National Innovation Foundation

Uttarakhand Innovates

Honey Bee Network

UTTARAKHAND INNOVATES

National Innovation Foundation

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PREFACE

National Innovation Foundation (NIF) has been pursuing the mission of making India innovative and a creative society since 2000 with the active support of Department of Science and Technology, Government of India. Till date NIF has been able to scout innovations and traditional knowledge practices from over 520 districts across India.

Thanks to the support of volunteers from Honey Bee Network, we have been able to discover many unsung heroes and heroines of our society who have solved local problems without any outside help.

Despite various constraints, NIF has put together a small book celebrating creativity, innovation and traditional knowledge from Uttarakhand. I am conscious of its limitation in terms of coverage and outreach. But if we could uncover at least a few examples of the ability of local communities and individuals to solve problems on their own without outside help, how much more can be done if state and private sector agencies join hands with NIF actively.

I invite the state government and its various organs to actively support our quest to uncover many more creative communities and individuals in rural and urban areas. NIF will then help in building value chain around them.

The book is divided in three parts. The mechanical innovations developed by innovators from Uttarakhand are covered in part one. Selected examples of herbal traditional knowledge are given in part two. The innovations from other parts of the country suitable for the development of Uttarakhand are given in part three.

By no stretch of imagination, could we claim that we have achieved a great deal. We have merely made a simple point. There are a large number of knowledge rich people who

may not have been educated much, may in fact be economically poor also, but still have the ability to solve a few problems so well.

The challenge really is to work out a synergy so that no creative voice remains unheard, and no solution remains localized and unrecognized. By adapting public policy in support of grassroots innovators and traditional knowledge holders, we can make economic development process more inclusive and sustainable.

This book on innovations has been compiled at the request of Dr. Vijay Kelkar, Chairman, Finance Commission and the Member, Governing Council of the National Innovation Foundation as a tribute to the creativity and innovation at grassroots. This presentation is part of a series of innovation compendium prepared for every State of India. We hope this will be followed up in the form of concrete policy and institutional initiatives in each State to empower creative people to improve the quality of life of common people and thus promote inclusive growth.

It is my belief that such examples will act as spur for other State government departments to look for creative efforts of their staff and users at ground level. I hope that NIF will have the opportunity to work closely with the State government in future and expand knowledge base, add value to selected technologies and help them diffuse through commercial and non-commercial social channels for improving the livelihood of the majority of the people.

R. A. Mashelkar, FRS
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Building a Bridge with Grassroots Innovators in Informal Sector

To make the Indian development process more inclusive, there is no escape from building upon creative and innovative experiments pursued by common people at village or semi-urban level. Many of these experiments lead to development of innovations, which can improve productivity and generate employment. However, the purpose of a particular innovator may often be to solve just his/her problem. There is no mechanism available for him to share the knowledge, innovation or practice with other people in different regions. Sometimes, ideas and innovations get diffused through word of mouth. But many times, these ideas remain localized. In the process, potential growth and social development gets constrained. To overcome this constraint, Honey Bee Network with a handful of volunteers triggered a movement, twenty years ago to scout, spawn and sustain the unaided innovations and outstanding traditional knowledge from the informal sector of our country.

Drawing upon this experience, National Innovation Foundation (NIF) was set up in 2000 with the help of Department of Science and Technology, Government of India to scale up the idea of learning from grassroots innovators.

Under the inspiring leadership of Dr. R. A. Mashelkar, Chairperson NIF and former Director General, Council of Scientific and Industrial Research (CSIR), NIF has taken major initiatives to serve the knowledge-rich, economically poor people of the country. It is committed to make India innovative by documenting, adding value, protecting the intellectual property rights of the contemporary unaided technological innovators, as well as of outstanding traditional knowledge holders. It aims at promoting lateral learning among local communities to generate low cost affordable solutions of the persistent and emerging problems, and enhance the diffusion of innovations on a commercial as well as non-commercial basis.

How does NIF work?

Primarily, NIF has five functions: (a) Scouting and documentation, (b) Value addition and research and

[1] The Honeybee collects pollen from the flowers but they are not impoverished, in the process links one flower to another enabling cross-pollination. Similarly, the Honey Bee Network strengthens people-to-people contacts, learning and networking by pooling the solutions developed by individuals across the world in different sectors. The network acknowledges the innovators, traditional knowledge producers and communicators so that they do not remain anonymous.

development, (c) Business development and Micro Venture, (d) Intellectual Property Rights protection and (e) Dissemination, database development and IT applications.

NIF has been entrusted with the responsibility of building a National Register of Grassroots Innovations and Traditional Knowledge. It is not enough to document or disseminate the innovations or outstanding traditional knowledge. Value addition is very important for harnessing the full potential of the idea. NIF has entered into MOU with CSIR and Indian Council of Medical Research (ICMR) besides other organizations. CSIR has allocated funds to support research on grassroots innovations in CSIR labs. Similarly, ICMR supports research on such herbal healing knowledge, which has not been documented in the classical texts and formal institutional literature. NIF also helps in generating a very large pool of open source / public domain technologies. A small number of innovations are also protected by patents and other IPRs.

For most innovators, attracting risk capital for converting innovations into enterprise is very difficult. They neither can offer much collateral nor are they able to develop a business plan or deal with formal R&D system.

A Micro Venture Innovation Fund (MVIF) has been set up with the help of SIDBI to provide risk capital for technologies at different stages of incubation. Under single signature, innovators are trusted and investments are made to help them commercialise their innovations. Most innovators do not make good entrepreneurs. For entrepreneurship, one has to make consistent batch by batch production of products. Innovators are often incorrigible improvisers. They seldom make two things alike. NIF has helped such innovators to license their technologies to third party entrepreneurs. Most of the licenses have been given to small entrepreneurs and in a few cases, to medium enterprises.

A very elaborate benefit sharing system has been developed, governed by the Prior Informed Consent (PIC) of the knowledge

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The Honey Bee Network strongly believes in sharing knowledge among the providers of innovations in their own language, which is achieved by publishing local language versions of Honey Bee newsletter. It also ensures that a fair share of benefits arising from commercial exploitation of local knowledge and innovations reaches the innovators and knowledge providers.

providers. Attempt is made to share benefits not only with the innovators but also with their communities and for nature conservation. In addition, a small part is kept for contingency support to needy innovators, for R&D stakeholders, promoting women's innovations and meeting overhead costs.

It is remarkable that grassroots innovations are generating global demand, as evident from inquiries from around fifty-five countries for various technologies, NIF has succeeded in commercializing products across countries in six continents apart from being successful in materialising thirty cases of technology licensing with the help of partner agencies.

What has it done?

With major contribution from the Honey Bee Network, NIF has been able to build up a database of more than 1,00,000 ideas, innovations and traditional knowledge practices (not all unique, not all distinctive) from over 520 districts of the country.

NIF has filed 198 patents in India and seven in US and one PCT application. Out of these, 33 patents have been granted to grassroots innovations in India and four in US. NIF has funded 113 projects under MVIF to the extent of Rs.1.3 crores. Hundreds of technologies have diffused through farmer to farmer social network.

NIF has proved that Indian innovators can match anyone in the world when it comes to solving problems creatively. Where they perform better than rest is in generating more affordable sustainable solutions by using local resources frugally.

Those who see poor only as the consumer of cheap goods, miss the knowledge richness at the grassroots level. The Poor can be the Providers also.

The Grassroots to Global (G2G) model that NIF is propagating is all set to change the way the world looks at the creativity and innovations at grassroots.

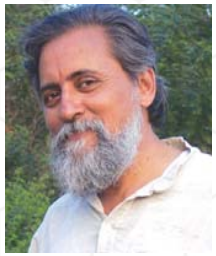
How can state government join hands with NIF?

a. NIF has no field extension unit nor does it want to have one. However, state government has several field functionaries in the area of agriculture, education, industry, rural development, women and child care, forestry, etc. There can be a very fruitful partnership between NIF as a

source of innovative ideas and technologies and state government as partner in dissemination, value addition and even commercialization through incentives, promotion, subsidies, etc.

b. State government can join the national campaign for scouting innovations and traditional knowledge and motivate its grassroots functionaries to join hands with NIF in uncovering the talent at the community level.
c. Students in schools and colleges can be motivated to scout creative and innovative people in their neighbourhoods and send the entries to NIF (Post Box No.15051, Ambavadi, Ahmedabad 380 015, campaign@nifindia.org). Examples of innovations can also be included in the curriculum for the school and college education.
d. Demonstrations and trials can be organized at various regional research stations and KVKs (Krishi Vigyan Kendras) so as to create awareness about the creative potential of common people.
e. The research institutions can be mandated to add value to the knowledge of innovative people and help in protecting their knowledge rights.
f. On the state's website, link to NIF can be given and the innovations from the region can be displayed to put forward the creative face of the state before the people.
g. Some of the innovative people identified by NIF and/or state government could be awarded at district and state level besides giving them support for further work.
h. A nodal officer could be appointed to keep in dynamic touch with NIF to ensure that all the areas of possible cooperation are explored.

I hope that NIF would be able to develop a functional, fruitful and fulfilling relationship with the State of Uttarakhand. Tremendously rich knowledge of biodiversity and environment besides numerous grassroots innovations can be leveraged through the proposed collaboration.



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“Innovation opens up new vistas of knowledge and new dimensions to our imagination to make everyday life more meaningful and richer in depth and content”.

- Dr. A.P.J. Abdul Kalam

“The purpose of innovation is to create a new value for an individual, team, organization or for society at large”.

- Dr. R.A. Mashelkar

PART I

INNOVATIONS
from UTTARAKHAND

This section contains grassroots innovations emerging from the rural/urban areas of Uttarakhand

Arun Kumar Kamboj
Udham Singh Nagar

Biogeyser: Harnessing heat of biodigestion

Arun is a progressive farmer, who learned all the basic and intricate aspects of agriculture from the tender age of 12. He left his studies after tenth standard due to financial constraints in the family. One evening he was working with an assistant in his nursery when he saw that the heap containing cattle waste was releasing fumes of heat. He realized after touching the heap that the gathered waste is capable of radiating enough heat to make another substance hot.

After rigorous trials he came up with a system for getting warm water by utilizing heat evolved in exothermal reactions during decomposition of organic wastes. A Pipe line containing water is passed through a heap of organic wastes. Water can be warmed up to 60-70° C after storing for a period of 24 hrs (morning to morning). The amount of water that can be warmed up depends on size of the heap. He dedicated the innovation to his father and called it 'Chandan-Biogeyser'.

02

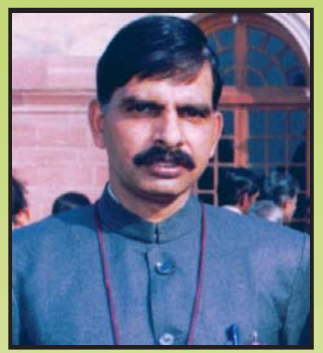
New variety of lemon grass ‘HUNAR’

Gurpreet Singh*
Udham Singh Nagar

Gurpreet has been involved with the farming business for more than a decade in the terai region of the state. It was his quest for diversification that led to the development of ‘hunar’ variety of lemon grass. This variety selected by him is rich in citral content. It provides a fresh-lime note, which is in high demand in the market as compared to its contemporary ‘metallic note’.

Gurpreet has also developed a filter for lemon grass oil purification. The oil is passed through a water chamber and then through a chemical pad. The existing technologies are centrifuge based or micro filters, which are very expensive and beyond reach of common people.

*As per its mandate, NIF does not consider such professionals for awards or financial support, but only helps in providing visibility or linkages.



Ravindra Mishra
Haridwar

Sculptures made from the secretion of termites and pest management for Sal trees

Ravindra Mishra has been interested in nature right from his childhood. While roaming around the forest he noticed that some trees like *Harsingar (Nyctanthus arbor-tristris)* and *gotra* were affected by termite attack more than others. He also noticed the selective nature of termite attack. The unusual shapes of the affected wood gave him an idea of using termites to shape sculptures. He identifies the tree with some of the dried parts already affected by the termites and then applies chemicals to the parts that he does not want the termites to attack. Over a year through periodic treatments and monitoring the shapes, a sculpture would emerge. He then cuts it away from the tree and gives it final shape using knives and other tools. He polish the sculptures to make it look better. Thus has been born a new art, using termites as biological tool.

Control of Sal pest

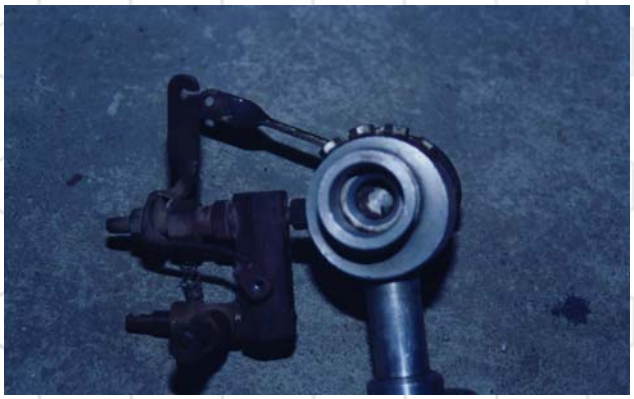
Some years ago in Rajaji National Park, he noticed a thick layer of reddish powder at the base of Sal (*Shorea robusta*) trees. It was caused by the insect locally called *hopelo* or *gujeri* (*Hoplosorvix icnorvix*) which made a deep bore inside the tree, lived off the sap and laid its eggs in the burrows. Eventually, the tree dries up. After doing intensive search for such herbs that repel the insect, he observed that several species of vascular plants like *kachnar, har singar, lantena, amaltas, awla, wild tulsi, harad, bahad, sirus, rohini, kinkar, dumsal,* etc. were disliked by the pest. He then wrote to the Chief Minister giving full details. As a result, large numbers of saplings of aromatic herbs were planted in the forests to protect *sal* trees.

04

LPG carburetor for motorcycle

Guljar Ali
Udham Singh Nagar

Guljar used to read in the newspapers about various kinds of gas kits. Once he purchased a gas kit for his Honda motorcycle but noticed that the kit gave constant gas supply of a fixed compression ratio mixture irrespective of speed or load. Even, when he increased the speed, engine got disturbed. Guljar modified the kit, which could vary the compression ratio when the engine pick up was altered and thus solved the problem.



Durga Sahay
Udham Singh Nagar

Alarm for flourmill

Durga was running a flourmill, which was the only one in the local area. The folks used to complain about the timings of the mill. They would come to check whether the mill was running or not before bringing the grains with them. Durga was annoyed by this problem and decided to develop some alarm system for the same. Using exhaust manifold of the engine he developed an alarm, which produced a sound signal. People now knew whether flour mill was working or not.

06

Wooden blocks based game for earning the right to talk!!

Amol Kumar
Udham Singh Nagar

Amol, a carpenter by profession, makes very complex and beautiful designs. Once he was working on a very important project but his friends and several other people came and asked several questions thus disturbing him. He had to concentrate while working on the project. In order to avoid the interruptions, he developed a game using six wooden blocks and also put a condition that “he will only talk to those who could rearrange the six wooden blocks as done by him originally”. It is interesting to note that thousands of people tried but failed while he could do so in a mere ten seconds. What a way of achieving concentration and keeping disturbing friends away!

Late Padmadutt Balutiya
Nainital

Traditional knowledge for making a check dam hundred years ago

A very interesting story has been passed down through generations about the building of this check dam. According to the elders in the area, in the late 1880s, Robertson, the British Commissioner at the time, had a dam constructed to retain the water in Bheemtal, so that it would not be wasted and could be used when the need arose. But the dam broke down during the rainy season. Colonel Ramsay, who succeeded Robertson, at the request of farmers, decided to construct a check dam to solve the problem of water shortage. As soon as Padmadutt Balutiya came to know that Ramsay was going to build a dam, he went to the site and checked the design of the dam. He felt that the design was flawed and told Ramsay that it would not be able to withhold the water pressure. He suggested that instead of the straight wall, if the dam could be constructed with a convex shape it would withstand the pressure of water. The force of water would not concentrate at a particular point but would be distributed evenly over the entire length, thus minimizing the water pressure.

Unfortunately, Ramsay did not pay heed to his suggestions and had the dam constructed 'his way'. The dam was washed off in the first rain. Ramsay tried three more times, but each time he met with the same results. The next time, Ramsay wrote to London, explaining his case and asking for a specialized engineer. The engineer came and started the work with a new design. Again Padmadutt went to Ramsay and suggested that if this dam could not withhold the water pressure, he should be allowed to build the dam the next year according to his design. Ramsay agreed. This dam also could not sustain even first rain and was washed away, then Padmadutt was given a chance. The dam at Nainital, designed by the late Padmadutt Balutiya in 1895 is over hundred years old, continues to stand strong and has not required any repairs since its construction.

NIF awarded him posthumously in the 3rd National Award Function held at Ahmedabad in 2005.

Meghnath Mistry
Udham Singh Nagar

Kerosene based egg hatching incubator

Meghnath wanted to start a poultry business and enquired about the incubators available in the market. He found the prices beyond his limits. Knowing that eggs are hatched by heat, he dug a pit and kept eggs in a circular pattern around a kerosene lamp. The entire system was covered by a blanket and kept untouched for 30 days. After 30 days he found some eggs had matured from one side only. He then started observing hens and ducks and noticed that they rotate the eggs after every half an hour.

Using this knowledge he then developed an incubator, which included container for holding eggs covered by thermocol sheets, a water tank above the egg container and a kerosene lamp outside the assembly. Chimney of the lamp was designed in such a way that hot air passes through the water tank to the incubator for maintaining humidity and temperature inside the chamber. Eggs are rotated manually after six hours and the hatching rate is above 60%.

09

Multicrop combine unit

Chinder Singh
Udham Singh Nagar

Harvesting of wheat and collection of chaff for feeding the animals is a time consuming process. The existing combines are fitted to tractors and need separate units to be fitted for harvesting of wheat and then for cutting of straw. Few farmers have the dual tractor-combine units and most small farmers have to wait for combine units to be available and pay necessary hire charges.

The innovator has developed a dedicated single unit which, can simultaneously do both harvesting of wheat and generating the straw and depositing them in two separate tanks on either side. The machine also cleans grains, pulses and oilseed crops without breakage.

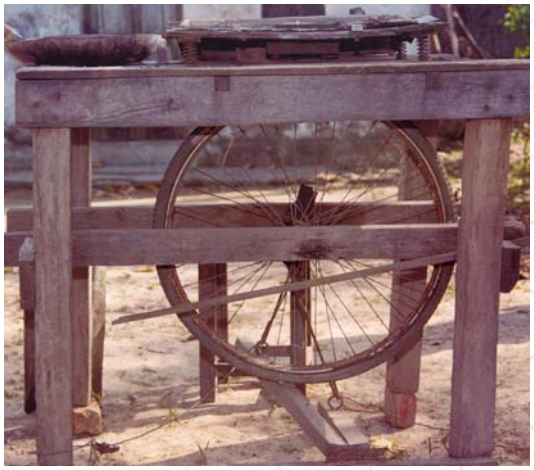
Using an Ashok Leyland engine, with a compact footprint, it is a versatile option that can maneuver in tight zones with narrow plant interspacing.The machine can harvest wheat at the rate of one acre per hour.

Sukhranjan Mistri
Udham Singh Nagar

Pedal operated tile making machine

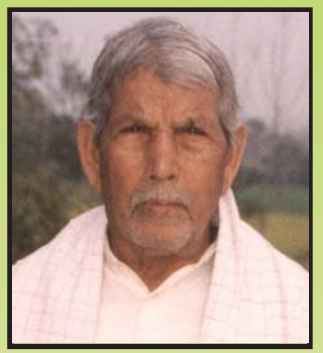
Traditionally tiles are made manually, which is a time consuming, less productive and a boring task. Small potters cannot afford costly machines to increase the productivity. Sukhranjan developed a pedal operated tile making machine, which works on the principle of conversion of mechanical energy from pedaling of wheel into vibration of tile on the top of the wooden foundation. Within 2 minutes of pedaling, air trapped in the mortar is released and the mortar is converted into the tile of desired shape. It can be used for making cement as well as clay tiles.

NIF has awarded Sukhranjan during its 3rd National Award Function in 2005.



11

"Indrasan" paddy variety



Indrasan Singh
Udham Singh Nagar

Indrasan actively participated in the freedom movement (1942) and spent 18 months in Gonda & Gorakhpur jails. After Independence he was awarded a piece of land of about 15 acres by the Govt. of India. In 1972, he was awarded a *Tamrapatra* by the then Prime Minister Smt. Indira Gandhi. A prominent member of his community, Indrasan got elected as Sarpanch of the village eight times. Though his formal education ended with the fifth standard he was invited to be a member of Uttar Pradesh Seeds and Tarai Development Corporation Limited.

This idea for an improved paddy variety stemmed from the problems that Indrasan faced in cultivating high yielding variety seeds procured from the Pantnagar University. It was one of the first farmer-developed varieties, which diffused over thousands of hectares all over the Indo-Gangetic plains. It has a yield of about 8000 kg/ha, which is quite high in comparison to conventional paddy varieties. The productivity of the crop as well as the recovery rate of the grains were much higher than the other varieties. The starch obtained is of superior quality in comparison to the conventional alternatives. The major distinguishing character of this variety is its red coloured roots. It matures in 120 days and reaches a height of 80-100 cm with uniform spikelets. Another point in its favour is its high resistance to disease unlike other traditional varieties.

During 11th Shodh yatra, (26 May - 4 June 2003, from Gokulnagari to Dehgala) the members of the Honey Bee network honoured him at his doorstep and tried to atone to some extent at least, for the years of neglect. NIF also awarded him during its 3rd National Award Function in 2005.

Bhupendra Singh
Udham Singh Nagar

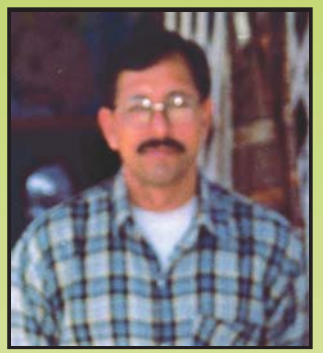
Insect killer and thief catcher

Bhupendra was unhappy about the use of pesticides to protect the crops from insects/ pests and their harmful effects on human beings. He developed this insect killer, which can be powered by 12 V DC power or 230 V AC supply whichever is available. It has a CFL tube and aspirator to attract the insects and wiring for electric shock in order to kill these insects.

He has also developed a theif catcher kit, which has a sensor and remote alarm. The alarm can be kept within 100 m range from the sensor. When anyone touches the appliance to which the sensor is attached, the alarm would ring thus making the thief run away or be caught.

13

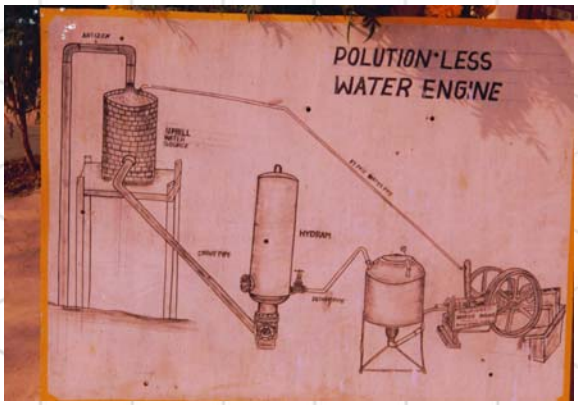
Compressed air engine and the idea of an efficient freewheel

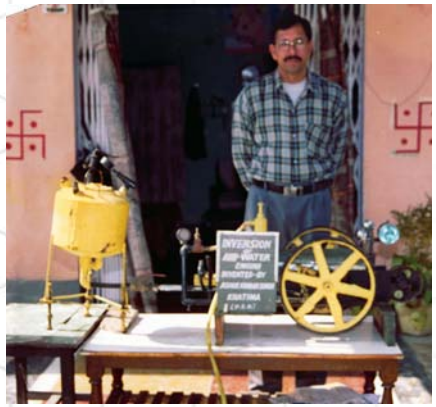


Ashok Kumar Singh
Udham Singh Nagar

Ashok Kumar had an idea of developing a water lifting pump for hilly regions without using fossil fuel. The main components of his device as proposed are water tank, pipe, hydram, compressed air tank and pump. Compressed air is used to power the movement of piston in the pump and thus lift the water. This concept earned lots of applaud from many senior technicians. Ashok has also suggested modification in the design of flywheel used in engines to prevent fluctuation in the energy. He proposes that instead of metallic flywheels, a shell of metal sheet can be developed and filled with properly compressed clay. Based on some experiments done by him, he says that metal/clay ratio of 1:1 can serve the purpose and it will not reduce the engine life significantly. It can help in saving ample amount of money and metal. The idea needs further testing.

He also has gone beyond simply innovating machines to strengthening the innovators club in the state to connect one innovator to another and to get them supported from various organizations and people.



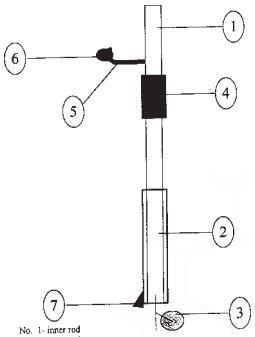


Modified stick for blinds

Saurabh Pathya
Mayank Shekhar
Rajeev Verma
Ratul Ahuja
Anurag Rastogi
Students, GBPUAT
Udham Singh Nagar

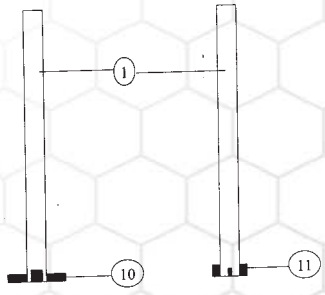
The students desired to do something to improve the lives of the blind people. They observed available sticks and compiled the problems, which were associated with these sticks.

They developed a stick, which was cheap, light and simple in construction. The stick has sensors for detecting uneven ground, potholes, presence of water, and could differentiate between doors and walls etc. The sensor detects and warns the stick holder by giving a warning sound. It also has a bell to produce specific sound to make people around aware that the person is blind. The stick also helps in climbing up/down stairs.



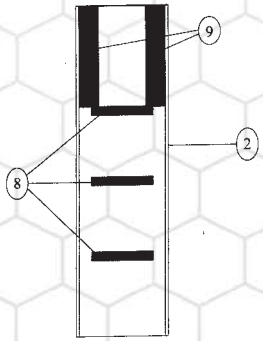
No. 1- inner rod
No. 2- outer rod
No. 3- wheel
No. 4- circuit box
No. 5- handle
No. 6- bell
No. 7- metallic hood

Fig 1



No. 1- inner rod
No. 10- metallic brush
No. 11- metal protrusion

Fig 2



No. 2- Outer rod
No. 8- Metallic strips
No. 9- Metallic stoppers
Fig 3

15

Rural essential oil extractor

Harish Tamta
Almora

A blacksmith by family occupation and a motor mechanic by profession, Harish was keen to make the lives of women living in the hills easier. Knowing medicinal value of herbs commonly grown in hilly region, he enquired about the potential of oil extracted from such herbs. He met some scientists in agriculture fair and came to know that there is a huge difference in value of raw herbs and essential oils but that the extraction machines were quite costly.

He came up with a small extraction unit by fitting a condensation attachment over the cooker in place of whistle. Leaves of medicinal herbs are put in the pressure cooker, water added and the lid is then closed. Mixture inside the cooker is heated up and oil is evaporated and collected separately.

Though the concept is well known but how many people like him have bothered and come up with this sort of solution?

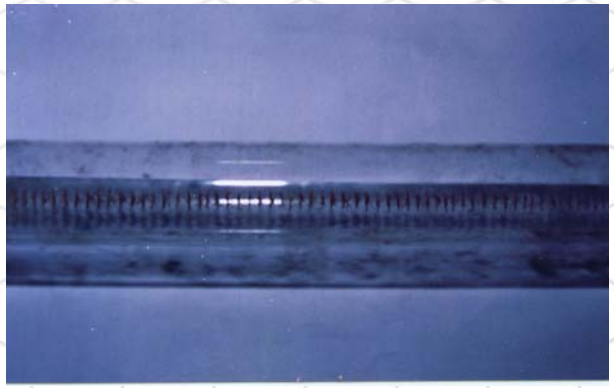
Vickey
Udham Singh Nagar

Popularizing science: visualization of sound waves

Vickey could not continue his studies due to the poor economic condition of his family and was running a bicycle repairing shop. Once, one of his friends, studying in the 12th standard, approached him for developing a good project. Vickey thought a lot and developed a crude model to visualize sound waves.

He took a fused tube light, broke one end of the tube, cleaned the white coating and filled the tube with black powder. One speaker is connected to the open end of the tube and the other speaker is connected with a stereo. As the stereo is switched on sound waves flow through the tube and create impressions over the wooden powder, resulting in change of location and thus creating wave impressions.

Refined technologies to see sound waves are available, but are not within the reach of school students. Rural students can imagine only, this kind of simple solutions can help in teaching kids even in the primary standard.



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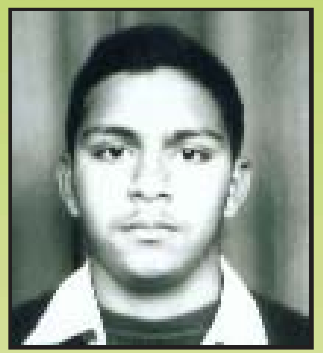
Fuel sticks from pine needles and special stove

Nand Kishore Upadhyay
Haldwani

Pine needles are shed by trees during autumn season. The needles are very oily in nature and sometimes result in serious fire hazards in the hilly terrains. These are highly combustible and result in frequent forest fires. Pine needles are also very difficult to crush. Looking at this problem Nand Kishore developed a machine to grind the needles into powder. He mixed powder with dried dung and a few other supplements and then pressed these into stick forms. For burning these sticks he also developed an improved chulha.

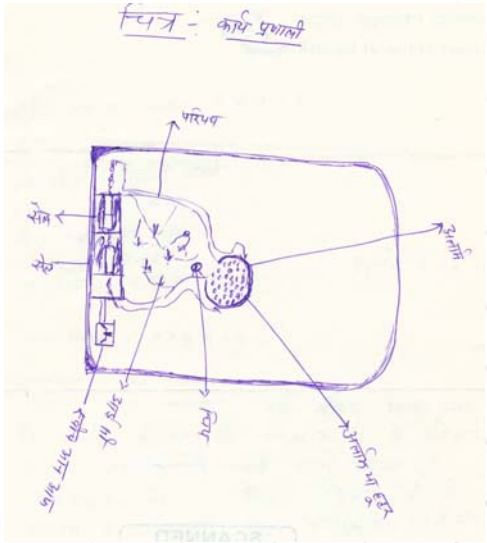


Bhaskar Joshi
Haridwar

Thief proof suitcase: an idea

Bhaskar, a student of class 11th (2003), was worried about increasing incidence of theft while traveling and in crowded places. This problem triggered a thought of making an alarm for reducing theft. He came up with the idea of a kit having sensor, which triggers an alarm, if somebody touches the baggage. He designed the circuit but unfortunately could not make a prototype.

The technology exists abroad but is not normally used in India. The reason may be lack of access and awareness.



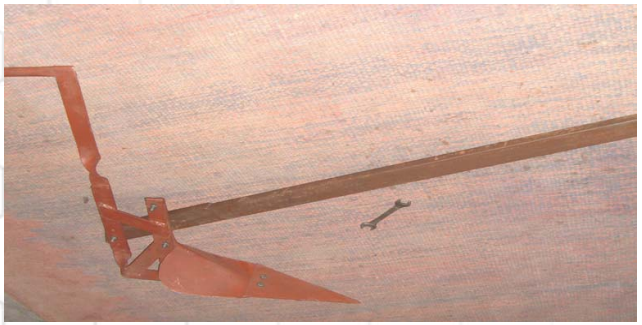
19

Agricultural implements made of metal alone

Baisakhi Lal
Tehari Gadhwal

Baisakhi Lal is a carpenter by profession. He observed that the farming implements used in the hilly region wore out fast. The metallic part remained intact but the wooden portion got damaged very frequently. Repair of these implements requires wood, which comes only by cutting the trees. As he was worried about depleting forests Baisakhi Lal designed farm implements, completely made of metal, in order to save the trees. He named these implements *'Parvatiya Vriksh Mitra'.* To promote them he gave one implement each to every village in the nearby areas free of cost.

Baisakhi has developed metallic indigenous plough, marker, weeder, rack etc. These implements have been tested by District Agricultural Dept. Rudraprayag, Tehari and Ajeevika Project District Management Unit, Chamba, Tehri. The innovator has sold about 5000 units with 50% subsidy. National Innovation Foundation has recently received his entry through the project director, Ajeevika Project.



11th Shodh Yatra
26th May to 4th June 2003
Udham Singh Nagar, Uttarakhand to Pilibhit, Uttar Pradesh

Shodh Yatra is a walk through the villages in search of knowledge, creativity and innovations at grassroots.

It is an attempt on the part of SRISTI, a Honey Bee Network partner based at Ahmedabad and NIF along with other network partners to reach out to the remotest part of the country with a firm belief that hardships and challenges of natural surroundings may be one of the prime motivators of creativity and innovations.

Shodh Yatra aims at unearthing such traditional knowledge and grassroots innovations that have not only simplified the lives of men, women and farm labourers but have also significantly contributed towards the conservation of bio-diversity.

The yatris, during the 11th Shodh Yatra, over the period of nine days, travelled through the rural areas honouring innovators, traditional knowledge holders, experimental farmers and centenarians on the way. Many biodiversity and recipe contests were also organised at various places. The Shodh Yatra saw the participation of people from all walks of lives, students, innovators, farmers, scientists, journalists and traditional knowledge holders from different parts of the country.

NATIONAL INNOVATION FOUNDATION, INDIA

The Sixth National Biennial Competition for Green Grassroots Unaided Technological Innovations and Traditional Knowledge

Co-sponsors

Honey Bee Network

CSIR

SRISTI

IIM-A

The competition

The NIF, set up by Department of Science and Technology, GOI, seeks entries of unaided technological innovations and traditional knowledge developed by an individual or group comprising farmers, artisans, fishermen and women, slum dwellers, workshop mechanics, students, local communities etc., in managing natural and/or other resources. The innovations can be in machines, gadgets, implements, or processes for farm operations, household utility, transportation, energy conservation or generation, reduction in drudgery, creative use of biodiversity, development of plant varieties, generation of herbal remedies for human or animal health or developing new or any other low cost sustainable green technology related to various aspects of survival in urban and rural areas. Creative ideas for innovative technologies which have not yet been reduced to practice are also welcome. Communities developing People's Biodiversity Register (PBR) or People's Knowledge Register (PKR) are encouraged to register/link their knowledge base with the National Register at the NIF.

The awards

The best three innovations and traditional knowledge practices will be awarded Rs 1,00,000, Rs 50,000 and Rs 25,000 each in different categories. In addition, individuals and/or organizations that make extraordinary contributions in scouting grassroots innovations and traditional knowledge may also get awards worth Rs 50,000, 25,000 and 15,000 respectively besides recognition to many others. There will be several consolation prizes of Rs 10,000 each in different categories depending upon the number of entries and incremental inventiveness and potential social and environmental impact. Three most outstanding innovative ideas may be given prizes of Rs 50,000, 25,000 and 15,000 in addition to consolation prizes of Rs 5,000 each. There are special prizes for innovations by or dealing with, physically challenged people. The innovations /ideas of professionally trained persons are not considered for award or financial support. There are special awards for journalists writing about grassroots innovations and/or traditional knowledge and creating greater awareness about NIF's missions. *The award money may be revised in due course.*

Students

Young inventors and innovators are invited to send their ideas or innovations for a special category of awards for them. These should be unsupervised, an outcome of their own creativity, without any support from their teachers or outsiders. There will be prizes worth Rs 15,000, 10,000 and Rs 7,500 for the best three entries and several consolation prizes of Rs 5,000 each in this category.

How to participate

Individuals or groups may send as many entries as they wish on plain paper providing a) genesis of the innovation and traditional knowledge b) its background and c) educational qualification and occupation, accompanied by photographs and/or videos if possible and any other information that may help in replicating the innovations/traditional knowledge. Herbal entries may be accompanied by dried plant samples to enable proper identification procedure. The **Sixth National Competition started on February 1, 2007 and entries would be accepted till January 31, 2009.** The Seventh National Competition will start on February 1, 2009 and continue till December 31, 2010. Every entry should include the **full postal address** to facilitate further communications.

Where to send entries?

National Coordinator (Scouting & Documentation), National Innovation Foundation, Bungalow No. 1 Satellite Complex, Premchand Nagar Road, Ahmedabad 380015 Gujarat
Toll Free No 1800 233 5555 Fax: (079) - 2673 1903
email: campaign@nifindia.org; www.nifindia.org