

Rural Village to Global Village: An Innovative Journey

Aby Tellas*

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In the cut throat competition dictated by LPG era has made India to become part of global village, proven by the rush of the global companies' entry. The early ones primarily served the urban market, after realizing saturation, changing their focus to the rural market. Most of the market conversation at this point of time is revolving around this, since they found huge potential in the rural markets and rural customers. The paper talks about a different story of how rural innovations are hitting the global markets and the problems faced by them.

Introduction:

When the global market fostering the competition among corporate, there are people who compete with the handicap situation they are in and thinking about innovative solutions to overcome, against the fundamental assumption about the rural people that poor people are too poor to think and plan on their own. The right time has come to unleash the creative potential of our young scientists and innovators at the country's grassroots level. Only then we can make India truly self-reliant in terms of technology and advancement which will enable us to compete with global players. The need of the hour is to provide opportunity for rural innovators, spread the awareness about intellectual property protection, set up business incubators for converting innovations into viable business opportunities and offering assistance in disseminating the business operations across the global village.

Objectives:

1. To study the journey of rural innovators from necessity to product solutions.
2. To study the problems faced by the innovators while commercializing their products.
3. To study how effective are them in capturing the global markets

Methodology:

The study has developed using qualitative research format. The paper will talk about the organizations NIF, GIAN, Honey Bee Network and SRISTI: those who are offering institutional support in scouting, spawning, sustaining and scaling up grassroots green innovations in short and journey of three innovative products from the brains of rural village to global village. The paper will discuss about three milestone inventions in detail with primary data using case study method. The secondary sources also will be duly acknowledged in the full script.

Case 1: UniCool

“My wife applied a water-soaked cloth to my forehead, which brought down the fever. This gave me an idea of developing a cooling system and finally ended up in designing water cooler” said Arvindbhai Patel, the 48 old, who hails from Vanch, a village in Gujarat.

The prototype

The Natural water cooler is useful for supplying cold drinking water, particularly in areas where electricity is absent or erratic. The Unicool is a cooling system works on evaporative principle; a copper base is used to achieve higher efficiency. It achieved cooling level of 25 degree centigrade, however under humid climatic condition the temperature varied from 27 to 30 centigrade. It had a drawback of dependence of external climatic condition, which was against the normal functioning of the other water coolers available in the market.

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The Entrepreneur

Ahuja, age 49, Founder President of Rachana Industries, a Ahmedabad based engineering firm, after sensing the market potential for the unique water cooler, in the year 2001, bought the technology of the natural water cooler from Grass roots Innovators Augmentation Network under a license agreement after a long period of negotiation with Arvindbhai. Being a Mechanical Engineer, Ahuja improved the product by aesthetic and technical changes. The notable changes were included:

- Named Unicool (acronym of unique cooling)
- Product is given aesthetic look from the dull color square box
- To overcome the disadvantage of depending on external climate is been corrected by installing solar panel.
- Micro filter is added to ensure quality of water of water

The Unicool is made available with different capacities ranging from 10 liters/hr to 35 liters/hr, priced at the range starting from Rs. 15,500 to Rs. 31,000 by considering the price of the existing branded water coolers in the market. The recurring cost of UniCool is almost zero, since its energy source is sunlight.

Later the design inputs were provided by Indian Institute of Technology, Mumbai and the model approved by Gujarat Energy Development Agency (GEDA). He also approached professional marketing consultants to devise the brand name “UniCool” and designed the attractive logo for which he spend around Ten thousand rupees. He had decided to target Parks & Gardens, Bus Depots, Hospitals, Schools & Hospitals, Temples, Institutions and small Industries to begin with.

The inbuilt entrepreneurship traits are recognized himself when Ahuja was at 15 year old, then he dreamt to come out with a big supermarket chain after seeing a shopping complex in New Delhi. The company started in the year 1989 with the manufacturing facility to produce air coolers after he resigned his job from Ingersoll Rand as a purchase engineer who handled the procurement of nearly 400 parts. Later, after sensing the decline in the business of air coolers, he diversified into manufacturing of metal frame for air compressors for Ingersoll Rand and steel furniture manufacturing. The company was benevolent enough to offer small manufacturing orders to its previous employee.

UniCool which is supplied initially without solar panels were later updated. The products are manufactured and kept as stock units in the factory in minimum numbers.

Marketing Efforts

Since from 2005, the product was exhibited through various regional exhibitions. Ahuja believes that exhibitions provide opportunities to the customers to get the “*touch and feel*” the product. Even though, the enquiries did not turn up into orders, the concept selling about the innovative product usually carried out in the exhibitions. Being a quality conscious engineer, added with his twelve years experience, he procured the necessary raw materials for the manufacturing of the product from the local market after a scrupulous investigation on quality and gave shape through his manufacturing facilities. In the meanwhile, UniCool got the technology patent. Even though he launched the product in the market, he is also concentrating on the continuous improvement of the product by investing in R&D based on the information and suggestions received from the customers. Most of the development initiatives on the product are to improve the cooling effect of the water.

The company sold 70 products, until the end of 2006 and targeted to sell 250 for the next year to achieve the full capacity utilization. Apart from providing guidelines to the executives, Ahuja appointed two distributors to look after sales and after sales service.

Since the production capacity and the experiments on going on the product, he is very reluctant to make aggressive promotional efforts. The advertisements are made available only in the yellow pages in the solar panel section.

The Road Ahead

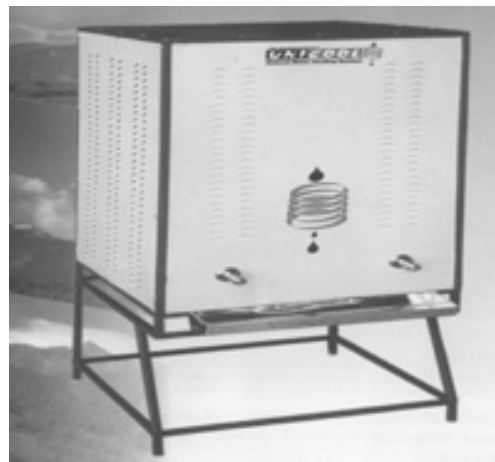
Ahuja wanted to aggressively market his product in order to increase sales rapidly and build a strong organization that could face future competition. Further, Ahuja believed that the UniCool his initial decisions were viable to attract market and was paving towards establishing a strong ground in the state of Gujarat. Even though he was not very sure about the market acceptance of the product, he was not content to limit his operations in the future, he stated:

We are offering the healthy solution with the support of environmental friendly technology that works without any operational and very negligible annual maintenance cost. Our unique UniCool will redefine the entire water cooler market by providing a nearing Zero 'B' water, more over the copper water helps in maintaining good health. However, for this moment, we do not want to ride on two horses, local and national market, simultaneously

Exhibit 1 :



Prototype of UniCool



New improved form of UniCool

Case 2: Appachan's Tree Climbing Device

Appachan is struggling in the market because of copy cats, can anybody suggest a way out to the problem- asked Prof. Anil K. Gupta, Executive Vice Chairperson, NIF; in the Grass root Innovators Workshop at IIM Ahmedabad on Jan 2007.

Appachan alias M.J Joseph, 50, hails from Puranjan, in Chemperi of Kannur district runs St. Mary's Industrial Complex and Research Center (SMICRC). His concern manufactures Tree Climbing Device (TCD), which will reduce the climbing time by $\frac{1}{4}$ th. The product is priced between Rs. 1450 to Rs. 2000 depends on the length of the surrounding wire. The new ones made of stainless steel cost Rs.4300. After a short training any normal person can use TCD for climbing the tree with ease. SMICRC started functioning in 1983 with its first product sold for Rs.225. It was mechanized in 1986 with the installation of welding and cutting machines and die. The major customer is the Kerala State Coconut Development Board.

Idea to Product:

Appachan's family as well as ancestors was into coconut farming. Due to financial problems he was forced to stop school education in the fourth standard. Being more aligned to farming his father knows about the hardships of climbing coconut tree for harvesting, cleaning, applying pesticides etc. This made him think about the idea for a climbing device during 1977.

On those days Appachan who was 20, was attending fabrication workshop training ran by the panchayat. This was fortunate for him to consult the new idea with his trainer. The trainer introduces him to Mr. Pappan who runs a mechanical workshop there in Chemperi. The raw materials for the designing the prototype was taken from Pappan and they proceeded to Thaliparamba, a town which is 25 kilometers away. After two days they started manufacturing the product and the final shape was reached by the 12th day. The initial product can climb only up to the $\frac{1}{3}$ rd of the tree's height.

Business Development:

The TCD was brought to the notice of the Agricultural Officer of the area and Mr. Rajkumar, who handles the agricultural banking in Syndicate Bank. Rajkumar saw business opportunity in this and guided Appachan and his father to Kerala Agricultural University (KAU), Thrissur. There they met Pro. Jose Samuel after hearing them made arrangements for the product development. The metal fabricators in KAU modified the product which can climb more than half the length of the tree; they also fixed a lock for safety. This exercise also took 12 days for completion.

Mr. Rajkumar with the help of the professor met Mr. C.R Kamath, Chairman, Grameena Vikasana Bank (*means Village Development Bank*), Kudiyanmala (a nearby place to Chemperi) and was fruitful in getting Rs. 4000 as an initial loan for starting a workshop for manufacturing. In 1983 the firm was named St. Mary's started functioning near to Appachan's residence. But as beginning they can only do 30 per cent of the work on the product. The rest is taken up by Mr. Pappan's firm. The first sale happened in the first week itself for Rs. 225. Meanwhile as suggested by experts Appachan went for patentship.

Mr. Rajkumar again came with a helping hand and pushed Appachan to upgrade with mechanized production. He arranged loan for Rs. 14000 from Kerala Financial Corporation for buying Cutting and Welding machines. Since Chemperi as well as Puranjan being a remote village there is only one transformer to supply power to the entire area. The mechanization of the workshop will effect on the drop in the voltage in the area, so Kerala State Electricity Board said they require an additional transformer which costs around Rs. 25000. The local political party leaders of the ruling government faction promised to ensure electric connection for not less than Rs. 10000. Another local advised Appachan to meet the Executive Engineer with a bottle of liquor and hundred rupees for the connection. With all this in mind Appachan as told by the Krishi Vichara Vinimaya Kendram (*means Agriculture Information Centre*) was told to meet Coconut Development Board (CDB) authorities, they assure help to Appachan in buying as well as all help including the electric connection. The returned Appachan was rejuvenated with the assurance by CDB and walked straight to KSEB office and with some tactics managed to get the power connection.

The Promotion:

The CDB gave him the needed support and they assisted him in exhibiting TCD in the public forums like exhibitions. Initially the TCD was experienced by public through expos in Thrissur and Bangalore. CDB took initiative to exhibit the same in Tamilnadu and Andhra Pradesh. The loan providers Syndicate Bank took up the task in Karnataka.

The copy cats and cheaters :

It was the Syndicate bank authorities who were shocked by the news in The Hindu and Deccan Herald dailies. The news went like this- “Prof. A of XYZ¹ University describes about his invention of Tree Climbing Device”. Since Appachan’s device was familiar to bank authorities they brought to the notice of him and asked him to file a case against him. But since his patent ship ended in 1996 he can’t legally file a petition against the person.

Copy cats are plenty, like two of the well known firms also bought the equipment and was selling in their label. They also captured his market in Tamilnadu and Andhra. CDB however backed him and still continue doing that.

Another setback was from a self help group (SHG), he is asked to train around 5000 members of the group. But only 500 turned up and out of which 15 purchased the equipment from him that too the bills are not cleared till date. The SHG bought the bulk of products from one of the earlier mentioned copy cats.

The Award and NIF collaboration:

Appachan heard about NIF and he applied for the award for innovation. In 2001-'02 he got the consolation award worth Rs. 5000/- . NIF is also provided loan for One lac rupees with a pay back of Rs.50 per piece he is selling. The organization also helps him in exporting TCD to foreign countries like USA, Arabian countries and currently there are queries from Iran.

Future plans:

The TCD is primarily designed to climb coconut trees, but the same can be used for climbing areca nut trees, palm trees etc. Now he has developed climber for electric posts. He is continuously improving the product and main focus area is to improve safety and lessen the weight of the equipment. Since he got patent again from 2006, he is moving up against copy cats.

Annexure (case2)

Honey Bee Network

Honey Bee Network is a crucible of like-minded individuals, innovators, farmers, scholars, academicians, policy makers, entrepreneurs and non-governmental organizations (NGOs). A Network having presence in more than seventy five countries, what has made Honey Bee Network tight knit and efficiently functional is its philosophy. Honey Bee signifies a philosophy of discourse, which is authentic, accountable and fair. The Network has been woven around three basic ideals. The Network believes that a knowledge system in order to become sustainable has to be both just and fair. Hence, while collecting knowledge from the knowledge holder, the Network has made it a norm to acknowledge the knowledge provider with name and reference, if otherwise not desired by the knowledge provider. This particular practice has come handy in protecting the IPR of the knowledge provider. In the second place, the source of knowledge i.e. in the case of Honey Bee Network, the traditional knowledge holders and grassroots innovators must be acknowledged, if otherwise desired so by the knowledge holders themselves. Finally, any proceed that accrues from the value addition of local traditional knowledge and innovation; a fair and reasonable share must go back to the knowledge holders. These have been the guiding principles of the Network, which are fundamental to the functioning of the network and constitute the major non-negotiable for the Network.

Over the last sixteen years or so, the Honey Bee Network has lived the very spirit of the philosophy that it holds so dearly. Moreover, the actions that have followed the philosophy have grown and matured over a period of time and their trajectory of maturation has been based upon the strong realization of the essence of the philosophy. ‘Honey Bee’ Newsletter, the creative mouthpiece of the network, is published in six Indian languages (Hindi, Gujarati, Tamil, Kannada, Bengali, Malayalam and Oriya) other than English. The very logic tells that any

¹ Name disguised for confidentiality

documentation and dissemination of local and traditional knowledge and innovations in English, certainly connects us globally but alienates locally. Living out the concern, the regional language versions reach out to the thousands grassroots knowledge holders, who otherwise would have been alienated from the benefits of knowledge, they themselves contribute in the first place. Acknowledging the very source of the traditional knowledge, the Honey Bee Newsletter and its regional versions carry stories of the local ingenuity with the consent of the knowledge holder. Another source of acknowledging the local genius has been preparing the database of the traditional knowledge and grassroots innovations and Honey Bee Network, over the last sixteen years has documented more than 51, 000 traditional knowledge and practices. Honey Bee, true to its metaphor, has been the source of pollination and cross-pollination of ideas, creativity and grassroots genius, without taking away the nectar from the flower for ever.

SRISTI - Society for Research and Initiatives for Sustainable Technologies

SRISTI, which means creation, was born in 1993 essentially to support the activities of the Honey Bee Network to respect, recognize and reward the creativity at grassroots. Based in Ahmedabad, Gujarat, SRISTI (Society for Research and Initiatives for Sustainable Technologies) is a registered charitable organization that is devoted to empowering the knowledge rich-economically poor people by adding value in their contemporary creativity as well as traditional knowledge. It has helped establish GIAN, NIF, MVIF and AASTIHK.

SRISTI was set up to provide organizational support to the HBN. The objectives were: systematically documenting, disseminating and developing grassroots green innovations, providing intellectual property rights protection to grassroots innovators, working on the in situ and ex situ conservation of local biodiversity, and providing venture support to grassroots innovators. SRISTI manages the Honey Bee database of innovations, and supports the publication of the Network's newsletter in three languages, English, Hindi and Gujarati.

Lately SRISTI has been focusing on more concerted ways of hitherto neglected domains like women's knowledge systems, value addition through a natural product laboratory, and innovations in education.

Grass root Innovators Augmentation Network (GIAN)

GIAN is India's first technology business incubator focused on incubating and commercialising grassroots innovations. Grassroots innovations are essentially solutions generated by people at the grassroots levels to tide over persistent problems, the solutions to which are either not available or not affordable by a large section of the consumer masses in developing countries like India. These innovations, therefore, capture an unmet need of a large section of the population and building a value chain around these innovations to take them to market holds the potential of wealth creation in a truly sustainable and equitable manner. The objective of GIAN is to build the value chain around these innovations with the end objective of making these available to the masses through the market mechanism or otherwise.

Genesis of NIF- National Innovation Foundation

Eighteen years ago, Honey Bee Network triggered a movement to scout, spawn and sustain unaided creative and innovative urges in the unorganized sector of the society. Beginning with a handful of like-minded volunteers, the network gradually expanded many folds. It identified more than 10, 000 innovations and traditional knowledge practices with the help of its huge network of Vidyapeeth students across Gujarat and the regional collaborators of Honey Bee all over India within the first 10 years of its existence. As the network started expanding, the database of contemporary technological innovations and traditional knowledge practices also started growing. A strong need then was felt to think beyond what had been achieved in the past. The network was successful in gaining the trust and confidence of thousands of knowledge holders who had shared their knowledge to build the Honey Bee database. But the network was not able to do full justice

to other goals. The network had failed to do much in (a) validation of, and value addition in the knowledge, innovation and practices and (b) sharing the benefits with knowledge providers except in non –monetary form through sharing of knowledge itself. Several other experiments were pursued for developing various models of recognizing and rewarding innovative individuals and communities and these did succeed to some extent. GIAN Gujarat was set up in 1997, for instance, to link innovations, investment and enterprise². At this point, the evolution of National Innovation Foundation (NIF) concretized a long felt need for recognizing, respecting and rewarding innovations and outstanding traditional knowledge at the grassroots. The Department of Science and Technology, Government of India, set up National Innovation Foundation at Ahmedabad in arch 2000, under the chairpersonship of Dr R.A. Mashelkar, Secretary, DSIR and Director General, CSIR.

NIF provides an institutional platform for the knowledge-rich, economically poor people. It is committed to making India innovative by documenting, adding value, protecting intellectual property rights of the contemporary unaided technological innovators, as well as outstanding traditional knowledge holders on a commercial as well as non-commercial basis. A National Register of green Grassroots Technological Innovations and Traditional Knowledge has been developed for the purpose. Alongside, there would also be a separate database based on people's knowledge (PKD) which would act as repository of knowledge with direct inputs from Peoples' Biodiversity Register (PBR) as well as directly from knowledge holders or through collaborators. Even those practices, which are not considered acceptable for national register, may be kept in the PKD so as to understand and benchmark the way society thinks about various issues. It will also help in targeting certain specific beliefs, which may even need to be questioned and changed.

Our experience shows that while most innovators generously share their knowledge, innovations and practices, whether based on local resources, traditional technologies and tools or modern materials or tools, they do not always derive the benefits from such sharing. In the absence of proper incentives, traditional knowledge gets eroded and society loses a very valuable source of local solutions. The younger generation too does not want to pursue the path of gaining this knowledge and creating innovation. May be, giving creative people their due will restore the respect for traditional knowledge and grassroots innovations and help in blending these with the modern science and technology. In the process, valuable intellectual property may be produced. As of now, a framework for protection of intellectual property of grassroots innovators and traditional knowledge holders at low transaction costs is absent in India. NIF also facilitates building up the entire value chain around innovation and traditional knowledge.

Objectives of NIF

To help India become an innovative and creative society and a global leader in sustainable technologies by scouting, spawning and sustaining grassroots innovations.

To ensure evolution and diffusion of green grassroots innovations in a time bound and a mission oriented manner so as to meet the socio-economic and environmental needs of our society.

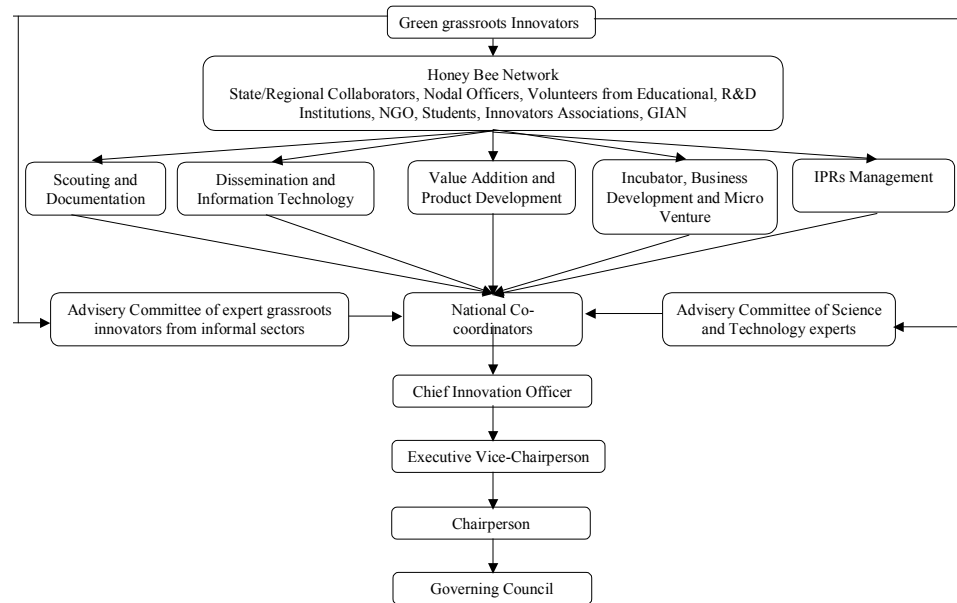
To facilitate scaling up of grassroots green innovations, seeking self-reliance through competitive advantage of innovation based enterprises, and application of people generated sustainable technologies at grassroots level.

To influence public policy and conduct, co-ordinate and support research, design and development efforts in the country on grassroots innovations so as to attain and maintain technological competence. To enable protection of the intellectual property rights of the knowledge holders wherever applicable.

To build linkages between excellence in formal scientific systems and informal knowledge systems and create a Knowledge Network to link various stakeholders through applications of information technologies and also otherwise.

To promote wider social awareness and possible commercial and non commercial applications of know-how generated as a result of above and encourage their incorporation in educational curriculum, developmental policies and programmes.

Organizational Framework



Case 3: SAP's ABS Plastic Air blower for Air Curtains

Mr. Yagnesh Mehta, a graduate in commerce with 35% of marks hails from a village near Ahmedabad in Gujarat. He wants to start business. Being a pioneer in the Brahmin community in the area to do business, his family as well as others relatives de-motivated and resisted his move. But the conviction doesn't stop him in venturing in to the business of manufacturing air curtains in 1986. Shree Aerodynamic Products (SAP) was the name given to the firm.

He started manufacturing air curtains with the conventional aluminum air blowers. The sales were materialized by the end of 1987. The whole firm runs from the financial support from money lenders. As a beginner in the field Yagnesh also struggled as any other entrepreneur. In the midst of hurdles he always given importance to customer feedback and started improving the product regularly. Since he believes that any product manufactured should have value to the customer. There is no point in producing a product which is not accepted by customer and for innovative products there should be market.

Most of the investing goes to the research and development functions, the innovator in him never allowed him to stay comfortable. In the journey of improving the product he tried plastic instead of the usual aluminum for blowers. It was in 1996 he could bring out the superior product of air blower manufactured from ABS² engineered plastic. The product got its first customer in 1998 that too the customer was ready to purchase by paying four times the price of the existing conventional air curtains. In 2005 he received the best innovation for the year award from President Dr. APJ Abdul Kalam, the award was constituted by National Innovation

² Acrylonitrile butadiene styrene, or ABS, ([chemical formula](#) $(C_8H_8 \cdot C_4H_6 \cdot C_3H_3N)_n$), is a common [thermoplastic](#) used to make light, rigid, molded products such as piping, golf club heads (used for its good [shock absorbance](#)), automotive body parts, wheel covers, enclosures, protective head gear, vballs [reusable paintballs], and toys including [LEGO bricks](#)^[1]. (source: http://en.wikipedia.org/wiki/Acrylonitrile_butadiene_styrene)

Foundation (NIF). Later SAP manufactured 20 feet long air curtain with single piece air blower for a supermarket in Ahmedabad.

Being an invention Yagnesh can very well go for patent, but according to him:

Anybody can produce a “new” product with minute changes, so what is the use of patent? Again the patenting process will take 5-10 years. Nor do I believe in that and neither am I going to apply for that..

He believed that it's good to market the product by innovator himself during initial stages, because no other person can explain it better than him. He is running a firm employing sixteen not well educated people, who all are localities. They are neither having studied up to matriculation nor they are any specialist in the area. He trusted and believes in the capability and attitude of his employees. Even though it is not a written policy of the firm but he require people who are not educated, since it will be easy for them to handle and train them according to the firm's needs.

Despite air curtains the firm is now dealing with products like door alarm system, handy clean, auto taps etc. He also exports products to some developing countries like Ethiopia. It is one of the carpenters in his firm who went for installation in Ethiopia.

Since he believes that quality have to be given to customers, now the firm is in its developmental phase lot more to be improved. The promotion and marketing is bleak due to the earlier said reason.

Annexure (case 3) **SAP Air Curtains**

SAP Air Curtains are designed

- Stabilize environments, and save energy by minimizing the heated / air conditioned air loss through open doorways
- Also effectively repel flying insects, dust and pollutants
- To suit commercial, such as offices, supermarkets, restaurants, hospitals, drive-thru setting or, industrial such as warehouses, manufacturing plants, cold storages and transportation terminals.

Technical Specifications:

SAP Air Curtains consists of

- ABS Plastic Blowers (Tested at 5000 RPM)
- Lubricant bushing
- Filters
- Electro-magnetic switch with sensor for auto operation.

How we are different from others?

Blowers are innovated to the extent of reducing the audible noise and maintenance. It is only possible when rotating part is run at 50% less than the optimum product safety limit.

Because

- All the spare parts right from body to nuts are manufactured in-house having SAP monogram. Therefore we are manufacturer not assembler.
- The machine does not vibrate as the blowers have a capacity to run at 5000 RPM.
- Noise level of machine is negligible, therefore does not irritate or disturbs the working area.

- Electromagnetic switch has 10 sec delay time, which increases the life of the Machine and Motor
- The sensor does not possess any current hence the unit has 100% safety against electric shocks.

We manufacture longest Air Curtain in single piece keeping in mind the aesthetic look.

About Conventional Blower

Aluminum Blower – more power, noise and maximum maintenance.

Maximum Speed –1400 RPM

Other Plastic Blowers designed have more joints (fear for breakage)

Doesn't have even thickness and width.

Maximum of ring Thickness is 3mm. Bonding only 1.5 or 2mm only. (fear for breakage)

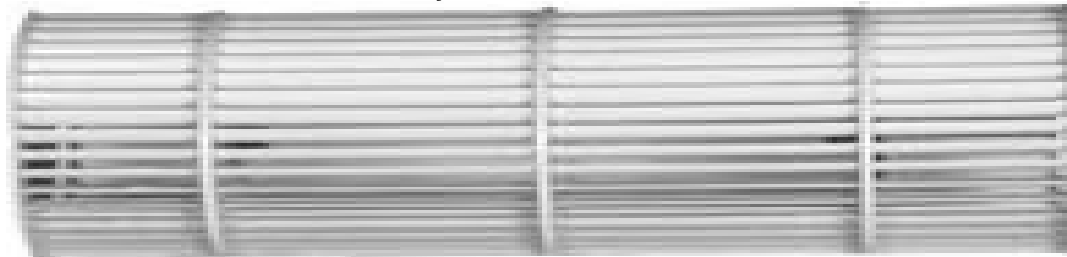
SAP ABS Plastic Blower

Specially designed blower-

- Blower fins are from one end to another end
 - o aerofoil fins with continues even dimension fiancé
- Stronger than metal blower
- Longer life as it is made out of ABS engineering Plastic grade.
- Tested at 5000 RPM
- Low power consumption
- Low noise and trouble free designed.

We feel this innovative concept can be useful in many industries such as axial fan, continues grill and many more where single mold is not applicable or product strength is essential.

Picture of SAP ABS Plastic Blower



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