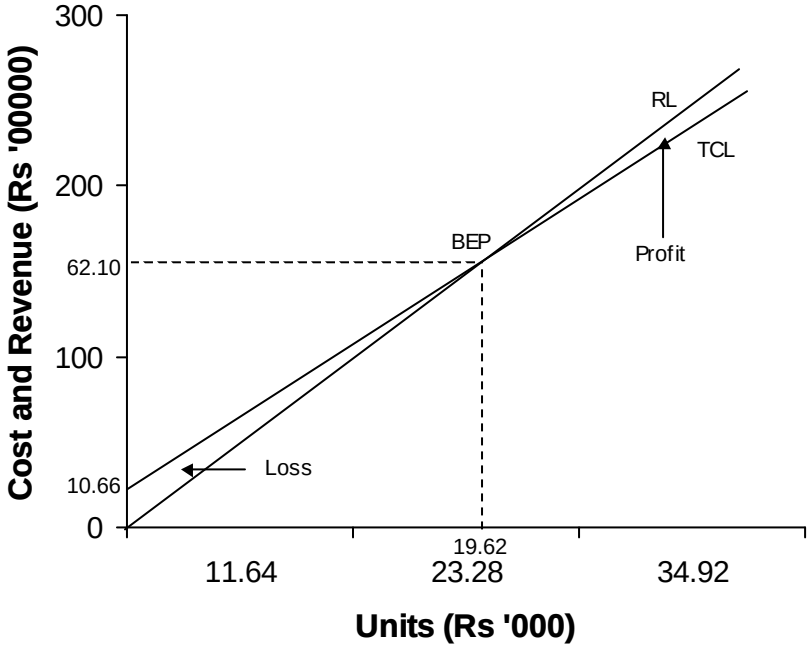

Figure 5.5: BEP in Graph of FY 2067-68

APPENDIX-IV

Questionnaires

28. When and where had Himalayan Distillery Ltd established?

    …… B.S., …… zone, …… Dist., ……. VDC Municipality

29. Where does the registered and contact office have located?

    a. …… zone, b. …… Dist., c. ……. VDC Municipality

30. What were the main objectives to establish this company?

    a. ……

    b. ……

    c. ……

    d. ……

31. What are the transaction of the company to achieve objectives?

    a. ……

    b. ……

    c. ……

    d. ……

32. What are the products of the company?

    a. …… b. …… c. ……

    d. …… e. …… f. ……

    g. …… h. ……

33. What kinds of raw materials are being used by HDL?

    a. …… b. …… c. ……

    d. …… e. …… f. ……

    g. …… h. ……

34. Who are the supplier of Raw materials?

    (a) Indigenous (b) Foreign

35. How the finished products are produced (i.e. production process)?

    ……

    ……

36. What type of Plant and Machinery have been installed?

(a) Automatic (b) Semi-automatic

37. How many employee are engaged in this company?

……

……

38. What are the major market of the company's products?

(a) All kinds of Hotels (b) Restaurant and Bar

(c) Department Stores (d) Retail Outlets

39. What are the channel of distribution have adopted?

……

……

40. What are the organizational structure of the company?

……

……

41. What are the process of managerial decision making?

(a) top to bottom (b) bottom to top (c) participating all staffs

42. Is the company practicing CVP Analysis tools to forecast or evaluate cost, volume and profit?

(a) Yes (b) No (c) Occasionally

43. How the management of the company do segregate cost?

(a) By nature (b) by behaviour (c) by operation

44. What criteria does the management adopt to classify semi-variable or sem-fixed costs?

a. Level of output compared to level of expenses

b. Range Method

c. Degree of Variability method

d. Least square method

e. Others (like assumptions) ……

45. How the specific fixed costs and variable costs are segregated for specific product lines and what are their amounts?

……

……

46. What are the major difficulties faced when prepared C-V-P analysis?

a. ……

b. ……

c. ……

d. ……

47. Out of BEP, does the company practice P/V Analysis by different alternatives?

(a) Yes (b) No

48. What are the major difficulties regarding sales expansion?

a. …… b. …… c. ……

49. What are the largest top three product of the company?

(a) Royal Stag (b) Ruslan Vodka (c) Blue diamong

(d) Ultimate (e) J. Dry Gin (f) Play Boy (g) Old Carrier

50. Is the company going to drop or new launch any products?

(a) Yes (b) No

a. …… b. …… c. ……

51. Since, Nepal got the membership of WTO, how do you assess export potentials?

……

……

……

……

52. Is the government supporting any to liquor industries?

……

……

……

……

53. What are the problems faced by the liquor Industry?

……

……

……

……

54. Does the liquor business be satisfactory in Nepalese Context?

……

……

……

……

APPENDIX-V

Sample Images of Selected Product Lines of HDL