The Relevance of Feasibility study in Assessing the Economic Viability of Dried-sachet Tomato Production in Kano Metropolis, Nigeria

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ABSTRACT

This study, "the relevance of feasibility study in assessing the economic viability of dried-sachet tomato production in Kano Metropolis, Nigeria" is carried out using the survey research design. The aim is to find out whether dried-sachet tomato production can be done, profitably and successfully in Kano metropolis. Focus group discussion is used to select some dealers on dried sachet tomato production to determine the viability of tomato business in the study area. Data presentation and analysis was quai-qualitative. The major findings revealed that this product is very important and gives financial benefits apart from its health benefits. Several techniques of removing the liquid contents has been observed as either conventional current, or electrical method by addition of anhydrous (de-hydrating) reagents. In order to retain its colour, the convention current method was adopted as the best, that is tray drier, drum drier, mechanized manual method, spray drier etc. Conclusively, the production of dried tomato powder in sachet is a good business, if the necessary capital base is provided. Therefore, it is recommended among others that the experience needed to manage a business should be acquired, and that knowledge and experience acquired should be effectively utilized.

Keywords: *Feasibility study, Entrepreneurship, Dried sachet tomato, producers*

INTRODUCTION

Assessing the viability of a business is better done through undergoing a feasibility study of the project. Feasibility study is a guide to project establishment. It takes into consideration the requirements of a project to be established where, when and how to get materials, the cost, and the expected return on investment. After identifying an investment opportunity, it is necessary to determine whether the idea is practicable and profitable, taking into consideration the operating environment. Among the questions the entrepreneur needs to ask when making a feasibility study are: Will the idea be practicable? Will it be feasible? Will it be viable? Does a market exist for the products I intend to make? What is the nature of the competition in the market? What will be the probable market share? Will the technology (machines) needed available locally or will they be imported? What about the raw materials? Are they available locally? What is the financial requirement of the project? Can I provide all the capital or what could be the probable source of additional capital? What market strategy should I adopt? What type of personnel (in terms of skills) will be required? And what will be the production process? (Gana, 2001). Feasibility study is an investigation

into the potential outcome of a project. It is a planning document which is used to develop an acceptable business plan for the project (Gana, 2001). Business feasibility study is the process of checking out the workability and profitability of the proposed business (Aruwa, 2004). A feasibility study looks at the viability of an idea with emphasis on identifying potential problems and attempts to answer one main question: Will the idea work and should you proceed with it? (Women in Business, 2012). Most organizations, businesses, developers and charities make the mistake of steam rolling into a project without a sound feasibility study. A business may have a great and needed product for a region, but does not necessarily make it a good business opportunity. Not all ideas that make sense are great business opportunities.

Like selling water in a desert, since there is a shortage of water, it sounds like a great idea. But since there is very little water present, there is not a population that sustains a living there and sales would not exceed the cost of importing the water to the arid region, this is not a good and viable business. What can be learned from a feasibility study can help a business and a project manager most better to decide if the business will be profitable. In the study, the logistics of the business should be determined. If there is a problem, can it be overcome in a cost effective manner? The right marketing strategy can also be uncovered with a feasibility study. Determining how to properly reach the target market is a vital step in creating a viable business in any region. The location of the business and how accessible to the target audience will also be a factor. A late night pizza delivery business would not perform well if based within a mall that closes at 9pm. Finding out if your product or service is wanted, if the consumer is capable and willing to spend on it and will they have access to it when they want it can all be determined with a feasibility study. If a business skips this step in the development of their product, they very well could be throwing their invested dollars away (www.blog.Method123.com, 2012). Below are some of the benefits of a feasibility study.

* It is an aid in business planning as it involves an examination of all aspects of the intended business such as costs, markets, sources of suppliers, expected profit, technical data and many others.
* It gives an evaluation of new businesses for determining the viability and profitability.
* It provides the basis for a banker, promoter, supplier of goods, the various government agencies on which to make a decision to the businessman (Gana, 2001).
* It gives in detail all the things you need to make the idea work,
* It identifies logistical and other problems and solutions,
* It develops marketing strategies to convince a donor, bank or investor that your idea is worth considering as an investment,
* It serves as a solid foundation for developing your business plan (Emica Consulting, 2012).
* It is helpful in identifying potential cash flow, and
* It helps planners focus on the project and narrow down the options (Dealingfirm, 2012).

The above benefits notwithstanding, several reasons are attributed to the failure of a business. There are:

1. Ineffective project planning and preparation
2. Inadequate and/or mutilated data
3. Insufficient funds
4. Political instability
5. Wrong project identification
6. Inadequate project execution, operation and supervision
7. Neglect of one or more of the stages in the project life-cycle
8. Defective project design
9. Problems in start-up and activation of project
10. Faulty project appraisal and selection processes
11. Inadequate or ineffective coordination of project activities.
12. Plunging in without testing the troubled water on a small scale.
13. Under pricing of goods and services
14. Starting with too low capital
15. Starting with too much capital not judiciously used.
16. Going into the business with little or no experience
17. Borrowing money without planning with too little capital (over trading)
18. Attempting to do too much business for set backs and unexpected expenses.
19. Extending credit too freely.
20. Failure to keep complete and accurate records (inventory imbalance) which the business will required for successful operation.
21. Carrying habits like "extravagance" into the business
22. Failure to delegate responsibilities and assign duties
23. Inability to maintain customer relationship (Note: customers are king in business).
24. Failure to understand changing economic conditions.
25. Lack of specialty or high caliber staff.
26. Competitive weakness
27. Excessive overhead and operating cost
28. Hand to mouth (self actualization of human resources)
29. Low productivity etc (Enikanselu and Oyende 2010; Fieldwork 2012).

Therefore, Feasibility study is needed by many people, especially for investors as the initiator, the bank as lender, also government as a provider of law and order legislation. Surely this makes all interest different from each other. For instance, investor's interest is to know the level of investment profits, bank's interest is to know the security level of credit provided and facilitation of return, government interest emphasizes the benefits of these investments for macro economic development, equal employment opportunities, etc. (www.Tarponline.net, 2012). We have been seeing a lot of dried tomatoes though not in sachet form everywhere in Nigeria and we felt its not right to handle the product in such a way. The product may be contaminated and the effect may be disastrous. Food is sometime poisoned due to its exposure to unguided environment. Therefore, *The aim is to*

find out whether dried tomato sachet production can be done, profitably and successfully in Kano metropolis. It is obvious to state that every entrepreneur should carry out feasibility study to establish the potency of the business before venturing into it.

METHOD

This study adopts the survey research design. The population of the study comprises all producers of dried sachet tomato in Kano metropolis. In determining the viability of dried tomato business, focus group discussion was used to elicit information from selected participants within the metropolis. The market value of various sizes of dried sachet tomato products was explored and noted. Data presentation and analysis was quasi-quantitative.

RESULTS AND DISCUSSION

As a beginner for the first time, it is advisable to rent a location rather than purchasing it, so as to test the trouble water in a small scale before plunging deep into it. It will as well reduce overhead cost to the minimum. It is advisable to site the production plant where there are accessible road, close to supply point and in a plot of land not less than 100 x 100 metres. The location should be well accessible to required energy source (solar or electrical) or alternative heat sources as business can not be successfully run under the usage of diesel or petrol driven power generator with the unstable fossil fuel supply pricing in Nigeria today.

A structure to house: To have a viable and profitable dried sachet tomato business, warehouse section, selection section, recycling section, slicing, milling, packaging and office sections should be provided.

Tomatoes varieties or species selections and blending: The various varieties of tomatoes found in Kano include: (i) Dandino (ii) Danyeka (iii) UTC and (iv) Roma.
They have different taste and colouration, and for the purpose of a quality and attractive production, varieties can as well be blended such as Dandino (having the sweetest taste) and UTC (having a brightest deep Red colour) similarly additive colouration can be added to the milled dried powder up to the required colour tone to attract buyers. Interestingly, an entrepreneur may engage on direct farming by employing labour or instructing suppliers on species that could be largely farmed, to an average ton required per season.

Manual selection: On obtaining the desired species of tomatoes, it is passed to a section for manual handpicking of rotten tomatoes, through a slow running conveyor (driven by electric motor or manual electric motor which is manually controlled, where two to three persons are expected to manually pick the rotten tomatoes or unwanted materials from the tomatoes line. This measure will ensure that high quality and the original true taste of the tomatoes is maintained using only good ones, as rotten ones changes the taste to a greater percentage. The rotten ones can be recycled by processing it separately as paste and sold for local consumption.

Slicer: The selected tomatoes will then be moved or conveyed to the next section which consist of a mechanized slicing equipment that cuts the tomatoes fruit into fragments or pieces for easy drying or alternatively manually done, if quantity is within manual scope.

This will aid in quick and even drying process (evaporation of moisture content) from the inside surface of the tomatoes as the outer skin may hinder or delay heat transfer process and subsequently contribute to longer drying time.

Boiler Alternative Measures: Heating equipment in form of a steaming drum may be introduced to heat up the tomatoes chips to a boiling temperature of about 100^{o}C. This will allow for about 30% of the contained water content to be driven off by evaporation. However, the temperature will be carefully monitored not to burn the underneath portion by constantly steering the tomato chips. They can then, be spread in still air to further vaporize the contained moisture contents, then cooled either through natural air convention, manual fanning or electric fanning. Care must be taken in order not to throw away the tomatoes liquid contents as they contain the required nutrients. Hence, only the moisture content will be required to be driven off. It should be noted that boiling does not change the colour or taste of the tomatoes)

Dried: Drying of byproduct is a mass transfer process resulting in the removal of moisture content or moisture from another solvent by evaporation from a semi-solid or liquid to end in solid state. To do this, there must be a source of heat and a sink of vapour produced. There are various methods for drying the tomatoes, they include:

1. Passing convectional current from a heat source (i.e. burning coal, wood, and fossil fuel) over the surfaces of tomatoes to be dried.
2. Using electrical method or by addition of anhydrous (dehydrating) reagents.

Convectional Current Methods include (a) Mechanized manual method (b) tray drier (c) spray drier (d) drum drier (e) grain drier (f) vacuum drier, where hot gas streams (especially air) are passed over the intended tomatoes to be dried by carrying the vapor away as humidity.

Mechanized Manual Method: Here solid fuel such as coal, wood, and charcoal are combusted. The generated heat are channeled or blown (mostly with fan) into a drying chamber through a section containing Ammonium copper 1 chloride block that absorbs carbon monoxide contained in the hot air stream to reduce contamination through a chamber containing the tomatoes to be dried through convection heat transfer process. The vapour and the fuel gas goes out through a provided chimney. Tray Driers are specifically made of a hot tray or bed, which is pre-heated by electrical means and serves as drying medium to any material placed on it. Spray Drier is much more like a tray drier. It utilizes a jet like mechanism which atomizes or extrudes fine textured grinded particles of the tomatoes slurry (substances) over a hot bed. This enhances speedy drying of tomatoes. Drum Drier operates much as the tray drier, by using a heated drum containing drying material by transferring heat to internally contained tomatoes. Electrical Drier utilizes the electrical means in providing heat energy needed to dry the tomatoes, its power source is the convectional electric supply means. In a Solar Drier, a solar collector in form of solar box or solar concentrator (parabolic with a heat distribution medium (a drum shaped) material is embedded centrally in the equipment, the tomatoes are placed inside the drum which is intermittently rotated to uniformly distribute heat over the tomatoes until it is perfectly dried.

DRYING METHOD

The tomatoes after been boiled can be dried to perfect drying condition using basically the mechanized manual and solar driers. This method is more reliable and easily obtained. Heated air at a controlled temperature are directed (convective) to a rotating drum containing the tomatoes, the air heating reduces air relative humidity, with its driving force for the tomatoes drying. Besides, the heat supplied is raised to a higher temperature which speeds up diffusion of water inside the tomatoes thereby hastening its drying. Hot air completely dehydrates the tomatoes surface so that its internal pores shrink leading to a crust formation. Kano climatic condition favours solar air heating to temperatures well above 180^{o}C using the solar collectors, which is enough for faster drying of the tomatoes especially during hot season, while solid fuel means of heating can be used as a substitute for generating heated air during rainy or unfavorable weather conditions. The drying method is by direct contact of the heated air on tomatoes surfaces. The moisture contents in these tomatoes leave the tomatoes in form of vapour and go out of the drying unit through provided pores attached, leaving the tomatoes behind dried.

Milling section: After drying the tomatoes, it should then be moved to a milling machine which grinds the dried tomatoes chips to powdered form. Here colourative additive may be added to improve the tomatoes colour, thereby facilitating its physical attraction. The colour of food is one of the most important sensory attribute for the product acceptance. Lycopene is responsible for the red colour of the tomatoes and can be degraded by thermal processing. This properties can be affected by the drying air conditions (thermal flow rate), feed conditions (enzyme Inactivation, additives, feed rate).

Packaging: Attractive package goes a long way in influencing the sales of certain products. The packaging method suggested is either by using well designed (printing work) polythene (leather material) or paper and polythene material combination, in either way, the safety of the enclosed tomatoes powder should be of paramount interest. If plain transparent polythene sachet are to be used, the coloration must be of acceptable limit, and competitive amongst other existing tomatoes colours. Similarly its quantity per sachet (in grams) must be reasonably acceptable and commensurate with the price, these two variables quality and quantity, are the basic foundation and are the golden rules for a successful venture into the business.

REQUIREMENT FOR RUNNING THE BUSINESS EFFECTIVELY

Labour: Adequate labour requirement and experienced staff or labourers must be given proper consideration. Factors to adequately utilize them must be given full attention as they constitute the heart of the business. A total of about 6-8 labourers are required for the business (Fieldwork, 2012).

Marketing and Advertisement: Available tomato sachets which includes Derica tomatoes pastes in the market for sale ranges from N40 per 70gram sachet, to N50 per 70 gram tomato sachets. For the fact that the powdered tomatoes is larger in size when packaged

in sachet (than the paste), the suggested powder sachet may range from N30 per 40 gramme sachet to N60 per 80 gramme of it (Fieldwork, 2012).

Inventory Control: During tomatoes seasonal farming, about Ninety to hundred trailer load (consisting of 550 baskets per trailer) is sold at the corner Gafan market. Each basket cost between 800 to 2,000 Naira. During off season, a basket cost between N5,000 to N9,000, and quantity sold is between 2 to 5 trailer load and tomatoes farming takes 3-5 month maturity period (Fieldwork, 2012). In other words for effective inventory control, large volume of tomatoes sufficient for 4 months distribution should be acquired during seasonal farming, processed and stored, in warehouse against rainy days. Since its supply is limited during off season. Based on the findings of this study, this will allow for steady sales during off season.

CONCLUSION AND RECOMMENDATIONS

A feasibility study's main goal is to assess the economic viability of the proposed business. The feasibility study needs to answer the question: "Does the idea make economic sense?" The study should provide a thorough analysis of the business opportunity, including a look at all the possible roadblocks that may stand in the way of the cooperative's success. The conclusion of the feasibility study determines whether to continue with the anticipated venture or not. The growth aspect of a business is usually not given serious attention, except for people trying to attract would-be investors. Investors are only interested in the returns on their investment, it therefore follows that, in order to attract them, you have to show clearly what the likely returns on the investment would be. This study assessed the economic viability of dried-sachet tomato production in Kano metropolis, Nigeria. Hence, based on what has been discovered so far, the study concludes that dried-sachet tomato business is a viable venture considering economic value of the product and it general acceptability.

To succeed in the production of dried tomatoes powder in sachet, it is suggested that knowledge and experiences, at ones disposal should be effectively put to play; environmental factors' such as political, economical, socio-cultural or climate conditions should be treated with attention. The experience needed to manage a business should be acquired; there is need to identify the type of business ownership one intends to set up (is it partnership, Private Company, Sole proprietorship, Co-operative etc.). The required leadership style needed to run the business successfully should be defined. You should be able to raise the equity and working capital needed to organize and operate the chosen business at least for the first two years should be treated a very important aspect of the survival of the business. Finally, the entrepreneur has to possess the strong emotional factor for hard work and long hours of commitment.

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