

Practices of Capital Budgeting for Industrial Development in Nepal: A Study of Beverages Industries

Dipendra Kumar Chaudhary¹ and Shiva Raj Ghimire²

¹Birgunj College, Tribhuvan University

²Saraswati Multiple Campus, Tribhuvan University

Abstract

Nepal is a birth place of Lord Buddha and small landlocked country of Asia. Being a landlocked country, the sea access is about 1150 kilometer from the boarder and wedged between two economic power of Asia; China in the North side separated by the Himalayans with 1236 kilometer and India in the South, East & West side with open boarder of 1690 kilometer. Capital budgeting is a process of planning of capital expenditure which is to be made to maximize the long term profitability of the organization. Expenditure made with a view to reap extra benefits over a long period is regarded as capital expenditure. It incurred for acquisition, expansion and modification of fixed assets; research & development expenditure for product development and cost reduction; expenditure incurred in compliance to statutory regulation as to labour, social welfare & environmental issues are major forms of capital expenditure. On the way of completion of the study and achieving the mentioned objectives, we have selected two beverages companies as a sample of the study “Practices of Capital Budgeting for Industrial Development in Nepal; A Study of Beverages Industries”. One of the sample companies is Sunrise Nepal Food & Beverages Pvt. Ltd., (A Franchisee of Parle Agro Pvt. Ltd., India) and another sample company is Birgunj Pure Drinking Water Udyog. This study focused on Initial Investment, Pay Back Period (PBP), Accounting Rate of Return (ARR), Cost of Capital, Net Present Value (NPV), Internal Rate of Return (IRR), Profitability Index (PI) and Chi-square test of the data provided by the management of the sample companies.

Keywords: capital budgeting, NCO, PBP, NPV, ARR, IRR, FDI, industrial development.

Introduction

a. Nepal

Nepal is a birth place of Lord Buddha and small landlocked country of Asia. Being a landlocked country, the sea access is about 1150 kilometer from the boarder and wedged between two economic power of Asia; China in the North side separated by the Himalayans with 1236 kilometer and India in the South, East & West side with open boarder of 1690 kilometer. The land area of Nepal is about 4.3 percentages of India’s area whereas 1.5 percentage of Chinese land area. The total population of China is 1.43 billion (1,435,296,145) and India’s 1.37 billion (1,369,925,993), which is 95.3% of Chinese population whereas the population of Nepal is 28,608,710, 2% of Chinese population. (www.worldpopulationreview.com).

b. Industrial Development in Nepal

The industrial revolution period was from 18th century to 19th century, where major changes in agriculture, manufacturing, mining, transportation and technology had a profound effect on the socioeconomic and cultural conditions of the times. It began in the United Kingdom then subsequently spread throughout Europe, North America and eventually the world. (Agrawal, Ram Govind, Dr., Entrepreneurship Development in Nepal).

Biratnagar, a temporary capital city of province number one occupies a special place in Nepal's industrial history. This was the city from where the country's industrialization formally began in 1937 AD with the establishment of the Biratnagar Jute Mill under the ownership of His Majesty's Government of Nepal. The establishment of the jute mill immensely benefited the country with the demand for jute products surging in the international market after the World War-II. This helped in creating huge employment opportunities and not only jute, but other goods including rice, textiles and agriculture products as they were being exported to India and third countries.

Formal banking sector development in Nepal started with the establishment of Nepal Bank Limited in 1937 AD. After that Nepal Rashtira Bank, a central bank of Nepal was established in 1956 AD and banking sector revolution started in Nepal. The Nepal-India Trade Treaty was signed in 1996 AD to give the much-needed impetus to industries established in the country. After 1996 so many public and private industries were established. Nepal is thriving on the road of development with the restoration of democracy.

Nepal is also doing its best to be industrial country. However, Nepal has to do a lot for this. In my opinion, Nepal is yet about 250 to 300 years back than top most developed countries like; United States, Russia, China, France, Germany, Japan, Canada, the mother land of industrialization; United Kingdom as well as many more. Nepal is in starting phase of industrialization. Here are some multinational industries however it is not enough for Nepal that is why; here is problems of employments. Every year more than 500,000 man powers go abroad for employments. Here is the limitation of job with current industries whether it is agricultural, tourism or other. As a result, to develop Nepal, environmental friendly industries should be promoted with securing its natural beauties and clean environments. In the name of industrialization, forest should not be cut off and natural beauties should be maintained for the forthcoming generation so that they will be proud of being preserving the natural beauty of Nepal.

c. Capital Budgeting

Capital budgeting is a process of planning of capital expenditure which is to be made to maximize the long-term profitability of the organization. Capital budgeting is a long-term planning exercise in selection of the projects which generates returns over a number of years in future and the heavy expenditure is to be incurred in the initial years of the project to generate returns over the life of the project. The term capital budgeting refers to planning for capital assets. The capital budgeting decision means a decision as to whether or not money should be invested in long-term projects such as installing a machinery or creating additional

capacities to manufacture a part which at present may be purchased from outside. It includes a financial analysis of various proposals regarding capital expenditure. The Finance Manager has various tools and techniques by means of which he assists the management in taking a proper capital investment decisions. For purposes of investment appraisal, the cash flow is the incremental cash receipts less the incremental cash expenditures solely attributable to the investment in question. The future costs and revenues associated with each investment alternative are –

- a. Capital costs
- b. Operating costs
- c. Revenue
- d. Depreciation
- e. Residual value.

An investment decision implies the choice of an objective; a technique of appraisal and a length of service the project's life. The objective and technique must be related to definite period of time. The life of the project may be determined by taking into consideration the following factors like as-

- i. Technological obsolescence,
- ii. Physical deterioration
- iii. A decline in demand for the output of the project etc.

No matter how good a company's maintenance policy, its technological forecasting ability or its demand forecasting ability, uncertainty will always be present because of the difficulty of predicting the length of a project life. To permit realistic appraisal, the value of cash payment or receipt, must be related to the time when the transfer takes place. In particular, it must be recognized that Re. 1 received today is worth more than Re. 1 receivable at some future date because Re. 1 received today could be earning interest in the intervening period. This is the concept of the time value of money. The process of convertible future sums into their present equivalents is known as 'discounting', which is used to determine the present value of future cash flows.

Literature Review

Fremgen James (1973), surveyed a random sample of 250 business firms that were in the 1969 edition of Dun and Bradstreet's Reference Book of Corporate Management. Questionnaire were sent to companies engaged in manufacturing, retailing, mining, transportation, land development, entertainment, public utilities and conglomerates to study the capital budgeting models used, stages of the capital budgeting process, and the methods used to adjust risk. He found that firms considered the Internal Rate of Return model to be the most important model for decision-making. He also found that the majority of firms increased their profitability requirements to adjust risk and considered defining a project and determining the cash flow projections as the most important and most difficult stage of the capital budgeting process. Drury, Braund and Tayles'(1993), survey of 300 manufacturing

companies with annual sales exceeding £20million indicates that payback (86%) and IRR (80%) are the most widely used project appraisal methodologies. The most widely used project risk analysis technique is sensitivity analysis. Forty nine percent of the respondents do not use statistical analysis for risk analysis and 95percent of the respondents never use either CAPM or Monte Carlo simulation due to lack of understanding.

Prasanna Chandra (1975), conducted a survey of twenty firms to examine the importance assigned to economic analysis of capital expenditures, methods used and its rationale for analyzing capital expenditures and ways to improve economic analysis of capital expenditures. The finding of the study reveals that the nature of economic analysis of capital expenditures varies from project to project but in most of the firms surveyed the analysis is done in sketchy terms. The most commonly used method for evaluating investments of small size is the PBP and for large size investments the ARR is used as the principal criterion and the PBP is used as a supplementary criterion. DCF techniques are gaining importance particularly in the evaluation of large investments. Anand Manoj (2002), surveyed 81CFOs of India to find out the incorporate finance practices vis-à-vis capital budgeting decisions, cost of capital, capital structure, and dividend policy decisions. It analyzed the responses by the firm characteristics like firm size, profitability, leverage, P/E ratio, CFO's education, and the sector. The analysis reveals that practitioners douse the basic corporate finance tools that the professional institutes and business schools have taught for years to a great extent. It is also observed that the corporate finance practices vary with firm size. As per his findings, the firms use DCF techniques more than before. They use multiple criteria in the project choice decisions. 85% of the respondents consider IRR as a very important project choice. About 65% of the respondents always or almost always use NPV. The PBP method is also popular. Large firms are significantly more likely to use NPV than small firms. Small firms are more likely to use PBP method than large firms. High growth firms are more likely to use IRR than the low growth firms. The sensitivity analysis and scenario analysis are most widely used techniques for assessing the project risk.

Gupta Sanjeev, Batra Roopali and Sharma Manisha (2007), has made an attempt to explore which capital budgeting techniques is used by industries in Punjab, and the influence of factors such assize of capital budget, age and nature of the company, and education and experience of the CEO in capital budgeting decisions. They conducted a primary survey of 32 companies in Punjab. Almost one-third of the companies had capital budget exceeding Rs.100mn. Majority of the sample companies still use non-discounted cash flow techniques like PBP and ARR. Only a few companies use DCF, and among them very negligible number use NPV technique to evaluate a new project. The most preferred discount rate is WACC. The most popular risk incorporating technique is PBP. Many companies feel that CEO education and experienceplayanimportantroleinselectingthecapitalbudgetingtechnique. Further, the study did not find any significant relationship between the size of capital budget and capital budgeting methods adopted. Similarly, though at some instances it appears that young companies prefer DCF techniques than the older ones, the same is not true in case of NPV method. Thus, age of the company also does not influence the selection of the capital

budgeting technique. Similarly no significant relationship could be established between the nature of industry and investment evaluation techniques.

Objectives

The basic objective of the study is to analyze the Capital Budgeting (i.e. forecasted net cash outlay and annual cash flow after tax). Under the guideline of this leading objective, the following specific objectives are set in the study-

- a. To overview the beverages industries in Nepal,
- b. To review the Capital Budgeting Theories developed so far,
- c. To analyze the empirical studies on Capital Budgeting done so far,
- d. To find out the determinants of Capital Budgeting in beverages industries in Nepal,
- e. To trace out the trend in beverages industries Capital Budgeting,
- f. To find out the sources of financing in beverages industries,
- g. To analyze the cost of capital of beverages industries in Nepal,
- h. To carry out the ex-post evaluation of the performance of beverages industries in Nepal,
- i. To trace out the main technique of Capital Budgeting being used and
- j. To trace out the effectiveness of used technique of Capital Budgeting.

Population and Sample

There are so many beverages companies in Nepal. The whole beverages industries are the population of the study whereas only two beverages companies are taken as sample. The names of the sample companies are –

- i. Sunrise Nepal Food & Beverages Private Limited
- ii. Birgunj Pure Drinking Water Udyog

Capital Budgeting Tools

For the purpose of the study, capital budgeting is classified into three categories-

- a. Capital budgeting under certainty
- b. Capital budgeting under risk and uncertainty and
- c. Capital budgeting under foreign direct investment.

Following are the tools which are used to analyze the projects:

Table 1
CB Tools used by Nepalese Beverages Industries

CB under Certainty	CB under Uncertainty	CB under FDI
<ul style="list-style-type: none"> • Payback Period (PBP) • Accounting Rate of Return (ARR) • Net Present Value (NPV) • Internal Rate of Return (IRR) • Profitability Index (PI) • Modified Internal Rate of Return (MIRR) • Cross Over Rate • Discounted Payback Period (DPBP) 	<ul style="list-style-type: none"> • Senility Analysis • Risk adjusted discount Rate (RADR) • Certainty Equivalent Coefficients (CEC) • Probability Distribution Approach • Standard Deviation • Coefficient of Variation (C.V.) • Decision Tree. 	<ul style="list-style-type: none"> • Exchange Rate Risk • Political Risk • Country Risk

But during the study following tools were found to be in use –

- Payback Period (PBP)
- Net Present Value (NPV)
- Internal Rate of Return (IRR)
- Profitability Index (PI)
- Accounting Rate of Return (ARR)

Hypothesis

Under the study following three hypothesized were tested-

First Hypothesis [Net Cash Outlay (NCO)]

Ho : $\mu = \mu_0$ (i.e. there is no significant difference between sample and the Standard NCO)

H1 : $\mu \neq \mu_0$ (i.e. there is significance different between sample and the Standard NCO)

Where,

μ = Sample Mean

μ_0 = Standard Mean

Second Hypothesis [Net Present Value (NPV)]

Ho : $\mu = \mu_0$ (i.e. there is no significance different between sample and the Standard NPV)

H1 : $\mu \neq \mu_0$ (i.e. there is significance different between sample and the Standard NPV)

Where,

μ = Sample Mean

μ_0 = Standard Mean

Third Hypothesis [Internal Rate of Return (IRR)]

Ho : $\mu = \mu_0$ (i.e. there is no significance different between sample and the Standard IRR)

H1 : $\mu \neq \mu_0$ (i.e. there is significance different between sample and the Standard IRR)

Where,

μ = Sample Mean

μ_0 = Standard Mean

Following are the results of hypothesis.

First Hypothesis [Net Cash Outlay (NCO)]

Tabulated (critical) value of X2 for 1 d. f. at 5% level of significance is 3.841 and calculated value of X2 = 2,951,945.89. Hence, the calculated value of chi-square is greater than the tabulated value. So, it is significant. Thus, the difference between observed and expected frequencies is significant and cannot be attributed to give chance to fluctuations. It means there are significant difference between Actual (sample) & pre-determined (standard) NCO.

Second Hypothesis [Net Present Value (NPV)]

Tabulated (critical) value of X2 for 1 d. f. at 5% level of significance is 3.841 and calculated value of X2 = 743,245.94. Hence, the calculated value of chi-square is greater than the tabulated value, it is significant. Thus, the difference between observed and expected frequencies is significant and cannot be attributed to give chance to fluctuations. It means there are significant difference between Actual (sample) & pre-determined (standard) NPV.

Third Hypothesis [Internal Rate of Return (IRR)]

Tabulated (critical) value of X2 for 1 d. f. at 5% level of significance is 3.841 and calculated value of X2 = 1.06. Hence, the calculated value of chi-square is less than the tabulated value, it is not significant. Thus, the difference between observed and expected frequencies is not significant and can be attributed to give chance to fluctuations. It means there are significant difference between Actual (sample) & pre-determined (standard) IRR.

Findings

According to the capital employed SNFBPL is large manufacturing company in Nepal whereas BPDWU is a very small pure drinking water manufacturing company.

- i. The NCO of Sunrise Nepal Food & Beverages Pvt. Ltd. is Rs.247,127,526.82. Where as the NCO of Birgunj Pure Drinking Water Udyog is Rs.3,863,453.65. The NCO also shows the SNFBPL is the largest manufacturing company.
- ii. The cost of capital of BPDWU is 13% whereas the cost of capital of the SNFBPL is 11.26%. The cost of capital of SNFBPL is lower than BPDWU. It is because of SNFBPL is a levered firm where as BPDWU is unlevered firm. It means, the capital structure of BPDWU is debt free.
- iii. The PBP of Sunrise Nepal Food & Beverage Pvt. Ltd. is 10.0343 Years whereas the PBP of Birgunj Pure Drinking Water Udyog is 6.6338 years. The PBP of SNFBPL is higher than PBP of BPDWU. It means SNFBPL need more time to recover their

- investment. After the analysis of PBP, SNFBPL is risky organization than BPDWU.
- iv. The NPV of Sunrise Nepal Food & Beverage Pvt. Ltd. Is 55,645,151.27 whereas the NPV of Birgunj Pure Drinking Water Udyog is 806,152.65. The NPV of SNFBPL is 69.0255 times higher than NPV of BPDWU, which is more than the NCO. It means SNFBPL expected return is better than BPDWU.
 - v. The IRR of Sunrise Nepal Food & Beverage Pvt. Ltd. is 12.7969% whereas the IRR of Birgunj Pure Drinking Water Udyog is 15.1567%. The IRR of SNFBPL is less than IRR of BPDWU. It means BPDWU expected return is better than SNFBPL.
 - vi. The PI of Sunrise Nepal Food & Beverage Pvt. Ltd. is 1.2252 times whereas the PI of Birgunj Pure Drinking Water Udyog is 1.2087 times. The PI of SNFBPL is more than IRR of BPDWU. It means SNFBPL expected return is better than BPDWU.
 - vii. The ARR of Sunrise Nepal Food & Beverage Pvt. Ltd. is 46.371% whereas the ARR of Birgunj Pure Drinking Water Udyog is 20.92%. The ARR of SNFBPL is more than IRR of BPDWU. It means SNFBPL expected return is better than BPDWU. With a view point of NPV, PI and ARR, the expected return of SNFBPL seems to be sound in comparison to BPDWU.

References

- Agrawal, R. G.(2010), Entrepreneurship Development in Nepal, M.K. Publishers & Distributors, Kathmandu.
- Anand, Manoj (2002), Corporate Finance Practices in India: A Survey, Vikalpa, October – December Issue.
- Bajracharya, Puskar and Ojha, KP (2010), Managerial Accounting, Asmita Books Publishers & Distributors Pvt. Ltd., Kathmandu.
- Chandra Prasanna, “Risk analysis in capital expenditures”, Indian Management, October, 1975.
- Drury Colin and Tayles Mike, UK capital Budgeting Practices: some additional survey evidence, European journal of Finance 2
- Fremgen, James, “Capital Budgeting Practices: A Survey,” Management Accounting, May 1973.
- Gupta Sanjeev, Batra Roopali and Sharma Manisha, Capital Budgeting Practices in Punjab-based Companies, The Icfai Journal of APPLIED FINANCE, February 2007, Vol.13.
- Gupta, SP (1995), Statistical Methods, Sultan Chand & Sons, New Delhi.
- Kishore, Ravi M. (2008), Financial Management, Taxmann Allied Services Pvt. Ltd. New Delhi.
- Manandhar, Prof. Dr. K.D., Managerial Finance (Khanal Publication Pvt. Ltd., 2009)
- Manoj Anand; Corporate Finance Practices in India: A Survey; Vikalpa; Vol.27, No.4 October December 2002.
- Sahu, PK (1989), Capital Budgeting in Corporate Sector, Discovery Publishing House, Delhi.
- Wong, K A, Farragher, E J and Leung, R K C (1987), Capital Investment Practices: A Survey of Large Corporations in Malaysia, Singapore and Hong Kong, Asia Pacific Journal of Management, January Issue.