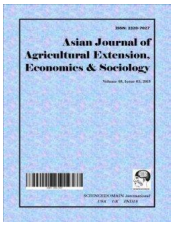

Asian Journal of Agricultural Extension, Economics & Sociology
5(4): 215-226, 2015; Article no.AJAEES.2015.054
ISSN: 2320-7027

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Potential Feasibility Study of Creating a Small Company That Produces Tomato Paste in Ambatondrazaka District

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Authors' contributions

This work was carried out in collaboration between all authors. Author HR designed the research and made the manuscript. Author MF proposed the inclusion of the situation analysis and corrected the manuscript. Author Kusnandar corrected the manuscript. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJAEES/2015/16352
Editor(s):
(1) Jamal Alrusheidat, Extension Education Department, National Centre for Agricultural Research and Extension (NCARE), Amman, Jordan.
Reviewers:
(1) Anonymous, Romania.
(2) Donatella Privitera, Department of Scienze della Formazione, University of Catania, Italy.
Complete Peer review History: http://www.sciencedomain.org/review-history.php?iid=898&id=25&aid=8434

Original Research Article

Received 27th January 2015
Accepted 26th February 2015
Published 13th March 2015

ABSTRACT

This research proposes a complete study of project development by analyzing the starting point, situation, before studying the feasibility of the project, creation of a small company that produces tomato paste in the district of Ambatondrazaka-Madagascar, regarding technical and technological, market and marketing, managerial, financial, and environmental aspects. The situation analysis highlighted that there are six opportunities and two strengths that lead into the creation of the company. However, some alternatives such as working closely with farmers, through the establishment of contracts, building good relationship with regional and central governments, training the company's manager and personnel, and finding places for tomato cultivation during the raining season should be applied by the company to overcome the situation's weaknesses and threats. The technical and technological, managerial, financial, and environmental analysis showed that the creation of the company is feasible. However, the market and marketing analysis pointed out that the company should adopt an effective marketing strategy for increasing its local and regional sales.

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Keywords: Ambatondrazaka; potential feasibility study; project; tomato paste; small company.

1. INTRODUCTION

Tomato is one of the most consumed vegetables in Madagascar. The production of tomato in the national scale is dominated by two regions, namely, Itasy and Alaotra-Mangoro regions [1]. According to [2], tomato cultivation has started long time ago in Alaotra-Mangoro region, particularly, Ambatondrazaka district is known as the main producer. There are two species that dominate tomato cultivation in this district such as Marglobe or *Lycopersicon Lycopersicum* (round fruit) and Roma VF or *Lycopersicon esculentum* (elongated fruits) [2]. However, the markets are dominated by *Roma* VF. Over the past few years, a general upward in tomato consumption has been seen not only in Ambatondrazaka district, but also in whole Madagascar. In 2010, the average annual per capita consumption of tomato in Madagascar is about 11 kg [3].

The total surface of Ambatondrazaka district is about 6 492 km^2 and the total population in 2012 was about 439 570 [4]. This district is well known for the biggest Lake in Madagascar called Alaotra. The existence of this Lake made the district capable to produce various types of crops, including tomato crop. The survey in October 2014 highlighted that the yield per hectare of tomato during the hot season varies between forty eight and fifty four tons. This yield allows the district to produce an average production of forty to fifty tons per day. The maximum production of about 200 tons per day is attained in July to November. This is an enormous production which exceeds the demands of the local and regional markets. However, farmers do not have technology for preserving and stocking fresh tomato. In addition, due to the inadequate transportation system and the bad road conditions, their access to the provincial and national markets is very difficult. Hence, a considerable quantity of fresh tomato cannot leave the district and is deteriorated at the place. The existence of a company that can transform fresh tomato into paste in the district will not only lighten this problem, but also increase the value added of tomato.

Presently, there is no data supporting project feasibility studies done by researchers in Madagascar. However, limited amount of studies have been carried out by Indonesian researchers. In 2004, [5] have investigated the feasibility of creating mushroom chips company in Bogor regency. The study included both primary and secondary data and took into consideration aspects such as technical and technological, market and marketing, managerial, and financial aspects. In 2009, [6] has conducted a study in east Kutai-Indonesia that aimed at assessing the possibility of constructing livestock slaughter house. This study also included primary and secondary data and took into account four aspects, namely, financial, market and marketing, managerial, and environmental aspects. In 2011, [7] carried out a research which aimed to analyze the feasibility of modifying tile press machine in a small enterprise located in central Java. This study included only primary data and took into consideration four aspects of project feasibility study such as market and marketing, financial, technical, and socio-economical aspects. None of these researches analyzed the starting point of project development study, situation, and included more than four aspects. The current research aims thus at analyzing the situation and studying the feasibility of the project, creation of a small company that produces tomato paste in Ambatondrazaka district, regarding technical and technological, market and marketing, managerial, financial, and environmental aspects.

2. RESEARCH METHODS

2.1 Research Location

The research has been conducted in the district of Ambatondrazaka-Madagascar. This district is located 150 km in northeast of the Capital City: between the latitudes 17º and 18º in the South and the longitudes 48º and 50º in the East.

2.2 Data Sources and Data Collection Methods

The research includes both primary and secondary data. Primary data come from observations, tomato farmers, tomato pastes sellers and importers, government workers, and experts. However, secondary data come from offices, libraries, and internet materials. Data from three experts, namely, the president of rural development working group, responsible of seeds control in the regional department of agriculture, and the regional director of rural development, are used in this research for the situation analysis.

Secondary data are collected through desk research method, however primary data are collected through interview and questionnaires. The collection of the primary data intends to deepen and actualize the information provided by the secondary data. Data collection areas are chosen purposely, yet the respondents are selected randomly.

2.3 Situation Analysis

According to [8], Strength, Weakness, Opportunity, and Threat matrix, known as SWOT matrix can be used to analyze the situation. It is built based on the analysis of the situation's internal and external key factors. The analysis of the internal key factors aims at identifying the situation's strengths and weaknesses, however the analysis of the external key factors aims at identifying the situation's opportunities and threats [9]. These key factors are related to project feasibility study aspects such as technical and technological, market and marketing, managerial, financial, and environmental aspects. After their identification, the key factors are matched in order to get strategies such as Strength-Opportunity (SO), Weakness-Opportunity (WO), Strength-Threat (ST), and Weakness-Threat (WT). SO strategy uses the situation's internal strengths to take advantage of the external opportunities, WO strategy aims at improving the situation's internal weaknesses by taking advantage of the external opportunities, ST strategy uses the situation's strengths to avoid or reduce the impact of the external threats, and WT strategy aims at reducing the situation's internal weakness and avoiding the situation's external threats [10].

2.4 Project Feasibility Analysis

2.4.1 Variables

The variables used for this analysis are grouped based on the project feasibility analysis aspects as follows:

2.5 Technical and Technological Analysis

According to [11], the technical and technological analysis includes variables such as project location and duration, project capacity production, and raw materials, building, infrastructures, machines and technologies required.

2.6 Market and Marketing Analysis

The market and marketing analysis includes, but not limited to, the analysis of the market demand, market supply, existing competitors, and the marketing strategy applied [12].

2.7 Managerial Analysis

According to [7], managerial analysis variables consist of project implementation planning, management level planning, work program planning, department separation, and work distribution.

2.8 Financial Analysis

The financial analysis includes variables such as fund source, operating cost, operating revenue, and operating benefit [13].

2.9 Environmental Analysis

According to [6], the environmental analysis includes variables such as water and air/wind availability, waste disposal or treatment site availability, and environmental impacts of the project.

2.10 Data Analysis Methods

2.10.1 Descriptive analysis method

The descriptive analysis method is used to analyze the market demand, market supply, and the environmental impacts of the project.

2.10.2 Technical and technological analysis method

This method is used to analyze the raw materials, infrastructures, and machines and technologies required.

2.10.3 Financial analysis method

The indicators used in financial analysis are Net Benefit Cost Ratio (Net B/C), Payback period (PBP), Net Present Value (NPV), and Internal Rate of Return (IRR).

2.11 Net Benefit Cost Ratio

Is used to compare the positive net present income with the negative net present income. If Net B/C is greater than 1, the project is feasible;

but if Net B/C is smaller than 1, the project is not feasible. Net B/C formula is as follows [14]

$$(1)\ \text{Net B/C} = \frac{\sum_{t=1}^{n} \frac{Bt}{(1+r)^t}}{\sum_{t=1}^{n} \frac{Ct}{(1+r)^t}}$$

Where

B_t denotes the benefits received in a year *t*;
C_t refers to the costs incurred in a year *t*;
r is the discount rate; and
n refers to the number of the year

2.12 Payback Period

Is a financial indicator used to indicate when the investment will be earned back. If payback period duration is less than investment duration, the investment is feasible [15].

2.13 Net Present Value

Is the difference between the present value of cash inflows and the present value of cash outflows. If NPV is positive, the project is feasible; but if NPV is negative, the project is not feasible [16]. NPV formula is as follows [17]

$$(2)\ \text{NPV} = \sum_{t=1}^{n} \frac{Bt - Ct}{(1+r)^t}$$

Where

B_t denotes the benefits received in a year *t*;
C_t refers to the costs incurred in a year *t*;
r is the rate of discount; and
n refers to the number of the year

2.14 Internal Rate of Return

Is the discount level that makes Net Present Value equal to zero [18]. If IRR is greater than the current interest level, the project is feasible. The formula for IRR is as follows [19].

$$(3)\ \text{IRR} = r_1 + \frac{NPV_1}{NPV_1 - NPV_2}(r_2 - r_1)$$

Where

r_1 is the NPV_1 discount rate; and
r_2 is the NPV_2 discount rate

3. RESULTS AND DISCUSSION

3.1 Situation Analysis

The result of the survey indicated that in Ambatondrazaka district, tomato cultivation is mostly conducted in four communes, namely, Ambohitsilaozana, Ambandrika, Aferamanga Avaratra, and Ambatondrazaka Sub-urbane. Through these Communes, the district is capable to produce up to about 200 tons of fresh tomato per day during the hot season. This is an enormous production which exceeds the needs of the local and regional markets. This case offers a potential opportunity to transform fresh tomato into paste. In addition, the price of fresh tomato is very interesting.

The machines and technologies required for tomato paste processing are available. According to the online survey, a country such as China currently proposes various types of machines and technologies that can be used for tomato paste processing. Their prices are reasonable and their transportation to Madagascar needs only about 15 to 30 days.

Madagascar is divided into six provinces, namely, Antananarivo, Fianarantsoa, Toamasina, Mahajanga, Antsiranana, and Toliary and has a total population of 21 842 167 in 2013 [20]. These provinces constitute potential markets that need a large quantity of foods, including tomato pastes. However, as Madagascar does not produce tomato pastes, the markets are supplied by industrialized countries such as Italy and China. This importation affects Malagasy trade balance and represents a considerable loss of the national currency value. Therefore, the creation of a company that produces tomato paste in the Malagasy territory will not only satisfy the markets, but also contribute to the economic growth.

Ambatondrazaka district already has an adequate financial support system required for such investment. There are two big banks such as Bank of Africa (BOA) and Banque National de l'Industrie (BNI), and many micro-credits such as Première Agence de Microfinance (PAMF), Réseau Caisse d'Epargne de Crédit Mutuel Agricole (CECAM), Société d' Investissement pour la Promotion des Entreprises à Madagascar (SIPEM), and Ombona Tahiry Ifampisamborana Vola (OTIV) that assist people in their financial activities [4]. According to the experts' analyses, the existence of BOA represents a good

opportunity for implementing this project. It has a standard quality service and low interest rate that is about 15% per year. The implementation of the project is thus possible by borrowing the 44% of the required fund from this bank.

The economy of Madagascar is largely dependent on agriculture and Small and Medium Enterprises (SMEs). However, the political and economical crisis of 2009 and 2010 had leaded these sectors into difficulties. To remedy this problem, the current government decided to facilitate the creation of SMEs and promotes Malagasy brands. This is considered as the greatest opportunity because political factors have always been seen as the main blockade in project developments in Madagascar.

However, as it is shown in the Fig. 1, there are some weaknesses and threats to which the project should address. Firstly, the district of Ambatondrazaka doesn't yet have skilled workers. Yet, the creation of the company will need high-skill in both management and tomato paste processing. This may affect the quality of the service and product introduced by the company. Consequently, the company's product may be rejected by the markets. Secondly, the supply of fresh tomato during the period of December until February is low. During this period, the average supply of fresh tomato in the whole district is only about 10 tons per days. Finally, the political interventions in businesses represent a serious menace for the company. The government may increase significantly the taxes in short time and may also increase the food importations.

According to [21], threats and weaknesses can be overcome by applying WO, ST, and WT strategies. Therefore, to improve workers' skills, the company will need to train workers as better as possible. The training can be done by machine suppliers or by national/international experts. Next, to guarantee its stability, the company should build a good relationship with the local and central governments. It should pay taxes regularly and on time and provide some activities that will be beneficial for both the local and regional communities. And finally, to ensure the availability of tomato during the raining season, December to February, the company together with farmers should find places where tomato cultivation can be conducted. According to the research survey, the cultivation of tomato during this period is possible by using uplands.

3.2 Project Feasibility Analysis

3.2.1 Technical and technological analysis

3.2.1.1 Project location and duration analysis

The location of the production department has been chosen based on resource base approach. It will therefore located in Ambohitsilaozana Communes where the quantity of water and tomato required can be met. However, the Commercial department will be located in Ambatondrazaka City. This choice has been made based on market base approach. The duration of the project has been set at five years. As it is a small company, five years should be sufficient to amortize the initial investment.

3.2.1.2 Production capacity and raw material analysis

The total production of the company will be about 500 Kg per day. Based on the product recipe, the production requires 3 tons of fresh tomato, 7 150 pouches and 140 boxes for packaging, 100 Kg of salt, 50 Kg of sugar, 15 Kg of garlic, and 25 liters of oil. All of these raw materials are available in the regional and national markets, except the pouches that will be imported from China (Fig. 2).

3.2.1.3 Building and infrastructure analysis

The company will need two buildings and each of them must have at least two rooms. The dimension of the building used for production should be at least 50 m^2. Half of this space will be used as production room and the rest will be used for fresh tomato storage. As the building does not yet exist, it should be constructed. The building required for commercial activities is expected smaller than that of the production. The commercial department will thus need two rooms with size of about 40 m^2. The 16 m^2 will be used as office and the rest will be used as warehouse. This building will be located in Ambatondrazaka City Center.

The energy used by both departments will be from Jiro sy Rano Malagasy (JIRAMA), a state company that provides electricity in whole Madagascar. According to its regional department, this company still has sufficient capacity for supplying such project.

The communication of the company will be based on cell phone and internet. Cell phone will be used for both internal and external

communications, yet internet will be used especially for external communications.

3.2.1.4 Machines, technologies and equipments analysis

Tomato paste processing starts with operations such as tomato washing and tomato sorting. Washing aims to render tomatoes free from undesirable matters and organisms, whereas tomato sorting aims to eliminate undesirable tomatoes such as spoiled and unripe tomatoes. These operations will be entirely manual and conducted by using plastic tube. The second step of the processing is tomato paste making. This operation is ensured by machine that can produce 100 to 500 Kg of tomato paste per hour (Fig. 3).

The third step of the processing is tomato paste pasteurization. The pasteurization aims at eliminating pathogenic microbes and lowering microbial numbers in order to preserve the quality of tomato paste. This objective can be attained when tomato paste is heated over 70ºC for 15 to 20 seconds [22]. Therefore, this treatment will be combined with tomato paste cooking, during which the ingredients will be added. The machine used for this operation is stated in the Fig. 4.

The last step is tomato paste packaging. This operation is also ensured by machine (Fig. 5). This is an automated machine that has two parallel lines and can produce up to seventy pouches of tomato paste within one minute.

The company will need equipments such as office and quality control equipments. The office equipments comprise computers, printers, chairs, tables, calculators, etc. However the quality control equipments comprise pH-meter, and Refractometer.

3.3 Market and Marketing Analysis

The market and marketing analysis has to take into consideration main variables such as market demand, market supply, existing competitors, and marketing strategy applied [23].

Internal Factors / **External Factors**	**Strength (S)** 1. Availability of the required fund, 56% covered by the future shareholders of the company. 2. The future shareholders of the company are very motivated for investing.	**Weakness (W)** 1. The available human resources have low skill in management and organization. 2. The available human resources do not dominate the machines and technologies used for tomato paste processing.
Opportunities (O) 1. Availability of fresh tomato to be transformed into paste. 3. Availability of machines and technologies required for tomato paste processing. 4. Existence of potential markets for tomato paste such as provincial and National markets. 5. Existence of financial support system required for such investment. 6. The current Malagasy government is supporting the creation of SMEs and is also promoting the Malagasy brands.	**Strength Opportunity (SO)** 1. Completing the required fund by borrowing from Bank Of Africa (BOA). 2. Creation of a company that produces tomato paste in the district of Ambatondrazaka.	**Weakness Opportunity (WO)** 1. The company's manager should be trained to be good at management and organization. 2. The company's personnel should be trained to dominate the machines and technologies used for tomato paste processing.
Threats (T) 1. The low supply of fresh tomato during December until February may reduce the company's production. 2. The markets may reject the company's product if it is low quality. 3. The political interventions may affect negatively the company's businesses.	**Strengths Threats (ST)** 1. The company should work closely with tomato farmers, trough the establishment of contracts. 2. The company should build a good relationship with the local and central governments.	**Weaknesses Threats (WT)** 1. The company's personnel should be trained to produce quality product. 2. The company together with tomato farmers should find places where tomato can be cultivated during December until February.

Fig. 1. SWOT matrix analysis

Fig. 2. Tomato paste pouches

Fig. 3. Tomato paste making machine

Fig. 4. Pasteurizer

Fig. 5. Packaging machine

The market research conducted in Ambatondrazaka district in October 2014 included 5 Wholesalers, 10 Supermarkets, 67 Regular Shops, 65 Restaurants, and 67 Households that are dispersed in eleven Communes, namely, Ambatondrazaka Urban, Ambatondrazaka Sub-Urban, Feramanga Avaratra, Ambandrika, Ambohitsilaozana, Ambatosoratra, Imerimandroso, Manakambahiny Andrefana, Ampitatsimo, Ilafy, and Didy Communes.

The findings show that almost 60% of the supermarkets and regular shops located in these Communes are supplied by four wholesalers, namely, Wai Albert, Bernadette, Bernard, and Raherivelo. All of these wholesalers are located in Ambatondrazaka City. Wai Albert wholesaler ensures the highest supply that is about 1 500 cans or about 100 Kg of tomato paste per month. The total supply per month of these four wholesales is about 300 Kg. The rest of the market, 40%, is directly supplied by tomato pastes importers, located in Antananarivo. This means that the total supply of Ambatondrazaka district is about 420 Kg per month. But during the raining season, where fresh tomato is scarce, the tomato paste supply increases by 30 to 50%. The annual growth rate of tomato paste supply in the district of Ambatondrazaka is about 5%. This rate depends mainly on the population growth. According to the 35% of the supermarkets and regular shops interviewed, the total current supply of tomato paste does not satisfy the market demand. Hence, the average of Ambatondrazaka district demand is estimated about 450 Kg per month.

The total demand of Ambatondrazaka district is about 3 to 5% of the proposed company's total production. But it may increase up to 9 to 15% whether the company develops an effective marketing strategy. The company will need thus to look for other markets. According to the chamber of commerce of Alaotra-Mangoro region, the region has seven potential markets, excluding that of Ambatondrazaka City. These markets comprise six Cities such as Andilamena, Amparafaravola, Atanambe, Morarano Chrome, Moramanga, and Nosibe An'Ala and one international company called Sherritt. The consumption of each of these markets is not far from that of Ambatondrazaka City. Therefore, the regional market can consume approximately about 50% of the proposed company's total production. The remaining quantity of about 250 kg will need to inter to the provincial and national markets. Four tomato paste brand names such as Fana, Heven, Evita; and Bravo Salsa are available in the local and regional markets. Three of them are produced in Italy. However, the fourth, Evita, is produced in China. These products are imported through companies such as Societé E.N that imports Fana, UCODIS that imports Hevene, SKL that imports Evita, and RMB that imports Bravo Salsa. The net weigh of each product is 70 g. In Ambatondrazaka City, Heven, Evita, and Bravo Salsa selling price is US$ 0.230, however that of Fana is US$ 0.269. In spite of this price, Fana remains the most purchased product and continues to dominate the markets because of its quality.

The marketing strategy applied by the company will be the Product, Price, Promotion, and Place strategy (4Ps strategy). The new product introduced by the company will weigh 70 g and include ingredients such as sugar, oil, and garlic. The packaging used is made of plastic but its internal surface is in aluminum. The utilization of this packing and the inclusion of these new ingredients will differentiate the product from the others. To conquer the market, the company will apply low pricing strategy. The product selling price will be set at US$ 0.2 and the factory price will be set at US$ 0.18. This selling price is of course lower than those of the competitors. The company's warehouse will be located in the most potential market of the region, which is Ambatondrazaka City. For supplying the local market, the company will use its own transportation. However, the transportation to the regional and national markets will be ensured by trains. For promoting its product, the company will use Advertisement, sales promotion, direct mail to subscribers, internet marketing, and sponsorship.

3.3.1 Managerial analysis

The managerial analysis takes into consideration the project implementation planning, management level planning, work program planning, department separation, and work distribution. According to [24], Gantt chart can be used for scheduling an entire or a part of a given project. Here, this tool is used for planning the implementation of the project. As it is illustrated in the Fig. 6, the implementation of the project will start with terrain purchase, which takes one week and end with the production test, which takes three days. The longest operation in the project implementation is the construction of the building, which takes about eight months. Therefore, the total duration of the project implementation is about eight months and 20 days. This means that if the terrain purchase is effectuated on Augustus 3, 2015, the company will be operational on April 4, 2016.

The company will have two departments such as production and commercial departments and both of them will be under the responsibility of the company's manager. As it is shown in the Fig. 7, the production department employs nine personnel, including its head; however the commercial department employs only four personnel.

The management of the company will be separated in two levels. The top level, manager level, will be responsible of the company's strategies formulation. The second level, department head level, will apply what the manager has formulated. However, in order to improve its ability, the company will apply employee empowerment strategy. This strategy will make the personnel more autonomous so that the decision making process and the job execution in any level will be fluent [25].

The company will work six days a week. This means that Saturday will be included among the working days. The company activities start from 7:00 AM and end 17:00 PM. However, a rest for one hour and thirty minutes will be given at midday. This schedule corresponds of course to the Malagasy work law, which stipulates that workers shouldn't work more than eight hours a day.

Project implementation planning	Start	End	Duration
Implementation Duration	**03/08/15**	**27/04/16**	**231**
Purchases	**03/08/15**	**18/04/16**	**223**
Land	03/08/15	08/08/15	6
Machines	15/02/16	18/04/16	55
Equipments	11/04/16	18/04/16	7
Constructions	**10/08/15**	**16/04/16**	**216**
Road	10/08/15	15/08/15	6
Building	16/08/15	16/04/16	211
Installations	**18/04/16**	**23/04/16**	**6**
Equipments	18/04/16	20/04/16	3
Machines	18/04/16	23/04/16	6
Recruitments	**04/01/16**	**11/04/16**	**85**
Responsables	04/01/16	04/04/16	79
Agents	07/03/16	11/04/16	31
Tranings	**04/04/16**	**25/04/16**	**19**
Responsables	04/04/16	25/04/16	19
Agents	11/04/16	25/04/16	13
Production test	**25/04/16**	**27/04/16**	**3**
	25/04/16	27/04/16	3

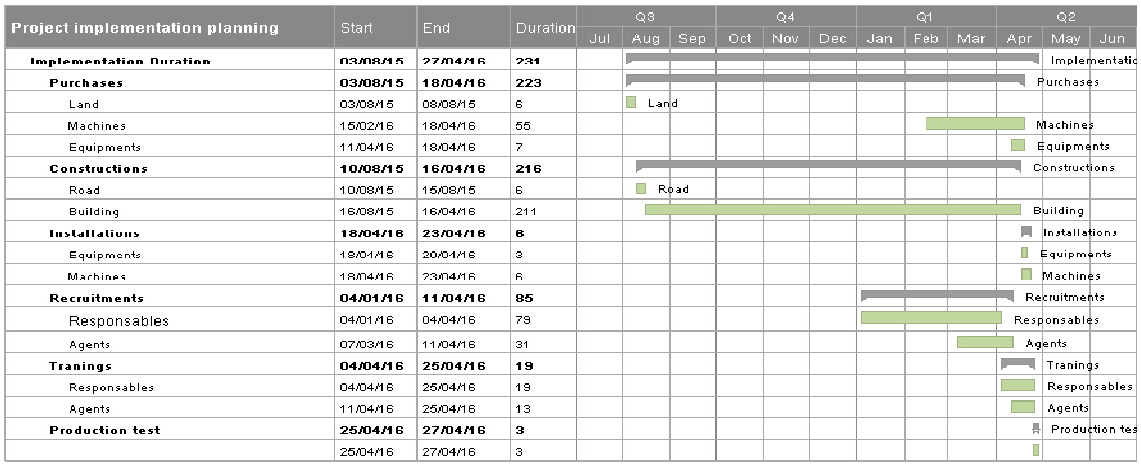

Fig. 6. Project implementation planning

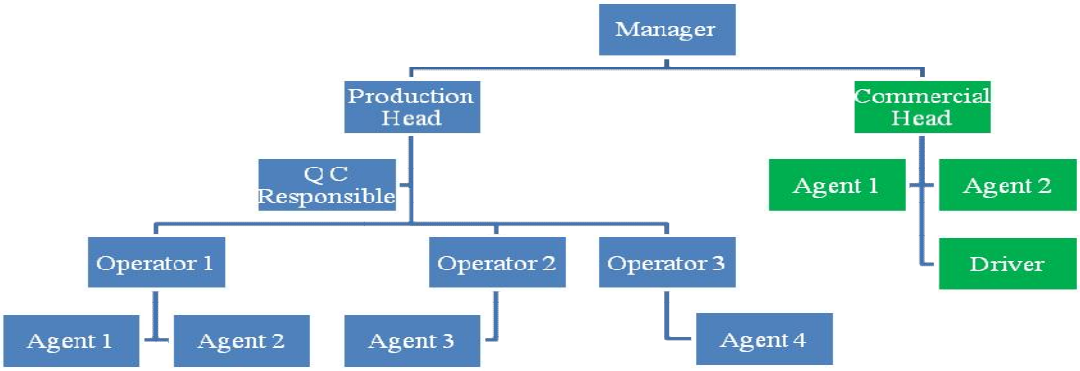

Fig. 7. Company's organization chart

3.3.2 Financial analysis

The budget required to start the project will take into account both the initial investment (Io) and the amount needed for running the production during the first month. The initial investment required is about US$ 17 000. This amount already includes the purchases of the terrain, machines, and equipments and the cost of the constructions. The amount required for running the company's activities during the first month is US$ 36 660. This means that a total amount of US$ 53 600 is required to launch the project.

The company will have two shareholders and the ready fund from them is US$ 30 000. This amount can cover up to 56% of the required budget. The company must therefore borrow an amount of US$ 23 500 from Bank of Africa (BOA) that has an interest rate of 15% per year. The reimbursement is planned to be carried out during the first three years, as it is shown in Table 1. To project the company's cash inflow and cash outflow, the operating cost and operating revenue during the five years are assumed constant and the materials depreciations are calculated by supposing that the building, machines, and equipments loss 5, 10, and 20% per year of their initial values, respectively.

All of the indicators used in the financial analysis show that the creation of the company is feasible. Net Benefit Cost Ratio is greater than 1, which equals 2.125. This means that within five years, the company will be able to generate more than twice the value of the initial investment. Internal Rate of Return is equal to 50.09%, which is greater than the current interest rate of 15% per year. Net Present Value is positive, which equals US$ 19 130.93. The last indicator, Payback period, indicates that the Initial investment (Io) can be earned back within two years and 13 days. This duration is of course shorter than that of the project.

3.3.3 Environmental analysis

These recent years, environmental aspect became an important aspect in project development analysis. This is the result of people's awareness vis-a-vis project bad effects [26]. The environmental aspect analyzes the availability of resources such as fresh air and water that are required for the workers and the surrounding environment well being, the availability of wastes disposal or treatment sites, and particularly the environmental impacts of the project.

In Ambohitsilaozana Commune, where the production Unit will be located, the wind generally comes from the east and discharges in the west. It is always available, only its intensity differs from one day to another. As it was stated, the choice of Ambohitsilaozana Commune as a production site was mainly based on the availability of water. The Commune has a potential source of water called Andoharano. This is a big river that passes through the eastern part of the village and has been used since long time ago as a source of drinking and washing water.

The company's activities will release wastes such as water and tomato wastes. These wastes may affect the surrounding environment and cause serious problems if they are not well managed. The company will thus need to look for places where the wastes released during its activities can be managed and treated. The company's wastewater treatment site will be located just behind the production Unit. However, the company's tomato waste disposal site will be located in the North-West part of the village.

The Malagasy environmental charter, through the environmental law nº 99-021/August 19, 2004 on the control of industrial pollutions, stipulates that the environmental impacts of a project that aims to produce in industrial scale must be assessed before getting the construction permit [27]. These impacts refer particularly to industrial pollutions such as air, soil, and water pollutions. As the company uses clean energy, electricity, the risk of air pollution will be very low. The company is not also expected to produce any smokes or particles that can cause air pollution.

Yet, the possibility of water and soil pollutions should not be ignored because of the chemical and organic wastes released during the company's activities. Chemical waste is conveyed by wastewater and organic waste is tomato waste itself. In fact, both of them may cause water pollution but the contribution of wastewater is seen more serious. This risk can be avoided or reduced first, by treating the wastewater and second, by finding an appropriate site where tomato wastes can be managed and treated. As an organic matter, tomato waste is not supposed to cause soil pollution, however its degradation is desirable in order to ameliorate the soil texture. Contrary to this, the released wastewater may cause soil pollution. The chemical polluting agents present in the wastewater is considered very harmful for the soil. Thereby, the company should pay a particular attention on the wastewater treatment because it represents a serious menace for the surrounding environment.

Table 1. Company's cash inflow and outflow projection

Components	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Investment (Io)	17 012					
Operating cost						
Variable cost		426938	426938	426938	426938	426938
Fixed cost		13923.68	13923.68	13923.68	13923.68	13923.68
Loan		11358.33	10183.33	9008.333		
Income		462672	462672	462672	462672	462672
EBT		10451.99	11626.99	12801.99	21810.32	21810.32
Tax (35%)		3658.195	4069.445	4480.695	7633.612	7633.612
EAT		6793.791	7557.541	8321.291	14176.71	14176.71
Depreciation		1162.06	1162.06	1162.06	1162.06	1162.06
NICF	**- 17 012**	**7 955.851**	**8 719.601**	**9 483.351**	**15 338.77**	**15 338.77**

EBT: Earning Before Tax; EAT: Earning After Tax; NICF: Net Income Cash Flow

4. CONCLUSION

The situation analysis highlighted that there are six opportunities such as availability of raw material, fresh tomato, availability of machines and technologies, existence of potential markets, existence of financial support system, and presence of an adequate SMEs government's policy and two strengths such as availability of the required fund, and high motivation of investors that lead into the creation of the company that produces tomato paste in the district of Ambatondrazaka-Madagascar. However, some alternatives such as working closely with farmers, through the establishment of contracts, building good relationship with regional and central governments, training the company's manager and personnel, and finding places for tomato cultivation during the raining season should be applied by the company to overcome the situation's weaknesses and threats.

Based on technical and technological, managerial, financial, and environmental analysis, the project is feasible. Technical and technological analysis stated that the required machines, technologies, and raw materials can be met. Managerial analysis showed that through the two departments and by adopting the two levels of management, the company can carry out its all activities. All of the indicators used in financial analysis highlighted that the creation of the company is feasible. Net Benefit Cost Ratio is greater than 1, which equals 2.125; Internal Rate of Return is greater than the current interest rate, which is equal to 50.09%; Net Present Value is positive, which equals US$ 19 130.93; and Payback period is equal to two years and thirteen days, which is shorter than five years. The environmental analysis pointed out that the pollution caused by the company can be avoided or reduced by treating the wastewater and finding an appropriate site where tomato waste can be managed and treated.

However, the market and marketing analysis pointed out that the capacity of the local and regional market is low. They consume only about 15 and 50% of the proposed company's total production, respectively. Hence, The Company should apply the proposed marketing strategy that should increase its local and regional sales.

The methods and resources used for this research enabled to attain the objectives. However, it is recommended to combine the technical and technological analysis with laboratory experiments and extend the market research into regional and national scale.

ACKNOWLEDGEMENTS

I acknowledge both Dr. Minar Ferichani and Dr. Kusnandar for their contributions in this research, Mr. Benoit Rakotondrasata, Mr. Lanto Ravalitera, and Mr. Marius Andriamainty for their analyses of the situation, my family and my friends, particularly Patricia Raharilalao for their love and their supports, and all as sundry who contributed in various capacities not mentioned.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sciencedomain.org/review-history.php?iid=898&id=25&aid=8434