

**Report on**

**Case Study Research Segment**

**Topic assigned**

**Entrepreneurship Development at a village level by Proposing Business Plan for Tulsi  
Mala making device to Rural Technology Action Group (RuTAG) IIT Delhi**

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## Abstract

Promotion of income generating activity by proposing business model for two of the most successful technologies provided by Rural Technology Action Group (RuTAG) at Indian Institute of Technology Delhi for development of India's rural masses. The proposed business model were developed as a part of Case Study Research Segment by the author. This report talks about the various methodologies and tools used for developing the business model. This reports also states the observations of the author during the field visits he had to do. And finally the conclusion to this report is included at last.

## Acknowledgement

I would like to express our deep gratitude to our host organization Indian Institute of Technology for setting a good platform and a good environment to work on. I would also like to express my gratitude towards the Office of the Principle Scientific Advisor to the Govt. of India, for its support to RuTAG (Rural Technology Action Group). I have immense pleasure in expressing my deep senses of gratitude and sincere thanks to my esteemed **REPORTING OFFICER Mr. Raj Kumar Gupta, Senior Project Assistant RuTAG, IIT Delhi**, for helping throughout my **Case Study Research Segment**. I am grateful for the quality guide and immense help from **Prof. S.K. SAHA, Professor Mechanical Department IIT Delhi, and Mr. Davinder Pal Singh, Senior Project Assistant RuTAG, IIT Delhi**.

I would like to express our deep sense of gratitude to my **faculty guide and Co-ordinator Prof. Sumita Sindhi** for her valuable inputs, support and encouragement throughout our Case Study Research Segment

I would like to express my gratitude to Lupin Human Welfare and Research Foundation, Bharatpur, Rajasthan, Gramodaya Rachnatmak Vikash Sansthan, Chariawaha Khas, Deoria, Uttar Pradesh, and the International Development Enterprise in India, Dwarka, New Delhi for their supports and feedback associated to their technology upbringing.

Date.....2014

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## Certificate

Date:

### To whom it may concern

Certified that, **Mr. Arindam Mondal (14201006)**, a student of KIIT School of Rural Management (KSRM), Bhubaneswar, was attached here from 6<sup>th</sup> March, 2015 to 23<sup>rd</sup> May, 2015 at RuTAG IIT Delhi, Delhi under the Case Study Segment (MBA-RM 2014-16) programme as a part of his Master of Business Administration in Rural Management. Title of his project work was " Entrepreneurship Development at a village level by promoting the Proposed Business Plan to Rural Technology Action Group (RuTAG) IIT Delhi". Place of his visit were Deoria in Uttar Pradesh, Bhubaneswar in Odisha and Bharatpur in Rajasthan. He worked under Dr. Subir Kumar Saha, Professor, Mechanical Department, Indian Institute of Technology, Delhi.

He has completed the work assigned to him. He was friendly.

Wish him all the success in life.

Dr. Subir Kumar Saha

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## **1. Executive Summary**

In Bharatpur district of Rajasthan some of the women are engaged in making beads from the stem/twigs of *Tulsi plant*. They make *Tulsi Mala* of 108 beads, sale these Mala (Garlands) and earn their livelihood. They use a wooden structure, a device in which a tailstock is fixed on right side of a wooden base. A DC Motor connected with a 12 Volts DC Battery was used in the device. The motor was held in hand for forward movement while turning, boring and cutting of beads from stem of *Tulsi*. The user sit on the ground, bend there body towards the device while working and hold the DC Motor along with the stem holder (Chuck) pressing it by thumb and finger to stop the movement of chuck for taking the bead out of the tailstock. The users had several problems such as neck and back pain due to the continuous bending of the body while working, the operator gets blisters in hand while operating as the motor would get heated up, irritation and pain in the arm due to stopping the motor by fingers. Besides, the productivity was also low. A team from RuTAG, IIT Delhi did some modifications in the device to overcome the above said problems, which thereby increased the productivity of the device, thus helped in a substantial increase in income of the artisans.

### **1.1 The Market of Tulsi Mala**

Artisans in Bharatpur district are making Tulsi mala from generations and market is quite old. Many women are engaged in the profession of making Tulsi Mala with traditional devices. Therefore there is a demand for the improved device to eliminate drudgery and increasing production. Business model for generating entrepreneurship at village level was required for disseminating the improved technology for poverty alleviation. Bharatpur district is the market where the need for improved Tulsi Mala beads making device is observed and from which the entrepreneur can earn some money so that they can contribute in the family income.

### **1.2 Growth Potential for the Business Plan**

As India is a developing country it needs to become more financially stable. The rural area needs to be uplifted for making the people in the rural area financially sound. So there is a potential of exploring the market and enhance the economic conditions. As the rural sector is least explored market so there is a nice opportunity to excel in this area.

### **1.3 Education background of the people of Bharatpur**

There are both government and privately run colleges in Bharatpur including the Government Engineering College, Bharatpur, offering Bachelor degrees in six engineering branches. Students from different parts of the country come to pursue B.Tech. degrees at the College. Some other colleges are MSJ College, RD Girls College, Chandravati Group of Institution (Faculty of Engineering and Hotel Management), and the Digamber Nursing College.

This document has been focused mainly on Bharatpur district as RuTAG, IIT Delhi already has tested their technology<sup>1</sup> in this district. As RuTAG, IIT Delhi has planned to develop entrepreneurship at this village.

### **1.4 Sales & Profit Forecast**

The sales for the first year is forecasted as 10 machines from which about 9000/- to 18000/- can be earned. The improved device has a high production rate so it has increased the income from (100/- to 150/-) to (500/- to 600/-). (data provided by RuTAG IIT Delhi).

### **1.5 Financial Requirements**

To start the business, the entrepreneur will need 16800/- to meet the assumed demand, the capital can be provided by the implementing agency or the VLE<sup>2</sup> can arrange the money. But the author recommends to get a loan from the bank for smooth operation of the business. The repayment will be made after setting up the business properly.

### **1.6 Utilisation of Finances**

Capital will be utilised for procuring the raw materials required for manufacturing the device and other equipments like cutting tools and spanner, etc., cost of renting out the plot/area, and payment of the staffs.

### **1.7 Repayment of loans**

The loan will not be required as the investment is not that much high. And even if the VLE opt for taking loan then the entrepreneur can pay out the loan on monthly basis, as the VLE will start the business and can start paying once the entrepreneur reaches the break-even.

## **2. Introduction**

Ever since the independence of India in 1947, a sustained effort has been made to develop the country's science and technology capabilities. Government of India's Scientific Policy Resolution (SPR) dated March 4, 1958 clearly stated that the key to national prosperity, apart from the spirit of the people, lies in the effective coordination of three factors, technology, raw materials, and capital. The aim of SPR 1958 was to foster, promote and sustain the cultivation of science and scientific research in the country and to secure for the people all the benefits that can accrue from the acquisition and application of scientific knowledge. Various policy pronouncements of the Government have emphasised the role of mounting a direct and sustained effort on alleviation of poverty, enhancing livelihood security, removal of hunger and malnutrition, reduction of drudgery and regional imbalances, both rural and urban. The generation of employment was also emphasized using scientific and technological capabilities

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<sup>1</sup> Improved Tulsi Mala beads making device

<sup>2</sup> Village Level Entrepreneur

along with our traditional knowledge pool. A number of ministries, departments, R&D laboratories and other institutions and agencies have been established in India specifically to meet the aforesaid objectives. The effort of our Government through the last couple of decades has resulted in a broad-based and extensive science and technology (S&T) network, besides the development of a substantial number of trained and competent S&T manpower and S&T infrastructure.

Across the world there have been interventions by the governments to resolve the issues of technology up gradation in the micro and small enterprises. It is important to develop links between the industries, enterprises on one hand and research & development laboratories/academia on the other. Those countries which have successfully implemented this strategy have succeeded in improving the productivity of their micro and small enterprises and ensured adequate supply of credit at a reasonable cost to both the technical institutions and the entrepreneurs. Productivity of an enterprise, whether organised or unorganised, is primarily a function of technology. Similarly, the sustainability of an enterprise is a function of competitiveness. Increasing productivity is thus essential for the promotion of competitiveness. In this report, one such link is highlighted, Rural Technology Action Group (RuTAG), an initiative by the Principal Scientific Advisor to the Government of India.

## 2.1. Concept of RuTAG

As mentioned above, Rural Technology Action Groups (RuTAG) is an initiative by the office of PSA. RuTAG is a synergizing and catalysing mechanism and not a major funding mechanism. RuTAG was conceived to provide a higher level of S&T intervention and support by the IIT's and others technical institutes / R&D organizations. This intervention, which essentially is demand-driven, is to reduce technology gaps, technology up-gradation, technology training and demonstration through any innovative method. RuTAG attempts to bring about a successful interface between the rural majority and an institution of excellence through a field-level S&T organization. In summary, RuTAG activities are directed towards the following:

- Addressing defused rural economy through S&T Platform.
- Dissemination of refined/up-graded technologies to rural areas.
- Technology delivery primarily for non-farm sectors.
- Benefiting rural groups through network of NGOs.
- Adding value to the produce and enhancing quality of rural life.

## 3. Enterprise Details

Rural Market comprises of FMCG, Durables, Agri-inputs, Two/Four wheelers

Table 1 Rural Market Shares

FMCG	□ 65000 crore
Durables	□ 5000 crore

Agri-inputs	□ 45000 crore
Two/Four Wheelers	□ 8000 crore
<b>Total</b>	□ <b>123000 crore</b>

*Source: (Francis Kanoi, 2002)*

This sector of business has been identified as the market of "durables" which is quite old in the rural areas and it does not have future in urban area. The product is aimed at creating new entrepreneurs at the village level. Tulsi Mala Beads making device will certainly help empower women and make them capable of earning some livelihood on their own.

The reason for choosing this sector is that it is not explored as it is in rural and the product is quite old. The proposed business has no competition because the product which is being offered/sold does not exist in the market. With the help of this technology, the product is made for woman entrepreneurs, who has the urge to earn some money and contribute to their family. Men also work on this to produce beads out of the Tulsi stem to make Tulsi Mala. Our machine is efficient enough and can do all sorts of things required such as ("cutting", "shaping", "designing"). A Bharatpur-based NGO (Lupin Human Welfare and Research Foundation) organized some women living in 18 villages of Bharatpur district and formed into several Self Help Groups (SHGs).

#### **4. Product Description**

The artisans use a wooden structure to support one end of the stem shown in Fig. 1 and hold the other end in a hollow shaped bent sheet connected to a DC motor running at about 500-750 rpm. The motor connects to a 12 Volts DC battery. The motor was carried by the operator, as indicated in Fig. 1. A tool is used to peel off the shell of the stem and making spherical shape by turning the tool by hand in an arc. The hole is automatically made in the bead as it is supported on a sharp needle-like tail stock. They faced several other problems.

1. Neck and back pain due to continuous bending of the body.
2. Operator would get blisters in hand while operating as the motor would get heated up.

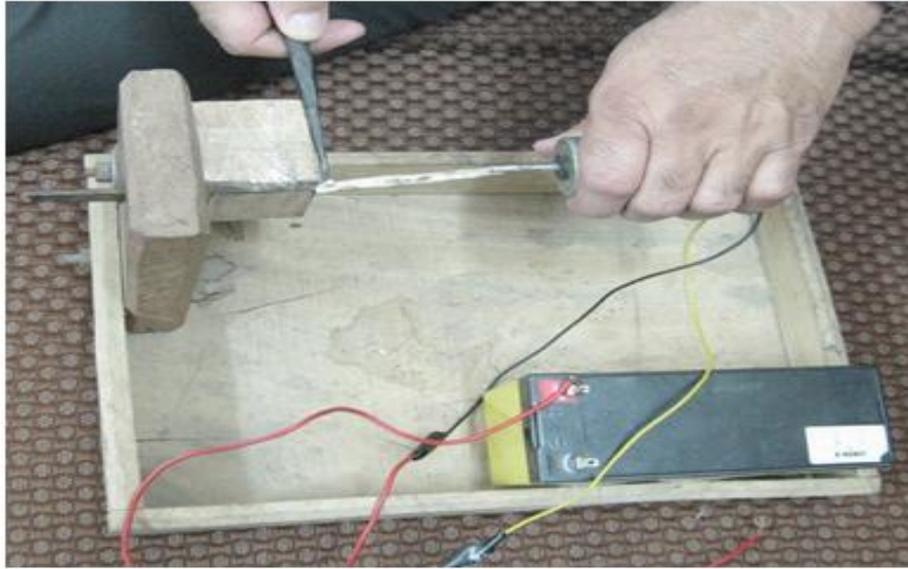


Figure 1 Old Device for making Tulsi Mala beads

Thus to address these problems RuTAG IIT Delhi provided with some modifications The Rural Technology Action Group (RuTAG) of IIT Delhi studied the problems and identified the key issues which directly affected the productivity. Based on the ergonomic study it has been realized that the following areas needed immediate attention:

- Provision of supporting the motor so that it need not be carried by hand.
- A mechanism for not to stop the motor by fingers.
- Besides, change in sitting posture is also important

Possible solutions, keeping in mind the following aspects were brought up:

- a. No or minimum additional cost to the modifications.
- b. Minimal change to the devices so that no change in working habits is required. This is important for psychological acceptance.
- c. Local manufacturability of the device.

The modelling of the devices for making the beads from the stems, which consists of a wooden frame with tail stock support, tool guide platform, motor platform support, motor platform rod, DC motor, motor base, and on-off switch, etc. were carried out in Autodesk Inventor 2012, as is shown in Fig. 2. The existing DC motor of one Amp was selected without much technical consideration. When it was tested in IIT Delhi, it was observed that it could machine only the thin stems to make smaller beads but was not fit for making bigger beads from thicker stems. Hence, the motor was replaced by a DC motor of 2 Amps. It was tested and observed that it could easily work for making medium sized beads but it was not fit for bigger beads. Then DC motor of 3 Amps smoothly worked without any trouble for beads of bigger sizes. Hence, it was recommended. An isometric view of the DC motor with the on-off switch is shown in Fig. 3. Final fabricated device is shown in Fig. 4.

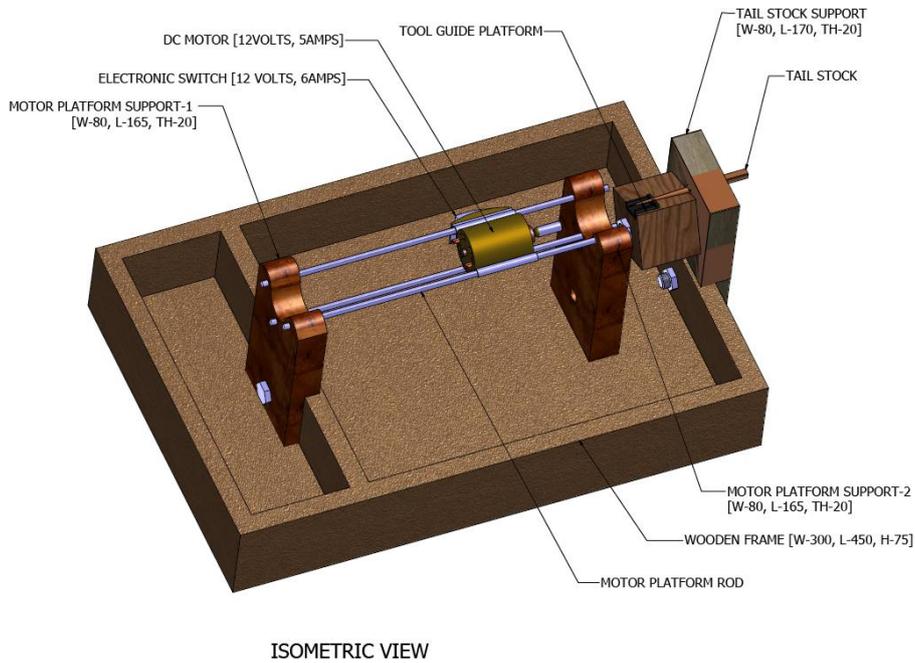


Figure 2 Improved Design of the Tulsi Mala beads making device

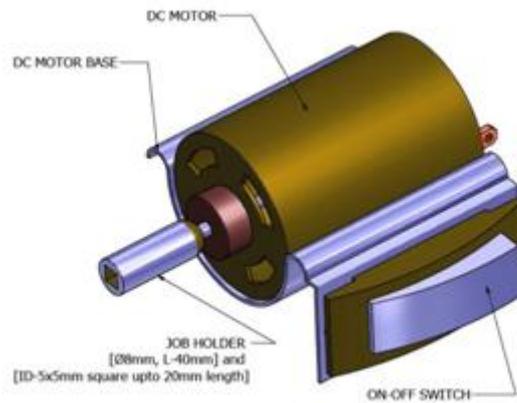


Figure 3 Iso-metric view of the on-off switch

The improved device is was sent to the SHGs. The feedback was collected from 10 users through the NGOs. The users were very happy with the modified device. They told that they are able to operate this improved device for about 12 hours a day without tiring. Thus, a worker can earn about Rs. 800-900 per day (at least a two-fold increase) after working 8 hours a day, while others can earn Rs.1200-1400 per day (3-4 fold increase) after working about 12 hours a day. Using the existing device, they could not work more for long hours due to fatigue and pains in their hands. It gave them a mix income of only Rs.300-400/- per day. A village carpenter in Nadbai village of Bharatpur is now manufacturing the improved device and selling it for Rs. 2,500/- per piece. The news of the device has also appeared in the daily newspaper “The Hindu” on Sept. 07, 2013, and can be referred to in Fig. 5.

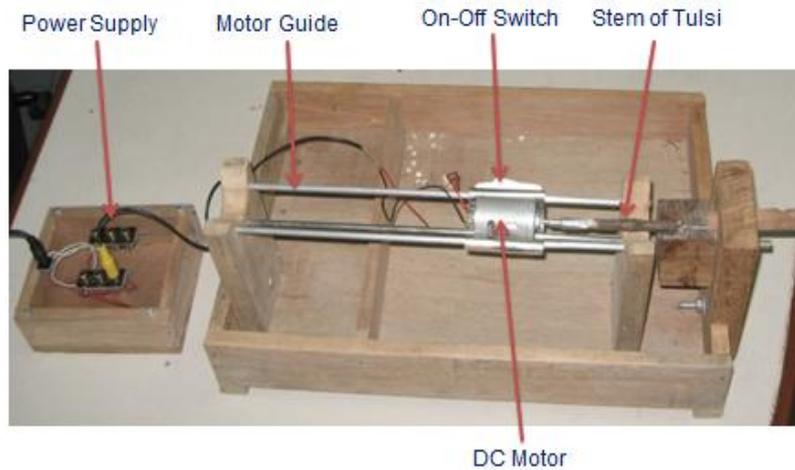


Figure 4 Fabricated device for making beads



Figure 5 Newspaper coverage of the improved device (Sept. 07, 2013)

Three unique selling propositions (USPs) of the device are:

1. Low cost
2. High Production rate
3. Income Generator

These USP will definitely serve the peoples' need for earning money. As the user of the device can easily make 1200/- to 1300/- per day working 12 hrs a day using the improved device.

This product is aimed at poverty alleviation as the income level of the family using this device for making beads as well as malas (garland) is quite astounding(i.e. 9000/- to 18000/-) per month.

## **5. Industry Analysis**

The sector quite old and has not been exploited this can be due to several reasons. Maybe due to some religious reason. The author himself says that if we start exploiting this market we can create new possibilities. This market is quite big in terms of customer base, as foreigners are also buying this mala and the youngsters are also keen to adopt these malas (garland) as a fashion accessory. So this market is undeniably huge. The general trend in this market is static but it has the capability to grow further in the future. And the growth will be adjunctive.

Further improvements in the product which will drastically reduce the drudgery which is prevalent now with the machine. There are many fault in the machine which needs to be fixed first. Recently we had a visit to the site and found out the faults in the machine. The technology makers need to take care all the negative aspects and make the product perfect, for now we provide a safety instruction manual with the machine itself as the technology makers sort out the implications. The information would be provided in pictorial form rather than written form. It would be easy for the rural folks to understand what are the precautions to be taken. The entrepreneur will have to provide a chart with the product which will include certain do's and don'ts.

## 5.1 PEST Analysis

The basic PEST analysis includes four factors:

**5.1.1 Political** factors are basically to what degree the government intervenes in the economy. Specifically, political factors include areas such as tax policy, labour law, environmental law, trade restrictions, tariffs, and political stability. Political factors may also include goods and services which the government wants to provide or be provided (merit goods) and those that the government does not want to be provided (demerit good or merit bad). Furthermore, governments have great influence on the health, education, and infrastructure of a nation. **EX-IM laws**

**5.1.2 Economic** factors include economic growth, interest rates, exchange rates and the inflation rate. These factors have major impacts on how businesses operate and make decisions. For example, interest rates affect a firm's cost of capital and therefore to what extent a business grows and expands. Exchange rates affect the costs of exporting goods and the supply and price of imported goods in an economy.

**5.1.3 Social** factors include the cultural aspects and include health consciousness, population growth rate, age distribution, career attitudes and emphasis on safety. Trends in social factors affect the demand for a company's products and how that company operates. For example, an aging population may imply a smaller and less-willing workforce (thus increasing the cost of labour). Furthermore, companies may change various management strategies to adapt to these social trends (such as recruiting older workers).

**5.1.4 Technological** factors include technological aspects such as R&D activity, automation, technology incentives and the rate of technological change. They can determine barriers to entry, minimum efficient production level and influence outsourcing decisions. Furthermore, technological shifts can affect costs, quality, and lead to innovation.

The author conducted an interview with a local manufacturer and the NGO Personnel. From that the author came to know about an accident at Laxmangarh due which a woman was unconscious for about an hour due to shock that shook her memory. Omvati Devi herself got shocks quite a few times and she also complained about the noise produced by the machine while in operation. She told the author that many users had returned the machines due to the noise as they caused a lot of irritation. Another problem was that the motor gets heated up quite quickly which produced blisters in hand. For the first problem, the author's co partner gave a solution on the spot that use the device away from any wet surface, and one should not hold the battery on both the terminals simultaneously or it could give shock.

## 6. Competition Analysis

As the author is proposing the business plan for rural entrepreneurs, so there can be many entrepreneurs in the same village which will be competitive in nature. Customers seek good service and good behaviour from the seller itself, if the seller behaves rudely with its customers than the customer will not be buying from him/her, so here is where competition comes in, if

the seller is the only seller than he's doing monopoly. As far as the competition is concerned, the competition will be high as there will many sellers of the device in the area. But to become a rural entrepreneur, one has to be of good and pleasing personality. To grow in the business the entrepreneurs need to take care of the competition and competitors in the market. The entrepreneurs have to know what are the market strategy their competitors are following to expand their customer base? How well do they foresee changes in the existing market? According to the author's analysis there are no competitors operating in and around Bharatpur, Lupin Foundation, a NGO, which is working hard to promote this product with the help of Smt. Omvati Devi. They had been organizing various workshops in and around Bharatpur to disseminate the product. As there is no competition till now, so the entrepreneur can focus on the pricing and promotion for now. The entrepreneurs will need to price our work very competitively.

As there will be VLE's so the manufacturing process will decide the product's weakness and strength. But as of a recent field study conducted by the author states that product weakness is that it creates noise while in operation and strength can be its productivity, designing and cutting of the beads simultaneously .

The manufacturing process has to be as per the specifications provided by RuTAG IIT-Delhi. The entrepreneur will have use the exact measurement and use exact alignment for manufacturing process. The technology maker are willing to provide the drawings and blueprints of the machine for free. And if the entrepreneur face any difficulty in manufacturing the device, they will help the entrepreneurs. The product can be more competitive as recent field study show that there is a need for adding a LED with the machine, which will help the manufacturer of the Tulsi Mala to be able to work at night also during power-cuts. Tulsi Mala making Device is sold at three different prices. The pricing strategy followed by one such manufacturer is very strong and if we don't price our product correctly, then we may have to exit the market. Currently there are three manufacturer of this product which is sold individually by the VLE w/o any brand name.

## **7. SWOT Analysis:**

SWOT is the acronym for Strength, Weakness, Opportunity and Threat. This is a very powerful tool for analysing the internal as well as external factors which affect the business either in positive way or in negative way. The Strength and Weakness are the internal factor or the factor which are inside the business organisation and Opportunity and Threat are the external factors which the organisation does not have any hold on it. So the picture below shows the SWOT Analysis done by the author.

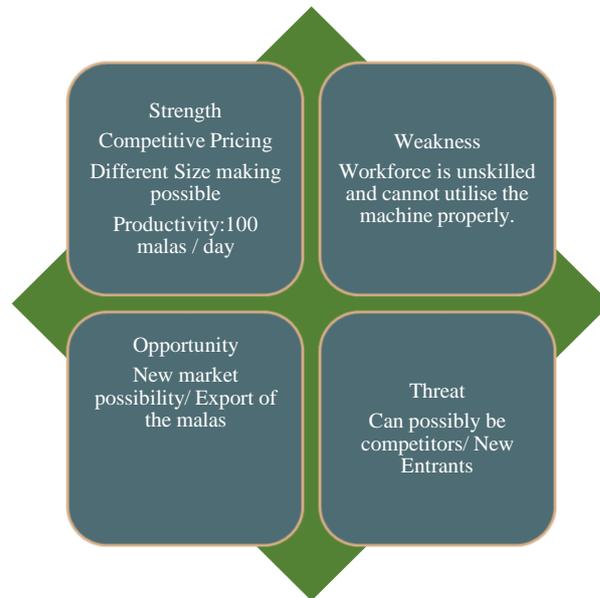


Figure 6 SWOT Analysis

**7.1 Strength:**

- Competitive Pricing
- Different Size making possible
- Productivity: 100 malas / day

**7.2 Weakness:**

- Workforce is unskilled and cannot utilise the device properly

**7.3 Opportunity:**

- New market possibility/ Export of the malas

**7.4 Threat:**

- Can possibly be competitors/ New Entrants

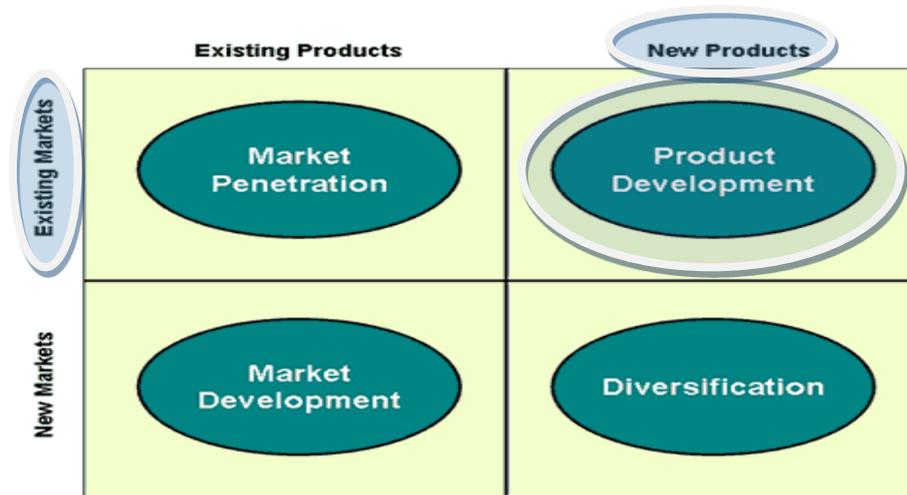
Here is a set of data which has been provided by the technology makers to state that their product was a success. They did a comparative study between the old machine and the new machine on the basis of productivity.

**Table 2 Production Rate comparison**

Sl. No.	Particulars	Productivity of Improved Device				Remarks
		No. of Mala	Total time in hours	Cost of 20 Mala	They earned per day (Rs.)	
1	Big Beads	18-20	7-8 Hours	1500 - 1800	1620-1800	Users can easily use 11-12 hours per day. This data is only for 7-8 hours. They already use improved device 11-12 hours per day.
2	Medium Beads	45-50	7-8 Hours	900 - 1000	2025-2500	--do--
3	Small Beads	65-70	7-8 Hours	400 - 500	1300-1750	--do--

## 8. Marketing Plan

As the business will be operating in the rural area, the entrepreneur need to think of good plan marketing very nicely. And to do that the author suggests to use Ansoff Matrix for analysing the marketing plan. According to the author's analysis the product falls under Product Development category.



**Figure 4 Ansoff Matrix**

## 8.1 About the Ansoff Matrix

The Ansoff Matrix also known as the Ansoff product and market growth matrix is a marketing planning tool which usually aids a business in determining its product and market growth. This is usually determined by focusing on whether the products are new or existing and whether the market is new or existing. The model was invented by H. Igor Ansoff. Ansoff was primarily a mathematician with an expert insight into business management. It is believed that the concept of strategic management is widely attributed to the great man. The Ansoff Matrix has four alternatives of marketing strategies; Market Penetration, product development, market development and diversification.

### 8.1.1 Market Penetration

When we look at market penetration, it usually covers products that are existence and that are also existent in an existing market. In this strategy, there can be further exploitation of the products without necessarily changing the product or the outlook of the product. This will be possible through the use of promotional methods, putting various pricing policies that may attract more clientele, or one can make the distribution more extensive. In Market Penetration, the risk involved in its marketing strategies is usually the least since the products are already familiar to the consumers and so is the established market. Another way in which market penetration can be increased is by coming up with various initiatives that will encourage increased usage of the product. A good example is the usage of toothpaste. Research has shown that the toothbrush head influences the amount of toothpaste that one will use. Thus if the head of the toothbrush is bigger it will mean that more toothpaste will be used thus promoting the usage of the toothpaste and eventually leading to more purchase of the toothpaste.

### **8.1.2 Product Development**

In product development growth strategy, new products are introduced into existing markets. Product development can differ from the introduction of a new product in an existing market or it can involve the modification of an existing product. By modifying the product one would probably change its outlook or presentation, increase the products performance or quality. By doing so, it can appeal more to the already existing market. A good example is car manufacturers who offer a range of car parts so as to target the car owners in purchasing a replica of the models, clothing and pens.

### **8.1.3 Market Development**

The third marketing strategy is Market Development. It may also be known as Market Extension. In this strategy, the business sells its existing products to new markets. This can be made possible through further market segmentation to aid in identifying a new clientele base. This strategy assumes that the existing markets have been fully exploited thus the need to venture into new markets. There are various approaches to this strategy, which include: New geographical markets, new distribution channels, new product packaging, and different pricing policies. In New geographical markets, the business can expound by exporting their products to other new countries. It would also mean setting up other branches of the business in other areas that the business had not ventured yet. Various businesses have adopted the franchise method as a way of setting up other branches in new markets.

### **8.1.4 Diversification**

The last strategy is Diversification. This growth strategy involves an organization marketing or selling new products to new markets at the same time. It is the most risky strategy among the others as it involves two unknowns, new products being created and the business does not know the development problems that may occur in the process. There is also the fact that there is a new market being targeted, which will bring the problem of having unknown characteristics. For a business to take a step into diversification, they need to have their facts right regarding what it expects to gain from the strategy and have a clear assessment of the risks involved.

There are two types of diversification. There is related diversification and unrelated diversification. In related diversification, this means that the business remains in the same industry in which it is familiar with. For example, a cake manufacturer diversifies into a fresh juice manufacturer. This diversification is in the same industry which is the food industry. In unrelated diversification, there are usually no previous industry relations or market experiences. One can diversify from a food industry to a mechanical industry for

instance.

## **8.2 The Product (i.e. Tulsi Mala making Device)**

As our product is a new product which does not have a market, so we'll need to use the Ansoff Matrix (shown in the above figure) and see where our product fall and observe the current market for our growth in the future, and thus how we are going to market it.

We can sell the product from our home only and do not require any extra place or area. This will be beneficial for the women entrepreneurs.

The rural entrepreneurs can sell their products from a shop which will be just like a go-down just like a kirana shop in a rural area with a room which will be used for production of the device.

And about the plans to add more product to our product portfolio, we are thinking of adding the improved model which has an automated switch for easy operation and will also save energy. The working model has not been fully functioning till now, and once it is in working condition we will add the product to our product portfolio.

## **8.3 The Customers ( i.e. Users and Buyers of the Product)**

The target customers will be mainly women who have very less income. So our customer base won't be so big. But as the mala produced by the device has a huge demand in India as well as outside India, so we are talking of export business.

Feedback is always welcomed by the seller, this helps her/him to improve their quality of service from time to time. So what the rural entrepreneur can do is, she/he can a note of the feedback and give it back to implementing agency, further the implementing agency can deliver these feedbacks to the technology makers. Everybody has cell phone nowadays, as it has become a basic amenity today, so our customer can get technical help from the manufacturers by calling them. Our product is so basic that it will not require any technical assistance. As the rural entrepreneurs will get prior training from Lupin Foundation on how to operate the machine. They will also provide training on skill building. So the efficiency will increase and they will be able to produce more malas (garland).

## **8.4 The Place (i.e. Location where the business plan is to be implemented)**

The geographical area/location is Bharatpur, this place is situated near to Vrindavan and Mathura, where there is a demand for these malas (garland), so it will be easy for us to transfer these malas (garland) to the areas, and also there is a lot of scope that more and more women will be interested to become the producer of the mala using the Tulsi mala beads making device. We are thinking of selling the product from a shop which will be near to the home of the VLE so that the VLE has easiness in performing the business. We cannot go for online sales as the

electricity supply in these area is very poor but we can start this service for easy transaction for export purpose of the business.

### 8.5 The Method ( i.e. The marketing strategy to be followed for product promotion)

Promoting the product is one of the key aspect in a business plan. The promotion needs to be done to promote the product which is being offered to the customers. This factor purely depends on the entrepreneur, but the author suggests that advertising the product on the newspaper will be an effective medium from rural perspective. The people of rural area mostly believe what is in the newspaper. The entrepreneur needs to give advertisement in the newspapers. Apart from that the author also suggests to go for positive "Word of Mouth" which will help the entrepreneur in gaining more customers. In rural perspective "Word of Mouth" is a very powerful tool of advertisement. So this need to be done by the implementing agency which is working on this project. They should use this tool to disseminate the product in the different areas, in this case is the district of Bharatpur. Another tool suggested by the author is the Political Economical Socio-cultural and Technological (PEST) Analysis. This will ensure in the smooth operation of the business. Nowadays technology has advanced beyond expectation, one such advancement in technology is the advent of Internet. Most of the social entrepreneurs nowadays opt for Internet to promote their product/services, But the analysis of the author shows that it won't be viable to advertise the product through internet as electricity is available for 6-8 hrs only. And the people here are illiterate or have low education qualification specially in the area of Nadbai village. So the author doesn't see it as a viable option on which the entrepreneur could really rely on. According to the market research done by the author, it would be appropriate to promote the product through the implementing agency or/and through Newspapers.

**Table 3 PEST Analysis**

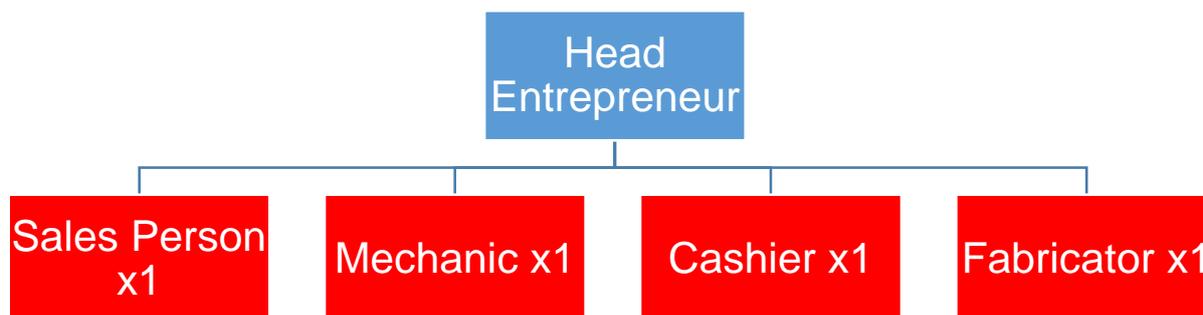
	<b>Factor</b>	<b>Opportunity</b>	<b>Threat</b>
<b>Political</b>	Make in India Initiative	We can leverage on this	
<b>Economical</b>	Inflation		Price increase

<b>Socio-Cultural</b>	Changing Trend		Switching from mala making profession to other profession.
<b>Technological</b>	Contactless switch	No competition Early mover advantage	

## 9. Operational Strategy

The author suggests that the entrepreneur should sell the product from the her/his home itself in Bharatpur. This can be a strategy for targeting customers who are in the entrepreneurs' vicinity, so that the entrepreneur could provide her/his customer with a better and more friendly environment to buy the product from their doorstep. The author also suggests the entrepreneur if she/he can opt for a small shop for selling of the product in the marketplace to attract more customers. So for doing that the entrepreneur can lease/rent out a land/plot. If the entrepreneur plans to switch places its totally up-to her/him, because of the perks of being a local person, the entrepreneur will have more idea, from where she/he can sell more. For manufacturing the device the author recommends to get it fabricated by an experienced carpenter. So that the device will be perfect.

The organisational structure for VLE's could be like:



**Figure 5 Organizational Structure of VLE**

The Head Entrepreneur who will be at the top of the hierarchy, followed by 1 sales person, 1 fabricator and 1 mechanic and 1 cashier. The author suggests that this business can be run by a single person, but if the entrepreneur can afford hiring persons to look after the business, the

above model will be sufficient. All the 2nd level employees are marked in "red" to depict that it's optional.

## 10. The Budget

At the start-up of the business the funds can be provided by the implementing agency. Then the implementing agency will get some return from the profit that is earned. If the funds needed is high as in the case of higher demand the entrepreneur can always approach a bank for availing some loan. Here is the budget plan for first month. The demand is fluctuating due to inconsistency in the production process of the device. Let us assume that the demand is of 10 machines then the breakeven analysis would come to:

### 10.1 Breakeven Analysis

Break Even analysis is a tool to determine the point at which revenue received equals the costs associated with receiving the revenue. Break-even analysis calculates what is known as a margin of safety, the amount that revenues exceed the break-even point. This is the amount that revenues can fall while still staying above the break-even point.

**Table 4 Break Even Analysis**

Fixed Cost	Variable Cost	Total Revenue	Selling Price	Break Even
800	16000	16800	3500	4.80

From the above table it is clear that the total monthly expenditure is 16800, where the fixed cost is 800 and variable cost for making 10 machines is 16000/-. Fixed cost includes telephone bills and electricity charges. Variable cost includes the charges for making the devices. Logistics and repair charges are neglected.

## 10.2 The Return on Investment:

**Return on Investment (ROI) Calculator**

Amount **INVESTED** ? (PV):

Amount Returned? (FV):

Number of Days? (#):

Start Date? (m/d/y):  /  /

End Date? (m/d/y):  /  /

---

Gain or Loss:

Percentage Gain or Loss:

Annualized Return:

Total Years:

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**Figure 6 Return on Investment**

The Return on Investment is calculated as per the investment. Here the calculations are done in dollars but the values are same. As per the calculations done by the author in INR it was coming as 8.3%, it is same for both dollar and INR. The tool used does not account for the exchange rate.

## 11. Financial Plan

The author has developed this business plan for Village Level Entrepreneurs. Therefore he would like to propose the following financial models to the VLE's. They are as follows :

- Pure play model
- Cost sharing model
- Quasi village entrepreneur model

These three models are very much inter-linked to each other, these models are explained in later part of this document. The reader/evaluator will come to know about the differences between these models subsequently.

First comes the,

Pure play model: in this model the Entrepreneur makes all the investment by himself/herself including the operating cost. The VLE is responsible for all the capital expenditure and working capital expenses.

Secondly,

Cost sharing model- Costs are shared between the VLE and the implementing agency. Here the VLE and the implementing organization (may be a NGO) will share the cost in setting up the business and the profit will be shared between the two bodies.

And last but not the least,

Quasi village entrepreneur model- Implementing agency makes all the capital investments in setting up the model and has operating control over the operations. The implementing body will bear all the cost in setting up the business and they will take some portion of the profit and they will be in-charge of all the business transactions.

Here the author puts his interest to suggest a suitable financial model for this business model. According to the author, here the best VLE model is going to be the Pure Play Model because the capital investment is low and can be borne by an individual.

## **12. Conclusion**

Experience with most of the past technology transfers has shown that often technologies developed in laboratories performed poorly in the field leading to non-acceptance by intended beneficiaries. Technology institutions and research laboratories have expertise in technology development but have almost no grass-root level outreach. The voluntary organisations on the other hand have vast grass-root level exposures and excellent field presence but limited technological expertise. Since technology transfer (delivery) is a specialised task with its own requirements of expertise and experience, it cannot simply be left either with the technology developer or the user. The challenge is to establish synergy among the S&T NGOs, government agencies, district administration, and the industry. One of the key areas of concerns remains the lack of extension and dissemination of existing technologies and their adaptation by micro enterprises despite the presence of various organisations/institutions. The objective and activities of RuTAG IIT Delhi have been to overcome the above shortcomings. The two illustrations demonstrated how the RuTAG programme achieved its intended objectives and impacted the society. Thus due to the lack of proper business solution, the dissemination was difficult. Hence for solving this problem the business model was proposed.

## **Annexure I**

### **Questionnaire to access the social impact of Improved Tulsi Mala making Device**

#### **RuTAG IIT Delhi**

1. Name of the respondent

Omvati Devi/ Shalo Madam

2. Is Tulsi mala making restricted to some specific castes?

Yes No ✓

3. Are only women involved in the making? Why?

Yes No ✓

But mainly women are working on the machine in Bharatpur.

4. Why there is only one manufacturer of the machine? (NGO)

Lack of skill and awareness

In Deeg there is another type of machine on which only cutting of the stem is possible.

5. How many NGO's are here? (NGO)

18 NGO

6. Why did Lupin Foundation only cared about this project? (NGO)

Since its inception Lupin has been working hard to uplift the status of the poor people that's why it took this project and also it has a demand in and around Bharatpur

7. How do the workers make Tulsi mala now? Do they still use their feet while making Tulsi mala?

Didn't require to ask

8. How did the people of other villages came to know about the technology?

Through Lupin Foundation

9. Do they have any idea of the Tulsi mala making device (improved)?

Yes ✓ No

10. From where do people buy the machine? why? they can make it on their own.

From the manufacturer itself. i.e. Omvati Devi

12. How many SHGs are working on Tulsi mala making device? (both old and improved)

25 - 30 SHG's

13. What is the efficiency of these machines?

Can make 20 large malas, 50-60 medium malas and around 100 malas in a day.

14. What is cost of each Tulsi mala? How are they priced? Who decides the price? Is the price competitive?

M1 : 1800 just motor with the base \*

M2 : 2500 just motor and transformer \*

M3 : 3000 with motor, transformer and battery \*

\*cutting tools are inclusive within the package

15. Who manufactured the old machine? Is this the same person who is making the improved device now?

Omvati Devi's family and yes they are the same

16. How did he get in touch with the organization(Lupin Foundation)?

Omvati Devi bought a conventional machine from her relative's place which she used for making Tulsi mala. Then someone in the village told her about Lupin Foundation, then she got in touch with them.

17. How did the improved machine has impacted on the Tulsi mala maker? (NGO)

It has improved the lives of the manufacturer as well as many users of the machine.

18. Why there is increase in price of the Tulsi mala?

Due to the inclusion of the battery, the price has increased.

19. Who sells the mala and where?

Omvati Devi's son sells the malas to a local merchant. The malas are sold in Vrindavan and Nagadwara.

20. Did the seller of the mala benefited with this machine?

Yes, but due to the noise problem the machines are returned to the manufacturer for repairing.

21. How big is the market of Tulsi mala?(in terms of pieces sold)

It is big as the malas are being sold in abroad also.

22. What age group people make Tulsi mala?

There is no age limit for making the Tulsi Mala beads. Any age group people can make the beads.

23. Do you provide any prior training to the mala makers?

Yes ✓ No

Lupin Foundation with the help of Omvati Devi.

24. Where these malas are sold? How do you sell the malas?

see Q.19 (question has been repeated)

25. How do you meet the demand of the Tulsi mala?

Three manufacturer including one at Bellara and 2 in Bhatira. (In Bharatpur) supplied by IIT Delhi.

26. Are there any implication with the improved machine?

3 major implications.

1- Sound due to vibration.

2- Electric Shock due to improper connection

3- Gets blisters in hand on prolonged usage of the device. (Due to heating up of the device)

27. Which is more convenient (in terms of usage)

Old Machine New Machine ✓

28. What are the share of each person those are related to Tulsi mala?

1600/- for the machine.

29. Is there any further improvements needed?

Refer to Q.26

30. What's the socio-economic condition of the people here?

9000/- to 18000/- per month from the Tulsi mala beads making device only

31. Is there any social restriction to the use of this machine?

Yes No ✓

32. How has this improved product helped in social upliftment?

Didn't require to ask.

-----Extra information-----

- ✓ Dry wood is not preferred for making malas.
- ✓ Raw Material Cost per kilogram.
- ✓ small @ 30-35
- ✓ medium @ 40-45
- ✓ large @ 60-65
- ✓ Sometimes Kadam Wood is also used for making the malas to maximize profit as Kadam wood is freely available from the nearby forest.
- ✓ Raw material is procured from Jayaitgaon near Mathura
- ✓ MLA also bought Tulsi malas from her.
- ✓ Product improvement : could add a LED with the setup.
- ✓ one machine is sold at kakdo near Kheragarh
- ✓ How many machines are sold in a year?
- ✓ improved ones 5-9 machines
- ✓ previous one 20-25 machines
- ✓ Old machine has income of 150/- per month whereas the new machine is providing an income of 600/- per month.
- ✓ The stem pops out of the device while operating (my own observation)
- ✓ Malas are sold outside "Videsh" says Omvati Devi.
- ✓ Selling price of the mala large @75-90 medium @45-50 and small @20-25

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