ROBALI
GROUP OF COMPANIES LTD

DAIRY PROCESSING FIRM

PROMOTING COMMUNITY DEVELOPMENT THROUGH DAIRY FARM INVESTMENT PROJECT

THE CHIEF EXECUTIVE OFFICER

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INTRODUCTORY DAIRY INVESTMENT ASSESSMENT

Background to Dairy Set-up

The demand for dairy products continues to increase rapidly in Ethiopia in relation to the actively growing population. With a population of about 110 million people, Ethiopia is classified as the second-most populous country in Africa. Consequently, the high population has led to high prices due to high demand. Over a quarter of this demand has been met through importation. This means a huge market opportunity for milk and milk products.

On economic analysis of the Ethiopian GDP, it has been found that the dairy sector is giving a major contribution while promoting development to appreciable levels. The dairy farmers and processing firms have invaded this sector greatly for profit and capital boosts, which means main activities that are on-going are less of societal development (major gap). For the last fifteen years, the volume of milk being produced has multiplied up to three times. The Ethiopian government is planning on doubling the current milk production quantity by the year 2020 to suffice the country and extend its earnings on milk product exportation while decreasing importation. Expectantly, the Ethiopian economy will go up and create numerous foreign investment opportunities. It is also predicted that the Ethiopian dairy sector is likely to surpass some of the world's leading milk producers. Fortunately, there are great possibilities of venturing into the dairy production without any heinous restriction of the government.

In an attempt to develop the dairy production system of Ethiopia, every stage of dairy handling has to undergo radical changes. Firstly, from farmers' level, they need to get from the cocoon of traditional subsistence mentality and develop a comprehensive market-oriented way of thinking. This is the first step of commercialization of dairy products. And for this to happen, farmers need to be sure that what they will gain from the market will be more than what they will lose. Processors will also correspond accordingly and make the products to stand out in the market. From this, every stage will be furthering the quality and cost-effectiveness.

On analysis, there are various challenges in the dairy processing sector of Ethiopia that this project seeks to meet. These challenges include poor technology on dairy processing sector, poor infrastructure and housing facilities, feed shortage and lack of entrepreneurial skill and knowledge that have resulted to poor performance and slow-down of the dairy sector. But the primary challenge greatly considered by this project plan is based on providing services to the community hand in hand with dairy investment. Actually, there is hardly a dairy farm with its main role as provision of efficient services and community development.

Further market research pertaining to government policies shows that processing and marketing activities should put more efforts on the diversity of dairy products to meet the various needs of consumers. There are policies that focus on genetics and improved breeding programs to counter the negative effects of inadequate health practices in the country. These policies will give rise to a stabilized and centralized dairy sector that could compete with other world producers of milk.

Objectives

The main aim of this project is to invest on large-scale dairy production as a strategy of building and developing essential community. Mostly, it will identify the existing dairy market gaps and establish its maximum potency to providing better and unique products that will not only satisfy the consumers but attribute to their good health and development. Essentially, this project will;

i. Employ sophisticated and modern time technology to process dairy production on a large scale.
ii. Promote community development through enhancing water availability and accessibility, school developments, improving or developing health centres and infrastructure, and ensuring electrification among others.
iii. Create employment for youths and make them sufficient for enhanced lives.
iv. Work hand in hand with the government to attend to other needs of the communities like imparting knowledge and skills to boost the dairy farm exploitation.

Justification

Despite many assets on dairy industries, the productivity of the dairy sector has been very low due to some dynamic economic, technical, and institutional challenges. The farm level challenges of the Ethiopian dairy farming are scarcity of fodder, a lack of chilling facilities on a farm, shortage of feed/poor ration formulation, a low milk production per cow, and the fact that the majority of dairy farmers are smallholders (with between 1 to 3 cows). Because dairy processing greatly depends on milk production from the farms, this project ties its objective down to farm-level dairy production and methods of making milk quantity to increase.

Other dairy production limitations manifested include limited AI services, inadequate access to finance, a limited private sector, weak linkages between chain actors, and animal diseases that act as hindrances. These challenges are of great help to both local and foreign investors to fit in the problem gaps. Apparently, the Ethiopian dairy sector is at a turning point in its history, with a shift from public sector involvement towards private sector participation. Currently, there are many opportunities in dairy farming, dairy processing, business development and financial services. As an identified need, dairy investors should establish and introduce new knowledge and eco-friendly technology in commercial feed and fodder production, supplying young stock, AI services and upgrading genetics, health, cattle-housing design and farm equipment for milking and harvesting. This will benefit both the investor and the country in transforming the infant dairy sector to a modern dairy value chain industry with adequate economies of scale and backward and forward linkages.

Ethiopia produces about 4 billion litres of milk per year. Per capita consumption is very low, estimated at about 20 litres, though rising consumption levels in Addis Ababa have brought it to about 40 litres. The Food and Agriculture Organization recommends that the per capita consumption of milk be about 200 litres, meaning 22 billion litres of milk is required. At the current production rate, there's an annual shortage of about 18 billion litres.

DAIRY PROCESSING ANALYSIS AND NEED FOR INVESTMENT IN ETHIOPIA

History and Statistics of Dairy Farming

Milk production in Ethiopia increased significantly during 1960s. Between 1961 and 1974, milk production from all species increased by 16.6 percent from 637,375 metric tons to 743,100 metric tons, an average annual growth rate of 1.63 percent. This growth was largely due to the economies of scale in production as well as marketing, subsidies in transport to the formal market, secured land tenure and an active free market for feed and other inputs. On a per capita basis, however, milk production declined during the 1961 to 1974 period at an average rate of 0.87 percent per annum. In that period, butter and cheese processed using the traditional methods grew only slowly by about 0.1 percent. Processed milk production began stagnating from the early 1960s but expanded significantly in the second half of 1960s and early 1970s.

Following the 1974 revolution, economic policy in Ethiopia shifted towards socialism. The Dairy Development Agency (DDA) operated from the 1960s until 1979 when it merged with numerous other nationalized dairy farms to establish the Dairy Development Enterprise (DDE). The DDE was established to operate the nationalized state farms, establish a milk collection network, process and market dairy products, provide advisory and limited technical service to farmers, and sell veterinary medicaments and feed to farmers. This enterprise had a capacity to process 60,000 liters of milk at its inception.

The government had then shifted attention from urban producers to rural producers. However, substantial resources remained devoted to establishing large-scale state farms to provide liquid milk for urban consumers. This phase was characterized by intensive effort by the government and donors towards developing the dairy sector through producers. The dairy development effort was geared towards rural producers who in fact were members of producer cooperatives. Projects and programs implemented to improve dairy development focused on producer and service cooperatives and peasant associations as major implementing partners. All the programs intended to bring about improvement in milk production and an increment in income through introduction of improved feeding, breeding and health development programs while less attention was given to marketing and processing.

Mass transformation occurred in the dairy sector where various programs and projects were implemented. These programs and projects implemented included the Minimum Package Program (MPP), Addis Ababa Dairy Development Project (AADDP), Dairy Rehabilitation and Development Project (DRDP), Artificial Insemination Service (AIS) and Selale Peasant Dairy Development Pilot Project (SPDDP). Although the programs or projects implemented differed in their intensity, most of the efforts were input-oriented. As a result of these promotional efforts, total milk production increased significantly during this phase with the exception of mid 1980s when the country experienced a debilitating three-year drought. Despite the significant increase in aggregate milk production, per capita milk production was declining. This phase was characterized by low producer prices which discouraged production, emphasis on cooperatives in rural areas, and neglect of most important producers in urban areas. To bridge the gap between

supply and demand, dairy imports increased significantly during second phase beginning from 1978. This was partly due to increased food aid, World Food Programme (WFP) milk powder imports, and a level of dairy production development that lagged far behind the demand. Imports reached a peak of 279,651 and 314,726 metric tons in 1985 and 1986 during the drought period. Dairy imports as a percent of total consumption had increased from 4.1 percent to 12.8 percent between 1977 and 1989. Commercial imports grew rapidly at 24.18 percent per year. Further, it is estimated that imported milk powder accounted for 23 percent of Addis Ababa market.

The urban/peri-urban dairy production system is an expanding production system, largely found in the highlands and is concentrated in the Addis Ababa milk shed area as well as around the regional capital cities where an adequate market for fresh milk is readily available. There are about 5 200 dairy farms in Addis Ababa alone with an average herd size of 12. Though, this is practiced by many landless urban and suburban poor households.

Until today, more transformations have been observed in the dairy sector where dairy farms are on the verge of improving the quantity and quality of milk produced and dairy processing firms have devoted to identify better and efficient technologies that enhance quality and save time during milk and milk product processing. Further the government has quite encouraged farmers to invest largely on dairy to fill the market gaps. It has also encouraged inventions and interventions on dairy production by farmers and industries. This gave an entry point of investing in this sector.

Gaps and Market Needs in Dairy Production

There exist a market gap in two main areas of dairy sector. These gaps include;

i. Mobile dairy milking unit in the form of a fleet of mobile milking refrigerated trucks that would establish a vast network of informal smallholder farmers to collect from. These would be transported to the market to be sold wholesale or retail.
ii. A strategically located dairy processing factory which would rely on milk collected from surrounding farmers. The farmers would have a guaranteed buyer and the investor would add value by processing and supplying the local markets.
iii. A larger scale dairy farm with a herd of imported breeds complete with milking and processing facilities. A proposed investment should require the heavy initial cost of housing the cows, procuring storage tanks, milking machines, and a pasteurization plant. The running cost of feeding cows and electricity to operate machinery would also be a factor.
iv. A multi-purpose packaging outfit would be an ideal complement to the dairy industry. A packaging outfit focusing on dairy products would be a great complement to all the other investment proposals and can be adapted to several other industries. The demand in Ethiopia is high for such a venture, and the national policy support for it is apparent.
v. Investment in refrigeration/cold storage services at sale points across the country could be a profitable endeavor given the current situation. The most productive milking season also happens to be the hottest season which means farmers and vendors are under time pressure to sell their product. Therefore, charging a small fee to store sensitive products would allow vendors to buy time and get the best possible price for their product. Also,

an option to explore would be solar refrigeration which would circumvent the problem of prohibitive electricity costs.

The SWOT analysis of Existing Dairy Projects

Dairy production is a critical issue in Ethiopia, a livestock-based society where livestock and its products are more sources of food and income and dairying has not been fully exploited and promoted. The greatest potential for few technologies in dairying is expected in the highlands of Ethiopia, due to low disease pressure and good agro-climatic conditions for the cultivation of feeds.

Strengths

Urban and peri-urban dairy farming have emerged as important component of the milk production system. It is based on cross breed dairy stock, mainly Friesian x Zebu and purchased conserved feeds. This has contributed immensely towards filling in the large demand and supply gap for milk and milk production urban center, where consumption of milk and milk product is remarkably high.

Also, the highland smallholder milk production is found in the central parts of Ethiopia where dairying is nearly always parts of the subsistence, smallholder mixed crop and livestock farming. It becomes important source of household income in Ethiopia.

Weaknesses

Livestock owners who exploit natural grasslands mainly in the arid areas, even though information on both absolute numbers and distribution is vary, it estimated that about 30% of the livestock populations are found in the pastoral areas. The herd is dominating with unimproved Zebu animals and milk production is of subsistent type. It is mainly operating in the range lands where the peoples involved follow animal based life styles, which requires of them to move from place to place seasonally, based on feed and water availability.

The dairy sector is agonized by several problems like poor quality and quantity of feed resource, lack of appropriate feeding system, poor production and reproduction traits, low productive and reproductive performance and economic and technical problems. About 93% of the total milk production in Ethiopia is produced by the smallholder dairy farmers living in the villages and exercising, in most instances, traditional dairying. This sector also produces 90% of the overall agriculture output in the country. Other weaknesses are;

- Environmental issues
- Limited availability of credit to the dairy farmers
- Milk market linkage challenges
- Lack of education and consultation
- Inadequate extension and training services
- Reproductive problems
- Animal health problems
- Inadequate animal feed resources
- Genetic limitations, etc.

Opportunities and Threats

Ethiopia is endowed with large and diverse dairy animal genetic resources, which are widely distributed across the agro-ecologies and climatic conditions prevalent in the country. Thus, there are indications that milk yield among the indigenous animals is variable proving that there are opportunities for improvement.

Also, dairy development depends on reliable inputs and services such as Artificial Insemination, health service and improved forage seeds supply. Currently, the numbers of AI service centers has been increasing and cover most urban and per-urban areas and some parts of rural highlands. This is an opportunity to improve the genetic potential of indigenous dairy animals in the areas where there is critical shortage of milk and milk products.

Though the contribution of cow milk is dominant, milk from camels and goats are also consumed in Ethiopia, especially in pastoral and agro-pastoral systems of production. In Ethiopia there is long standing and strong culture of consumption of dairy products. In addition to raw milk, milk products, such as butter, cottage cheese, fermented milk (yogurt) and whey are also commonly consumed.

Dairy farming supports livelihoods of society under low input production systems, generates income and creates employment opportunity under market-oriented production system. Dairy farmers in urban, peri-urban and rural dairy production system demonstrated strong interest to expand dairying as one of the means of income generating activity.

In Ethiopia, research on dairying started over 5 decades ago. Since the dairy research system has passed through a lot of transformations, the existence of various institutions involved in dairy research and development across the different parts of the country is an opportunity to come up with a solution for challenges that constrain dairy production and inhibit uptake of dairy technologies in the country.

The known threats in the dairy sector of Ethiopia are the prevalent animal health problems and time taken to deal with a foreign disease, undetermined reproductive problems of the dairy producing livestock, climate changes and unfavorable environmental issues.

FORMATION OF THE DAIRY INVESTMENT PROJECT

Sites of the Project

The dairy investment project will be established in Sebeta City. Sebeta is a city located in the Oromia Special Zone Surrounding Finfinne of the Oromia Region. This town has a latitude and longitude of 8°54′40″N 38°37′17″E and an elevation of 2,356 meters (7,730 feet) above sea level. It is highly suitable for dairy investment project because of the well aided agricultural practices and research and the fact that dairy production is little invested. The Ethiopian Institute of Agricultural Research opened a research station in Sebeta in 1967, which operates as the

national center for research into improving fishing yields. This is an opportunity to vest on profitability and to develop the area.

The most serious problems confronting Sebeta town and their inhabitants include inadequate financial resources, lack of employment opportunities, spreading homelessness and expansion of informal settlements, increased poverty and a widening gap between rich and poor, growing insecurity and rising crime rates, inadequate and deteriorating building stock, inadequate services and infrastructures, lack of health and educational facilities, improper land use, insecure land tenure, rising traffic congestion, increasing pollution, lack of green spaces, inadequate water supply and sanitation, uncoordinated urban development and an increasing vulnerability to disaster. However, Sebeta City is a hub of many huge industries that attract many employees from different areas of the country. Moreover, the city serves as a residence city for many people who work in Addis Ababa and the surrounding smaller urban centers. This makes it a conducive area to invest in dairy production.

Products

This dairy investment project will produce fresh milk, yoghurt, butter, cheese and the whey products. Modern technology will be used to process milk and milk products, and be distributed to areas of Ethiopia with high demand. The latest or modern technology has become the symbol of success in all businesses. The dairy business is also not untouched from it. Nowadays, the dairy industry has become one of the major food industries in all over the world that includes milk plants for milk production. Managing a milk processing plant today requires use of modern technology. The design of any dairy plant depends on proper working and operations of milk processing like separations, clarification, homogenization, pasteurization and the packing of product for sell. Some of the advanced milk processing equipment the project will use are;

- Energy optimization: The energy optimization is the energy efficiency improvement and cost saving opportunities for the dairy farmers. It helps to milk production plants to expand the system for decreasing energy wastages and losses in a manufacturing unit of the dairy plant. The energy optimization helps to increase skillful manufacturing system with most advanced energy efficiency for different products and grades.
- Power check report: The advanced milk processing business needs proper power check report. The energy audit system is very useful for correcting decision that uses in milk processing plants as well. It helps to measure the correct energy that uses according to different functions. It is helpful to balance the energy inputs with the uses output completely. The energy audit is helpful to complete various processes from beginning to the end.

The milk plant will include key efficient departments such as electrical, chilling system, milk processing, boilers and packaging. The main curb in pasteurization process is more power consumption, lower energy effectiveness and high-temperature losses.

The Market Strategy

The marketing strategy of this project is based on audience and competition analysis. By establishing these parameters, it is easy to establish where this investment would be most efficient or effective. The four factors that will be guiding the project's market system will be;

The Product Design and Type

The processes applied to produce the dairy products are enough to determine the advantage the products gives. By understanding the product of the project, it provides a unit determination to marketing methods or strategies. In this case, the market will majorly target the common audience and the products that will be processed will be related to cost-effectiveness.

Competition

The marketing strategy here will be vigilant on competitors' techniques or methods in order to ensure the best application. Once the product and process research has established the market niche, the project will flex to adopt distinctive but acceptable methods by the consumers. This will be aided by a monthly research process which will facilitate the knowledge of consumer satisfaction level. This might as well involve reviewing competitors' advertisements to spot and exploit weaknesses.

Audience

This project will determine the exact targets of its dairy products and place the greater market segment that buys its products. For example, the segment of the market that are interested in what goes into the foods and drinks their children consume and willing and able to pay a little more for project's natural and chemical free products are likely a good fit.

Advertisements

This project will also craft an advertisement that clearly states in highly visible text the points to highlight about its products. Much research will be done on places and outlets that connect to the target market. Further ads will be placed on television stations, websites and publications likely to be visited by the middle to upper class families of target. This will help hone the market strategy of this project.

The main target market for this project's dairy products will be;

- Supermarkets; these are an established network of high end shopping platforms that can be relied on to provide access to expatriates and high-paying customers.
- Market Women and Small Scale Vendors; these vendors are already experienced at selling raw milk and other products to the general public. So, they will not require sophisticated packaging and have good product-handling knowledge.
- Mini Markets; they are fast growing segment that provides access to the proliferating middle class economic community in the country. These are strategically located and have the facilities to carry delicate products.
- Milk Wholesalers; these customers would be targeted as an import substitution strategy since they are generally responsible for the importation of UHT milk, powdered milk, and other dairy products and already have a market distribution network.

- ❖ Corner Shops; although these are challenging to supply due to the limited nature of their power supply, they are within reach of virtually every household in the Sebeta town and surrounding areas around Addis Ababa.
- ❖ Hotels, Guest Houses and Restaurants; these are to be used to provide a meaningful linkage with the tourism sector since most of the products consumed in this sector are imported.
- ❖ Petrol stations; just like supermarkets, these markets will be used for the traveling public, to purchase fresh milk products to and from work

The Quality Management Process

The quality management involves a broad concept, which can be worked with tools and techniques similar to those used in other functional areas such as finance, human resources and others. Additionally, it is compatible with other management systems such as food safety, hazard analysis and critical control points known as HACCP and GMP good manufacturing practices.

Milk Processing

Milk arrives at the milk dairy processing plant over the weighbridge and the weight of milk is automatically recorded. At the same time, data from an on-board computer is downloaded wirelessly to a data capture system, which holds the records of the temperature and volumes of milk collected from each farm. The temperature should be at 4–6°C. Milk samples using sterile containers are collected automatically from each supplier at source and are delivered to a laboratory technician for detailed analysis. Milk that deviates in composition, taste, and smell from normal milk receives a lower quality rating. The technician also takes a composite sample, from each compartment in the refrigerated truck, which is compartmentalized to reduce sloshing of the milk. The samples from each compartment are tested for acidity, antibiotics, added water, fat, and protein content.

The ISO standards catalog ISO/TC34/SC5 lists all milk and milk products standards, while other standard sets include, microbiology of the food chain, microbiological quality of milk, etc. The bacterial quality of the milk is also measured and tests are specified. At milk offload, process optimization can be achieved by ensuring pumps are working effectively, efficiently, and planning truck supply due to intelligent time slot management. The three steps of milk processing are;

1. Separation, clarification, and centrifugation
2. Pasteurization
3. Verifying the pasteurization process

Milk powders will be refined by evaporation and drying. Milk powder is manufactured by spray-drying precondensed milk. A falling film evaporator is commonly used in the dairy industry to concentrate the milk from ~13% total solids (TS) to a target of up to 52%. Evaporation is simply the removal of a solvent from a solution or slurry. Milk itself is defined as a colloid with the solvent being the water.

Each step along the milk processing train can be contaminated by the air and the water used in the milk processing stages. Hygiene control at all stages, including hygienic design of the manufacturing equipment will be ensured.

Administrative Management

This project will basically use key performance indicators (KPI) in its administrative functions. KPI are used throughout businesses and industries to monitor work systems and focus workers. In this dairy business, KPI are:

i. A small number of strategic measurements
ii. Collected from each area of the dairy
iii. Representative of general performance
iv. Can be measured and monitored frequently (daily)

Key indicators will be used especially to reflect the efforts of workers as much as possible. Feedback to workers regarding KPI will occur on a routine basis. This is because good results motivate workers and give them confidence in "the system". When results are undesirable, solutions can be developed on a timely basis.

First, the dairy business will be organized into departments to improve the management task. Then KPI can be selected to measure and establish goals for each indicator. Second, systems will be set in place such that essential information is collected as it occurs. This may require using customized, preprinted forms to guarantee that appropriate information is collected. Third, information will be put into a form to make easy computations. This is important because if data cannot be collected easily and computed accurately, it is of limited practical use. Finally, reports must show results compared with the goals established for each indicator in each department. When this information, a "dairy report card", is available daily managers can immediately prioritize activities to focus on tasks and workers that are out of compliance. Feedback to workers will be available immediately, daily, weekly or at monthly meetings to motivate workers and build their confidence.

INCENTIVE OPTIONS

Incentives for a dairy processing firm may include;

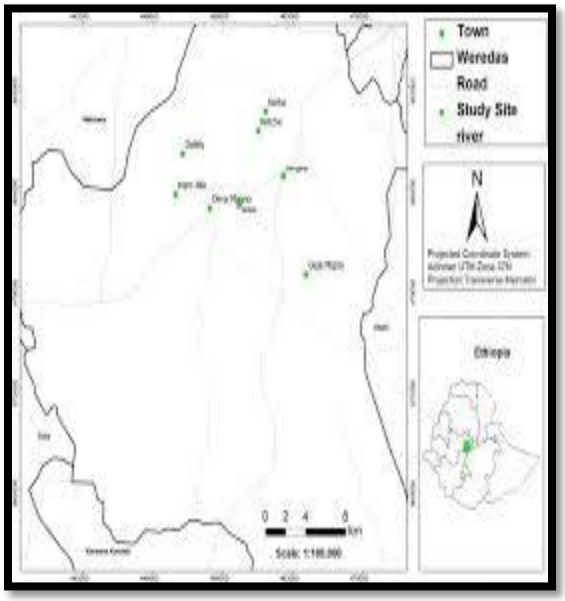
- Tax Holiday on Corporate or Turnover Tax (32%)
- Exemption from Depreciation Allowance calculations for tax purposes
- Exemption from Withholding Tax on Dividend Payments.
- Import Sales Tax Waiver on importation of manufacturing plant, construction materials, and spares for a period of 5 years from date of signing an investment agreement
- Import Sales Tax Waiver on importation of raw and intermediate inputs for a period of 5 years from the date of commencement of operations

Shares Investment

This project will invite buying of shares for initiation and management. Land will be obtained on a capital share basis at 20%. Remaining 80% share will be offered to the public for an equal share of profit realization. Comprehensive budget of the project is bound to be provided to the subscribers who join as the shareholders of the company. Requesting for the budget will be as in the procedure established in the company's constitution and contact made through the CEO in above top page contacts.

APPENDICES

Map of Sebeta



Photos of Dairy Processing Plant Plan

Modern milk processing machine

Cheese and yoghurt processing machines

Modern milk storage machines