

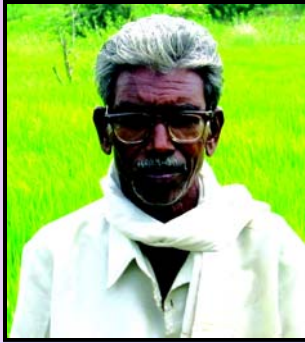
## PART III

# INNOVATIONS

## for EASTERN HIMALAYAS

This section contains details of national innovations, which are deemed suitable for introduction in the region





**Dadaji Ramaji Khobragade**  
Maharashtra

## HMT- an Improved Paddy Variety

Khobragade selected and bred the HMT rice variety from the conventional 'Patel 3', a popular variety developed by Dr. J. P. Patel, JNKV Agriculture University, Jabalpur. He succeeded after five years of continuous study and research on a small farm owned by him without any support from the scientific community. This variety has an average yield of 40 – 45 quintals per hectare with short grains, high rice recovery (80 %), better smell and cooking quality in comparison with the parent ones. Most remarkable feature of the variety is the thinness of grain. It has been included as a standard reference for thinness by Protection of Plant Variety and Farmers' Right Authority (PPVFRA).

He won the National Award in NIF's Third National Competition. NIF has filed an application under PPVFRA 2001 to register his variety. Apart from HMT he has also developed six other paddy varieties namely DRK, Vijay Anand, Nanded Chinur, Nanded 92, Deepak Ratna and Nanded Hira. He regrets that local agricultural university took the credit merely for purifying the seeds and did not give him the due honour. HMT has diffused in more than one lac acres in five states.



## Kudrat 9- An Improved Variety of Wheat

The innovator believes that every farmer should get good quality seeds to deliver high yielding varieties of crops. He has developed a number of improved wheat, paddy, mustard and pigeon pea varieties, which are high yielding, robust stem, having bold seeds with good smell, taste and which are resistant to major pests & diseases.

“*Kudrat 9*”, an improved wheat variety, developed by him using simple selection is quite popular among the farmers in different parts of Uttar Pradesh, Madhya Pradesh, Chattisgarh, Maharashtra, Rajasthan, Gujarat and some parts of Bihar, Haryana and Punjab. This variety bears large number of ear tillers with lengthy spikes and has a hardy stem. The grain has a good taste. The average yield of this variety is 55-60 quintals / hectares.



**Prakash Singh  
Raghuvanshi**  
Uttar Pradesh





**Jai Prakash Singh**  
Uttar Pradesh

## Virat (JP-6)- An Improved Variety of Pigeon pea

This new variety has coloured flowers, long leaves and bunchy type pods bearing at the top. The seed weight (19 – 20 gram/ 100 seeds), number of pods / plant (500 - 600), big size pods (3 – 5 inch), number of seeds/pod (5 – 6) and perennial yield (1st year 12 -14 quintal/ acre and 2nd year 14 – 15 quintal/ acre) is higher as compared to the local popular variety. This variety requires less quantity of seed (4 – 5 kg/acre) and maintenance as compared to other varieties grown in the region.



## Richa 2000- An Improved Variety of Pigeon pea

This variety has big flowers, long leaves and bunchy type pod bearing at the top. Topping is done periodically, which results in bushy growth. This variety has synchronous maturity with higher yield (24 quintals/acre), more branches / plant (12-14) and more pods/plant (700 – 800) than other local popular varieties of the region. Rathore was given a consolation award in NIF's Fourth National Biennial Competition.



**Rajkumar Rathore**  
Madhya Pradesh





**Ishwar Singh Kundu**  
Haryana

## Herbal Growth Promoter

A herbal plant growth promoter, which is effective in protecting the plants from a broad spectrum of pests apart from providing necessary nutrition has been developed. It is named as “*Kamaal*” meaning wonderful, due to its performance. It is effective in field crops as well as in vegetable crops.

The main ingredients of the product are “*aak*” (*Calotropis gigantea*), “*reetha*” (*Sapindus trifoliatus*), “*dhatura*” (*Datura metel*), “*neem*” (*Azadirachta indica*), Tobacco (*Nicotiana tabacum*), and “*bhang*” (*Cannabis sativa*), etc.

The innovator won a consolation award in NIF’s Fourth National Biennial Competition. He has also been supported under the Micro Venture Innovation Fund of NIF for commercialising “*Kamaal*”. The product is a good hit in the local market and is fetching steady income for the innovator. This product has also been supplied to the garden in Rashtrapati Bhavan.



## **Aloe vera Gel Extractor**

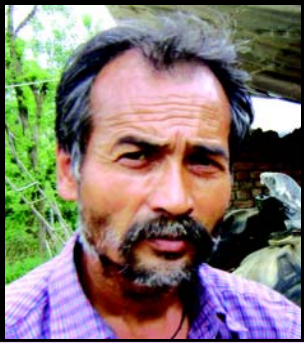
The innovator has developed an effective multipurpose unit capable of pulverizing, steaming, and extraction of gel for herbal applications.

With this device, the innovator uses the specially designed pressure cooking chamber to extract the essence from *Aloe vera*. Being a compact portable unit, it can be quickly and easily transported and used anywhere, to process herbs and deliver on demand. The present machine has a capacity to process 100 kg of *Aloe vera* per hour. The innovator was supported for production and commercialisation through GIAN North from the Micro Venture Innovation Fund at NIF. One unit has been sent to Kenya on a pilot basis for application feasibility study in the country.



**Dharamveer**  
Haryana





**Kamal Narayan  
Pradhan 'Gorkha'**  
Himachal Pradesh

## Modifications in Gears for Mountainous Slope

Anybody who has driven on mountainous roads knows that while descending on the slopes, one needs a kind of locking mechanism in the gear to prevent slippages. Kamal Narayan has modified the old gears which may get worn out and may cause accidents if not replaced or repaired.

He has modified the gear arrangement to prevent slippage even in the new vehicles. This innovation has been found very useful by the heavy vehicle drivers. Its dissemination, however, is localised.





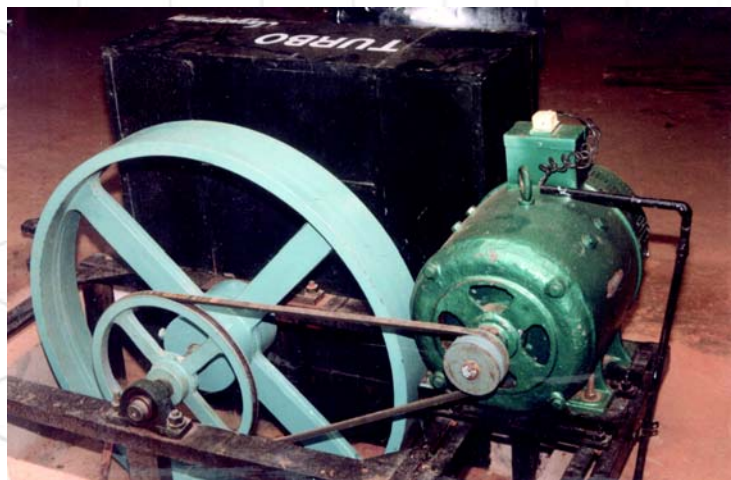
## Modified Hydro Electricity Turbine

Electricity supply in the hills is always a problem with either the difficulty of access or distribution or disruption.

Hydro electric turbine is specifically designed for the hills. It costs Rs.30,000 and meets the individual electric needs of a rural household. The innovator has installed a few of these turbines in the hilly villages of Karnataka.



**G. K. Ratnakar**  
Karnataka





**N Sakthimainthan**  
Tamil Nadu

## Hand Operated Water Lifting Device

An efficient way of pumping water to meet requirements in a cost effective way is always a challenge in rural India.

Developed from locally available materials, this hand operated water lifting device is simple in design, delivers high discharge and is low cost compared to conventional hand pump, bucket pump, and bicycle operated pumps. It costs approximately two thousand rupees. This innovation was awarded in NIF's Fourth National Biennial Competition.

This innovation was also selected for value addition by CMERI, Durgapur under Mechanical Joint Implementation Committee (JIC) of CSIR-NIF.



## Improved Multicrop Thresher

Farmers across India require a reliable machine that achieves threshing with minimal grain breakage, clean output for a variety of crops. The innovator has developed a versatile thresher that can meet these needs.

The modified farm implement reduces setup time to less than 15 minutes to switch over from one crop to another, and achieves minimal breakage. Its latest variant can also handle groundnut apart from threshing other cereals and pulses.

The innovator has been supported with working capital needs of his enterprise under the Micro Venture Innovation Fund of NIF. More than a hundred farmers have bought his thresher.



**Madanlal Kumawat**  
Rajasthan





**Sheikh Jahangir Sheikh  
Usman**  
Maharashtra

## Two-wheeler Based Spray Painting Device

The innovation is a painting device that can be easily mounted on a two-wheeler scooter and carried to a customer's place. Deriving power from the two-wheeler's engine to run the compressor, this device lends flexibility of usage to the painter. This innovation won Sheikh Jahangir a consolation prize in NIF's Fourth National Competition. NIF has also filed a patent application for the same and has supported him through the Micro Venture Innovation Fund. He has also made a scooter based washing machine and a scooter mounted flour mill.



## Portable Painting System

Often, users need a small portable spray painting system to meet local needs including indoors. Gurjeet has developed such a system using available parts such as compressor, air tank and a spray gun.

Weighing hardly ten kilograms and costing one-third of the commercial systems, it works very well. By using a tube in place of air tank, the innovator projects that the cost can be reduced for certain type of jobs.

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**Gurjeet Singh**  
Himachal Pradesh





**Arvindbhai Patel**  
Gujarat

## Auto Air Kick Pump

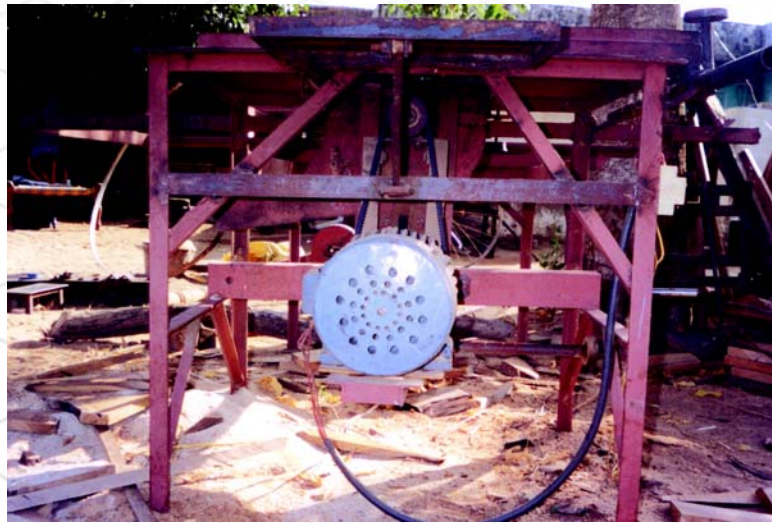
This innovation is a low cost, portable, compact aid to inflate tyre tubes/punctures of any vehicle having kick start or auto start mechanism so as to fix the problem on the spot and enable the rider to reach the nearby gas station or repair shop.

This device converts the compressor into an air pump. A pinch of polymer granules is also inserted to seal the leakage in the tube. The user can kick and fill air in the tube. This may last for a few kilometers to reach a pump repairing shop. An entrepreneur from Mumbai has licensed this technology and has sold more than 2500 pieces so far, mainly in North Eastern India through another technology licensing initiated by NIF North East cell at IIT Guwahati.

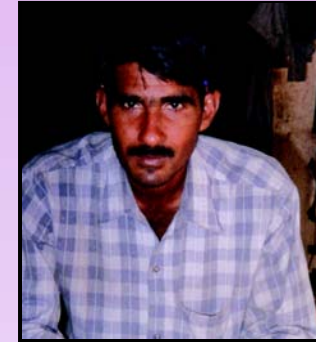


## Safe Wood Cutting Machine

The innovator has developed a diagonal cutting system, which enables cutting at different angles. The machine uses a 2HP motor, transmission system, rotating platform, and saw blade with a simple elegant construction. It consists of a moving platform to feed the job, while being able to fix and cut the job in any orientation. It also has facilities to mount multiple fixtures using an inbuilt scale for measurement and productivity enhancement.



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**Kishanlal Jangid**  
Rajasthan



**Khimjibhai Kanadia**  
Gujarat

## Panihari - A Head Load Reducing Device

Rural women walk tens of miles with heavy load on their head, which causes stress, discomfort and eventually head and neck injuries.

The product is an ergonomically designed device fixed on top of the head, with two extended supporting rods from the sides of the device. The device transfers the weight carried on the head to the shoulders, which is better positioned to carry weight.





## Jalpari- The Water Carrier

Women who walk miles with heavy water pitchers on their head, suffer discomfort and even injuries. This innovation consists of a shoulder slung unit fixed with water canisters balanced on either side.

The carrier has two washable plastic containers of 20 liters capacity in the front and the back respectively. Metallic handle grips for holding and picking, a soft flexible shoulder strap and a tap for taking out water are some of the features of this versatile unit.



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**Madhav Sawant**  
Maharashtra



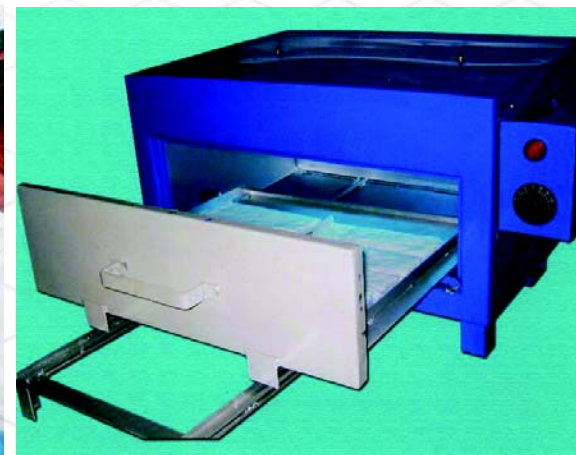
**A. Muruganandam**  
Tamil Nadu

## Sanitary Napkin Making Machine

Sanitary napkins, a universally needed product, have a very low penetration in India due to high price and the traditional trend of using cheaper but unhygienic old cloth pieces. The innovator has developed a machine that produces quality sanitary napkins at a low cost.

One can prepare sanitary napkins with standard material while cutting down the cost in production. It requires three to four persons to produce two pads per minute. Costing less than half of conventional options, this machine produces sanitary pads @ Rs.1 to Rs. 1.50 per pad approximately.

The innovator prefers to sell the napkin making machinery only to self-help groups of women. He has also designed a napkin vending machine such that one can put a coin and get a pad. With the support from the Micro Venture Innovation Fund scheme, the innovator has been able to install fifty units in seven states.



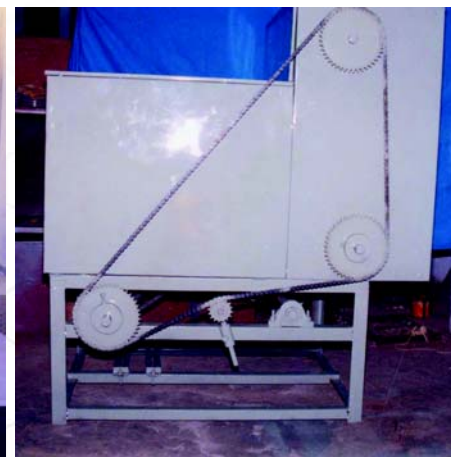
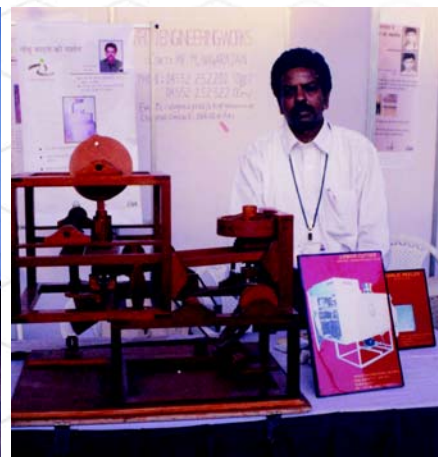
## Garlic Peeling & Lemon Cutting Machine

Faster peeling of garlic in an effective way is a major requirement in the pickle industry. This product is a food-grade, fully automated machinery designed for bulk quantity peeling of garlic. The machine ensures minimal damage and has wide application in making pickles and herbal medicines. The machine is energy efficient, saves labour, needs low capital and operating cost. It frees the industry from capacity constraints caused by shortage of labour in peak seasons.

The second product is also used in pickle industry, but for cutting lemons. It is a cost effective machine, having innovative design, with continuous feeding system. It performs precise and standard cutting of large quantity of lemons in uniform shape and sizes. It can be operated by one person and cuts lemon into maximum eight pieces. The innovator has been supported under MVIF scheme and has achieved a turn over of around sixty lakhs since 2003.



**M. Nagarajan**  
Tamil Nadu





**Dulal Choudhary**  
Assam

## Beauty Care Umbrella

Protection from harsh rays of the sun is a requirement in most parts of a tropical country like India. An umbrella made from traditional yet multifaceted material is a boon for the common man.

This innovative umbrella is durable, stain free, water proof and is produced from muga silk. It has a pleasing golden shine, which illuminates colour and protects from UV radiations up to 80 percent as per laboratory tests, far better than that offered by conventional umbrellas. NIF had facilitated the technology licensing of the innovation to Assam Silk Development Centre in 2005. The product has been sold to customers in Europe and Australia also.



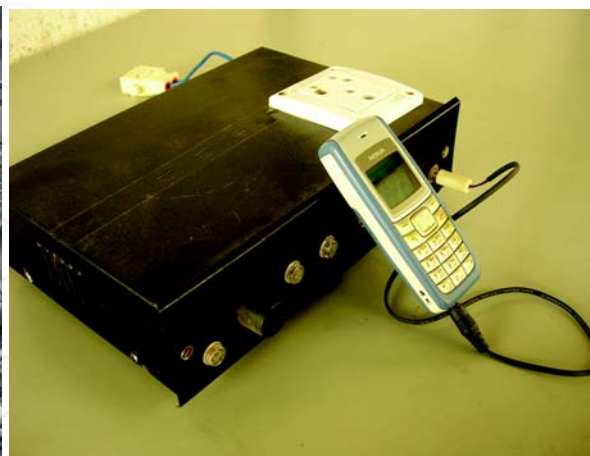
## Mobile Operated Switch and Multi-media Poster

Imagine a village where the farmer has the luxury of being able to stay at home and switch his irrigation pump in the faraway field on or off as required during the day or at night. This is made possible by this brilliant innovation, which uses the power of mobile telephony to trigger electrical control switches.

The farmer can remotely know the status of the pump in his cell phone and turn the motor on or off by calling the particular configured number. It activates the switching by certain number of rings and hence incurs no call charges. Prem Singh has developed several other innovations, one of which is the viewer triggered multi-media poster. If any agency wants to communicate some graphic message with different language audios or videos, this multi-media poster can be very useful.



**Prem Singh Saini**  
Haryana

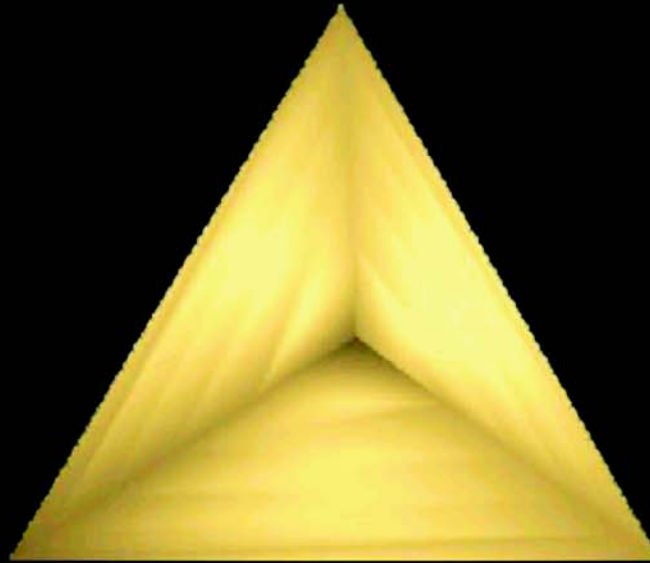


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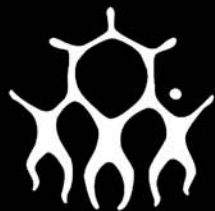
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Innovation



Investment

Enterprise



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