



**agnii**  
IGNITING  
IDEAS

# AGNli: An innovation facilitation program to support commercialization of tech innovations



- The Office of the Principal Scientific Adviser, Prof. K. Vijay Raghavan and the Cabinet Secretariat have launched a flagship initiative for Accelerating Growth of New India's Innovations (AGNli)
- As the **National Technology Commercialization Program**, AGNli provides dedicated support for commercialization of India's R&D and innovations, to assist **transform indigenous innovative technologies into commercially viable products**
- AGNli captures Market ready innovations across India on AGNli web portal and connect Innovators to industry & government buyers for technology transfer
- The program is executed by a dedicated team **housed at Invest India**, the National Investment Promotion and Facilitation Agency, constituted under the Department for Promotion of Industry and Internal Trade (DPIIT) of the Ministry of Commerce and Industry

# COMMERCIALIZATION OF GRASSROOTS INNOVATIONS

# What is Grassroots Innovation?

- **Grassroots innovation** is defined as innovative product or process created at the bottom of the pyramid, usually due to necessity, hardship and challenges.
- They are generally categorized as frugal innovations, inclusive innovations or bottom of pyramid innovations.
- AGNii helps in facilitating innovations for as well as from the Grassroots



# FEW EXAMPLES

# Paper bag Making Machine

## DESCRIPTION

- This paper bag making machine is desk-top sized, fully automatic and compact with production capacity: 1 bag in 8 seconds
- This machine is designed for creating jobs and increasing family income of the people at Bottom of the Pyramid consisting of low- and middle-income group.

## SPECIFIC PROBLEM CATERED TO

- Bulky machines
- Higher cost of Existing Machines



# Modified Bageshwari Wool Charkha

## DESCRIPTION

- This charkha has been motorized with a speed controlling mechanism while retaining its foot-paddle mechanism.
- The wooden frame is replaced by a light weight steel pipe
- High quality thread can be produced using the modified charkha.
- Estimated Cost is 15,000/- per unit (subject to prevailing market prices)



## SPECIFIC PROBLEM CATERED TO

- Excessive manual efforts and low productivity.

# Bamboo Splint Making Machine

## DESCRIPTION

- The machine is a set of two devices, one for making bamboo strips and the other for incense sticks.
- The first machine is used to slice the bamboo pieces of definite size, thickness and length. The slices are then fed into the strip making machine to produce the sticks.
- The other machine, called rolling machine, transforms ordinary sticks into fragrant incense sticks

## SPECIFIC PROBLEM CATERED TO

- Bulky machines
- Higher cost of Existing Machines
- Tedious Manual Process



INPUT

Raw Bamboo



SLICING MACHINE

Bamboo being sliced



OUTPUT

Sliced Bamboo



INPUT

Sliced Bamboo



STICK MAKING MACHINE

Sliced Bamboo converted into sticks



OUTPUT

Bamboo Sticks



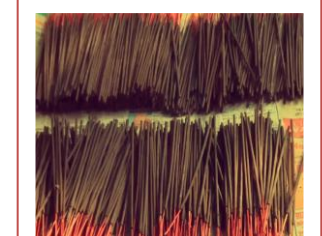
INPUT

Bamboo Sticks



ROLLING MACHINE

Stick bamboo coated with incense material



OUTPUT

Incense sticks



# Most Suitable Toilet for Rural Areas

## DESCRIPTION

- This toilet is suitable for rural areas facing scarcity of water. It can be cleaned with half a litter of water resulting in saving of 13000 litres /year /toilet .
- Human excreta and agriculture waste /house hold green waste can be converted in to good quality organic fertilizer/manure. It has several eco-friendly features.
- Can be constructed in eight hours with all prefabricated components . No need of cement, sand or water for erection of toilet

## SPECIFIC PROBLEM CATERED TO

- Waste of water, expensive construction and maintenance



# CASE STUDY ON INNOVATIONS FOR BOTTOM-OF-PYRAMID

# Paperfuge by Dr Manu Prakash



# Chotukool by Godrej & Boyce

## HIGHLIGHTS

- Harvard Business School professor Dr. Clayton Christensen and his consulting firm, Innosight worked with Godrej to design this product
- Compact Design and Portable
- Affordable cost
- Designed for Rural Population of India
- Partnered with Indian Postal Services to deliver the product in rural areas
- Maintenance is easy as the repair can be done at any small repairing shops



## RESULT

- Failed to attract the target customers

## INTERVIEWS WITH THE USERS PRE-DESIGNING THE PRODUCT

*“I don’t feel the need for a refrigerator. I use an earthen pot to cool water. I buy vegetables for immediate consumption and boil milk to avoid it from getting spoilt.”*

*“In India, a refrigerator costs around eight thousand to ten thousand rupees. In addition, it has a running expense, which will upset my monthly budget. I don’t have the space to keep it in my tiny house.”*

*“To me, a refrigerator should cost around twenty-five hundred rupees, and running it should be affordable. How will I service it if needed? My neighbor had to shell out twenty-five hundred rupees for servicing it and an additional three hundred rupees to transport it to a service center. I face load-shedding of six to eight hours every day. How will the product work?”*

# Case Analysis : What went wrong for Chotukool

- Godrej began with a solution instead of identifying the right 'Jobs to be done' for the customers
- Godrej followed its own prejudices and discounted customer motivation
- Users started disassociating with the product
- Godrej oversimplified competitive landscape
- Less effort towards educating the customers



# Current Strategy for Chotukool

Carry your party with you



# Key Take-aways

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- **Innovator's Dilemma** : Innovators often choose to put their prejudice during Product Development
- **User's Dilemma** : Users need validation before they start trusting the product
- **User-led Innovation** : Co-creation with the users is an opportunity for designing a successful product for the market.
- **Costing** : Pricing needs to be disruptive – 'lower' alone may not be sufficient
- **Marketing** : Make the product an aspirational choice – even for basic needs



# CASE STUDY ON INNOVATIONS FROM BOTTOM-OF-PYRAMID

# Multi-fuel Cryogenic Engine

## DESCRIPTION

**Name of Innovator:** Shaik Masthan Vali

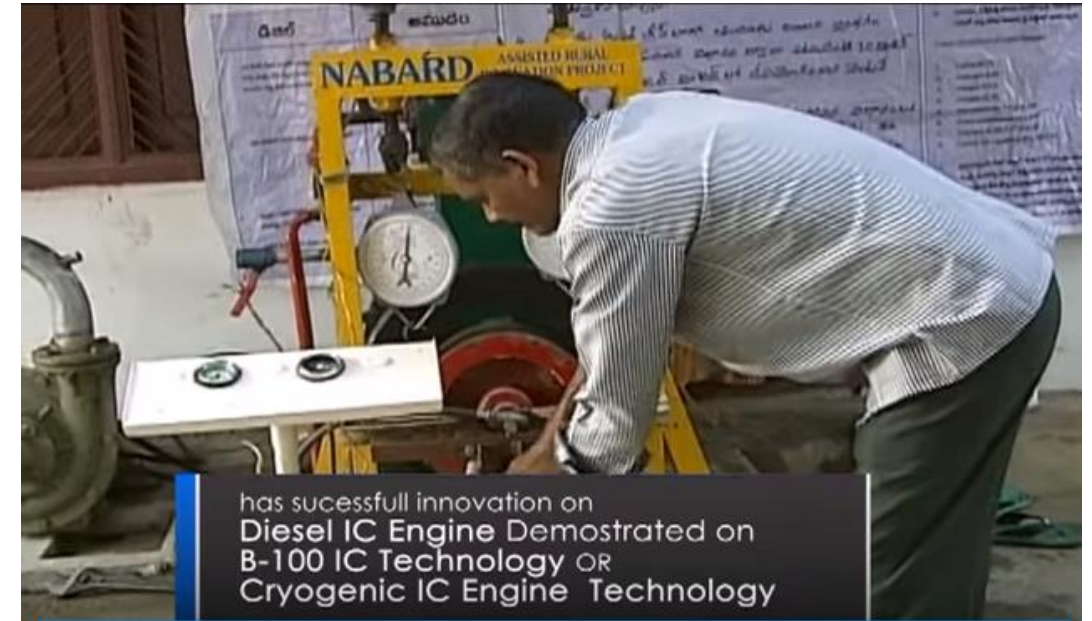
**Organization:** Shree Chaitanya Institute of Technological Sciences, Karimnagar

### Details about the his Invention –

Sectors where it can be deployed - It is a **Multi-fuel B 100 Cryogenic IC Engine** suitable to be used in **Automotive, Industrial and Agricultural sectors.**

Fuels that can be used – Castor Oil, Coconut Oil, Palm Oil, Grease and virtually **any bio-oil** which is composed of **hydrocarbons**; and nonconventional oils like petrol diesel can also be used.

Meaning of B 100 – The oil can be made of **100% naturally occurring elements** like seeds, other vegetative matter, etc.



# Advantages of the Engine

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- **Low Cost** of manufacturing (3 lakhs as against 6 lakhs Skoda engine)
- **Light weight** by redesigning and reduction in materials used
- **Higher efficiency** and **better fuel combustion rate** (60%) as compared to present (30%) in normal engines
- Regular engine emits 300 0C from silencer. This engine shall **not get heated that much** and will **remain at sub 100 0C temperatures** (at most going to 120 0C but not beyond)
- Hugely **improved lifecycle of engine** and lower maintenance required
- Engine starting problem is there in cold countries and for it anti-freezants are mixed. This engine can **work perfectly at temperatures as low as -2 0C to -50 0C** and hence the word Cryogenic

# More about the Innovator

- He **claims to have successfully made a working prototype** of the same. For it, he took a **Fiat engine, redesigned it and used his technology in it**. The modified IC engine was then fitted in the same car, and it ran **58 KMs on 1 Liter of Castor Oil**, cruising at **60 KMPH**. Their invention is based on modifications done to an existing IC engine, after redesigning it.
- The innovator **didn't disclose the technology he deploys in his engine**, because he wants to keep it confidential until it is patented and production has started on a mass scale.
- Currently, he does not have a working model. He has **dismantled his invention citing security reasons**, saying that he has received threats to share his technology.
- He worked on this technology in the 1990s, has **presented it the then PM of India – P. V. Narasimha Rao** along with the past collectors of Karimnagar district and neighbouring districts
- Currently he **works with Shree Chaitanya Institute of Technological Sciences** as a maintenance guy of all its Mechanical labs and also teaches subjects like Fluid Mechanics, Metallurgy, Strength of Materials, IC Engine, etc. He does not hold any official post in college because he is a **class Ninth dropout**; despite that he has extensive knowledge in this domain.

# Further Developments

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- AGNii facilitated the connect between an industry partner and innovator
- The industry partner will provide its lab facilities to develop the prototype and also bear the cost of building the prototype
- The industry partner will support innovator with accommodation and meal facilities during the stay near its lab centre.
- If, after the development/improvement the Innovation is found technically feasible and commercially usable, the industrial partner will help the innovator in filling the patents

# Key Take-aways

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- **CSR** : Since investing in research is now also considered as CSR investments, research 'with' grassroots innovators can be elevated through these funding.
- **Impact Investors** : Currently, the impact investors are sceptical in investing in technologies coming from grassroots innovator due to high risk involvement. The collaborations between academia and these innovators can also invite impact investors to invest as knowledge available at academia will minimize the current risk involved.
- **Co-creation** : The co-creation with grassroots innovators will help academia to develop more demand-driven projects and simultaneously it will also open new learning opportunities for these innovators.
- **Mentorship** : Since these innovators always seek for mentorship opportunities, the scientists as well as the industry partners can come together to facilitate sector specific workshops for the innovators.
- **Incubation Support** : Incubation facilities given to these innovators will help them in enhancing their products. Though government-led incubation centres are available, however, are not widely known to public. AGNli will work as centralized channel for directing the innovators to these incubation centres.



# New India is Open for Innovation

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