



PRE-FEASIBILITY STUDY
ON
ENERGY DRINK POWDER

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Note: All Services / information related to PM's Youth Business Loan are Free of Cost

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1. DISCLAIMER

This information memorandum is to introduce the subject matter and provide a general idea and information on the subject. Although, the material included in this document is based on data / information generated from experiments by a team of scientists; however, it is based upon certain assumptions which may differ from case to case. The contained information may vary due to any change in any of the concerned factors, and the actual results may differ accordingly from the presented information. The PCSIR and its employees do not assume any liability for any financial or other loss resulting from this memorandum in consequence of undertaking this activity. The prospective user of this memorandum is encouraged to contact technical expert, especially designated contact person from PCSIR for this feasibility report, for reaching to an informed decision.

2. PURPOSE OF DOCUMENT

The purpose of this document is to facilitate potential investors in energy drink production by providing them with a general understanding of the business, with the intention of supporting potential investors in crucial investment decisions. The project pre-feasibility may form the basis of an important investment decision and in order to serve this objective, the document/study covers various aspects of project concept development, start-up, production, finance, and business management. The need to come up with pre-feasibility reports for undocumented or minimally documented sectors attains greater imminence as the research that precedes such reports reveal certain thumb rules; best practices developed by existing enterprises by trial and error, certain industrial norms and well established research findings that become a guiding source regarding various aspects of business set-up and it's successful management. Apart from carefully studying the whole document, one must consider critical aspects provided later on, which form the basis of investment decisions.

3. INTRODUCTION TO PCSIR LABORATORIES COMPLEX, KARACHI

Pakistan Council of Scientific & Industrial Research (PCSIR) was first established in 1953 at Karachi as an autonomous body registered under the Societies Act of 1860. The objective of the establishment of the Council was to initiate and promote scientific and industrial research towards

the utilization of indigenous raw materials and development of industries based on them. In the year 1973, PCSIR was re-constituted vide an act of National Assembly. This marked the transition of PCSIR from its existing constitution towards reorganization, with greater emphasis on solution of industrial research oriented problems.

At the time of establishment, in 1953, Central Laboratories Karachi had seven Divisions. The nucleus premises of Central Laboratories Karachi was built with a covered area of approximately 6000 sq meters, having a scientific manpower of approximate 100 including senior scientists with foreign qualifications.

At present PCSIR labs complex, Karachi is comprised of 7 Centers with a total manpower of around six hundred including 190 scientist and technologists. The organization works under the Federal Ministry of Science and Technology with its units in different cities of Pakistan. PCSIR Laboratories Complex Karachi is a multifunctional R&D and analytical organization comprising the following Research Centers:

1. Applied Chemistry Research Center
2. Applied Physics, Computer & Instrumentation Center
3. Centre For Environmental Studies
4. Center For The Development Of Laboratory Equipment
5. Engineering Services Center
6. Food & Marine Resources Research Center
7. Pharmaceutical Research Center

PCSIR Laboratories, being a premier national S&T organization, has always responded to various governmental initiatives for which it has been assigned to. PCSIR has great emphasis on providing R&D solutions to Industrial problems, helping Industry to manage and reduce waste and use indigenous material / processes / technology, to increase their internal rate of return to be more competitive.

4. INTRODUCTION TO SCHEME

Prime Minister's Youth Business Loan Programme, for young entrepreneurs, with an allocated budget of Rs. 5.0 Billion for the year 2013-14, is designed to provide subsidized financing at 8% mark-up per annum for one hundred thousand (100,000) beneficiaries, through designated financial institutions, initially through National Bank of Pakistan (NBP) and First Women Bank Ltd. (FWBL). Loans from Rs. 0.1 million to Rs. 2.0 million with tenure up to 8 years inclusive of 1 year grace period, and a debt: equity of 90: 10 will be disbursed to SME beneficiaries across

Pakistan, covering; Punjab, Sindh, Khyber Pakhtunkhwa, Balochistan, Gilgit-Baltistan, Azad Jammu & Kashmir and Federally Administered Tribal Areas (FATA).

5. EXECUTIVE SUMMARY

The proposed project envisages the setup of energy drink production business. As the food supplies both the energy for all of the body function and the building blocks for the growth and maintenance. The nutrients in food required in a balanced amount to produce and maintain optimum health, belong to broad groups of carbohydrates, proteins, fats, vitamins and minerals. In this fast moving world with all its hazards and reduced socioeconomic condition of a common man, there is a growing awareness of the unique and nutritional requirement. To maintain enhanced physical fitness coupled with intense performance and the stress this places on the body specific energy drinks having balanced nutrition are gaining popularity now a days. These products are specially formulated to supply energy. Emphasis has been made on the type and amount of the carbohydrates since it is a major source of energy. These products also require fat and protein in a correct ratio.

PCSIR Labs. Karachi after exhaustive research and considering the growing need and demand of the energy drinks has developed milk and cereal based product (energy drink). This product is in the powder form and the novelty of this product is that it is fortified with malt extract, thus enhancing the emerging levels and specific nutrients in the drink. The drink is nutritionally balanced coupled with essential vitamins/minerals supporting the physiological performance. It is easily metabolized and absorbed in the gut. It is refreshing and nourishing, particularly for the patients and for those who have specific energy requirements. The project can be started in a building of 250 sq meter. Total cost estimate is Rs. 1.872 million, with fixed investment of Rs. 1.140 million and working capital amounting to Rs. 0.732 million.

6. BRIEF DESCRIPTION OF PROJECT AND PRODUCT

Following key parameters must be addressed as per pre-feasibility study:

- **Location:** The business can be initiated in different areas the country; however, factors like availability of energy resources, utilities and easy market access must be kept in focus.
- **Target Market:** In addition to major cities, such as Quetta, Karachi, Lahore, Peshawar, Islamabad and small cities & towns, there is an enormous export potential to Middle Eastern countries.

- **Employment Generation:** The proposed project will provide employment to around 6 individuals. Financial analysis shows the profitability of proposed business within first year of its operation.

7. CRITICAL FACTORS

The commercial viability of the proposed project depends on the following factors:

- Selection of proper location with ample supply of water, equipment maintenance facilities, and sufficient manpower play very important role in ensuring the project to run successfully.
- Production may be positioned away from chemical industries to avoid chemical residues.
- Quality raw material must be purchased from reliable/reputed dealers, for the quality assurance of product.
- Production unit is required to maintain the record of production and management practices for successful marketing and traceability.
- Production facility should have strong market linkages for effective disposal of produce.

8. INSTALLED AND OPERATIONAL CAPACITY FOR ENERGY DRINK PRODUCTION

This pre-feasibility suggests a facility operation on 250 sq meter of land producing energy drink as per market demand.

9. GEOGRAPHICAL POTENTIAL FOR INVESTMENT

The proposed location for establishment of energy drink production facility will primarily be based at areas having availability of man power, utilities and easy market access.

10. POTENTIAL TARGET MARKETS

The marketing of energy drink will follow the non-traditional distribution channel directly through retailers in urban markets. The time spent in transportation, from production plant to the retail shop, varies from area to area. Over the years, transportation of consumer goods has improved with the use of loader vehicles. However, greater the distance between production unit and consumer, more complicated will be the marketing or distribution system, due to high transport cost. The key factors in marketing are availability of current market information, quality of product and supply & demand which will determine the selling price.

11. PRODUCTION PROCESS FLOW

The energy drink can be produced by mixing the ingredients in a batch, homogenisation of the mix, sieving, filling in the pouches and placed in the carton of 50 sachet (330 g each).

12. PROJECT COST AND BENEFIT SUMMARY

A detailed financial model has been developed to analyze the commercial viability of energy drink production technology under the Prime Minister's Small Business Loan Scheme. Various cost and revenue related assumptions, along with results of the analysis, are outlined in this section.

12.1 Project Economics

PROPOSED PRODUCTION CAPACITY: 500 kg/day

1500 packs (330 g each)/day

WORKING DAYS: 200 / year

All figures in the financial model have been calculated for . The following table shows internal rates of return and payback period. Factors that influence the profitability are quality of inputs and effective marketing strategy.

Table.1. Project Economics

Description	Details
Internal Rate of Return (IRR)	128%
Payback Period (years)	1
Net Present Value (NPV)	----
Benefits Cost Ratio (BCR)	---

12.2 Project Financing

Following table provides details of the equity required and variables related to bank loan;

Table.2. Project Financing

Description	Details
Total Equity (10%)	1,87,287
Bank loan	16,85,580
Mark up to borrower (per annum)	8%
Tenure of Loan (Years)	8
Grace Period (years)	1

12.3 Project Cost

Following requirements have been identified for operations of the proposed business.

Table.3. Total Project Cost

Capital Investment	Amount (Rs.)
Capital Cost (one time investment)	1,524,000
Initial operational cost	348,867
Total	1,872,867

12.4. Space Requirement

Table 4. Space requirement and its cost

Space Requirement (Sq. ft.)	Rent/ month	Area (Sq. ft.)	Total Cost (Rs.)
Building on Rent	15000	1250	180,000
Total			180,000

12.5. Machinery and Equipment

Table .5. List of Machinery& Equipment and its cost

S.No	Particulars	Quantity. No.	Cost (in Million Rs.)
1.	Heavy duty grinders	2	70,000
2.	Vacuum dryer	1	100,000
3	Vibrating sieves	1	30,000
4.	Homogeniser	1	70,000
5.	Mixer	2	70,000
6.	Weighing scales	2	30,000
7.	Vacuum sealing machine	1	270,000
8.	Drying air circulating oven	2	100,000
9.	Sealers	2	30,000
10.	Lab equipment		30,000
11.	Computer		30,000
12.	Air conditioners		100,000
13.	Miscellaneous		170,000
14.	Total		11,00,000

12.6. Furniture and Fixture

Following table provides list of **Furniture and Fixture** required for energy drink production.

Table 6. List of Furniture & Fixture and its cost

Repair and Maintenance	Quantity (NOs)	Cost(Rs.)
Furniture and Fixture	Lump sump	40000
Total		40000

12.7. Operational and Maintenance cost

Following table provides list of Consumable Requirement for

**Table 7. Operational & Maintenance cost
Cost of production for 500 kg powder /day**

S. No.	Description	Price	Qty (in kgs)	Cost (in Rs.)	Cost for 500 kg powder (in Rs.)
1.	Milk powder	560.00	0.63	126	63000
2.	Malt powder	800.00	0.15	45	22500
3.	Sugar	55.00	0.15	3.75	1875
4.	Gums	800.00	0.01	5	2500
5.	Color/flavor	1200.00	0.02	12	6000
6.	Mineral/ Vit. Mix	4000.00	0.025	62.5	31250
7.	Emulsifiers	1200.00	0.002	4	2000
8.	Binders	1250.00	0.002	4	2000
9.	Anticaking agents	900.00	0.002	1	500
10.	Salt	25.00	0.01	0.2	100
11.	Packing charges (D)	6.67	3	20.00	10000
12.	Labour				1000
13.	utilities				500
14.	Repair & Maintenance				208
15.	Depriciation				635
	Total			283.45	1,41,725

12.8. Human Resource Requirement

The table below provides details of human resource required to manage the production unit. The staff salaries are estimated according to the market trends. However, these requirements and pay scales may vary area to area.

Table 8. Human Resource Requirement and its Cost

Description	No. of Employees	Salary/person/ month	Total salary per year
Labor	2	10,000	240,000

12.9. Revenue Generation

Final product is ready for sale in market that will generate revenue. The capacity of processing unit is 500 kg powder of energy drink/day for the first year sell price as per market Rs. 550/Kg.

Table 8. Human Resource Requirement and its Cost

Product	Sale Price (Rs. / Unit)	First Year Production Quantity	First Year Sales Revenue (Rs.)
Energy Drink	Rs. 550/kg	1,00,000 kg	Rs. 5,50,00,000

Key Assumption

Particulars	Assumption
Sales Price Growth Rate	5% per year
Increase in cost of raw material	5% per year
Increase in utilities	5% per year
Debt/Equity Ratio	90:10
Plant Building	5%
Machinery	5%
Office furniture & fixture	5%
Loan Period	8 years
Grace Period	1 year
Loan installments	Monthly
Financial charges (interest rate)	8%

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