
National Innovation Foundation
Jammu & Kashmir
Innovates
Honey Bee Network

JAMMU & KASHMIR INNOVATES

National Innovation Foundation

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HONEY BEE NETWORK

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JAMMU & KASHMIR INNOVATES

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 545 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 Jammu and Kashmir. 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 Jammu and Kashmir 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 Jammu and Kashmir 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
Chairperson, Governing Council
National Innovation Foundation, Ahmedabad
mashelkar@nifindia.org

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 1,40,000 ideas, innovations and traditional knowledge practices (not all unique, not all distinctive) from over 545 districts of the country.

NIF has filed 236 patents in India and seven in US and one PCT application. Out of these, 35 patents have been granted to grassroots innovations in India and five in US. NIF has funded 161 projects under MVIF to the extent of Rs.1.7 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.

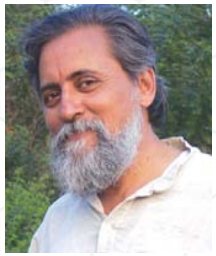
How can state government join hands with NIF?

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 Jammu and Kashmir. Tremendously rich knowledge of biodiversity and environment besides numerous grassroots innovations can be leveraged through the proposed collaboration.



Anil K Gupta
Executive Vice Chairperson, NIF, Ahmedabad
Professor, Indian Institute of Management, Ahmedabad
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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”.

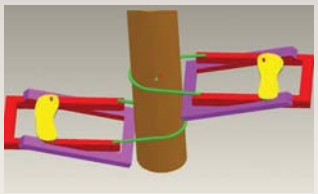
- Dr. R.A. Mashelkar

PART I

INNOVATIONS
from JAMMU & KASHMIR

This section contains grassroots innovations emerging from the rural/urban areas of Jammu & Kashmir

Mushtaq Ahmad Dar
Anantanag



Cracking Tough Problems: Portable Tree/Pole Climber, Walnut and Almond Cracker

Tree cum Pole climber: It is a small portable device that makes climbing trees/poles simple and easy. What is remarkable about this innovation is that it uses body weight to lock the climbing steps and is very light, low cost and easy to maintain.

NIF has filed a patent for the same in the name of the innovator and has provided incubation assistance through the GIAN Cell J&K. The technology was also licensed to an entrepreneur in Ahmedabad (India Innovatix), who has come up with an improved version of the climber in consultation with the innovator. Talks are on with parties in Kashmir and elsewhere to develop and use it as a climber for different electricity poles.

Walnut cracker: Walnut cultivation and trading is one of the major sources of income for people of J&K. Manual cracking of walnuts involves lots of time and drudgery. Mushtaq, who has been engaged in this activity for several years, noticed that trading of walnut without the skin gives more value. But the process is cumbersome and involves too much labour.

He thought about simplifying the process and came up with a walnut cracking machine, which cracks walnuts by compressing them between two rollers one of which is powered. This roller gets drive from a motor after proper speed reduction. Mushtaq initially made rollers and other components of wood, which were later replaced by Nylon and in other version by Aluminum after getting value addition support from TePP through

NIF. This innovation is also incubated at GIAN J&K for further R&D and commercialization. A patent for the same has also been filed in the innovator's name.

Almond cracker: It is a motorised machine that cracks almond nuts and separates nut and the shell easily. This process is otherwise done manually. The machine has a feed-in hopper section, grading section, rollers and the outlet. The device has a considerable speed as compared to the manual process and does not damage the nuts. This machine has the potential to rejuvenate the ailing almond industry in Kashmir. For this machine, he has been supported under the Micro Venture Innovation Fund (MVIF) scheme of NIF supported by SIDBI.

Mushtaq has been short listed for recognition in NIF's Fifth National Competition for Grassroots Innovations and Traditional Knowledge. He was also provided an Innovation Fellowship for a year under the CSIR-NIF MOU.

Abdul Rashid Dar
Anantanag

Self Empowerment of a Differently Abled: Adapting a Car at Negligible Cost

Born in a family of nine, Abdul Rashid had a difficult childhood. He got affected with polio at an early age, which rendered his left leg totally dysfunctional and the right one around 60 per cent useless. His father worked as a tailor and died when Rashid was only sixteen years old. He had to struggle with his own physical limitations, and had to get his five sisters married off, because his brother had shied away from his duties and left the family.

Since Rashid could not go to school, he learnt tailoring and even started training others interested in the job. Till now, he has trained around fifty people who have in turn trained many more. His wife is also a tailor and both of them work hard to maintain a decent earning. All the adverse conditions in his life made Rashid stronger and determined to fight.

He always wanted to meet his sisters and their family but was limited in movement because of his physical condition. Public transport was cumbersome and did not allow him much flexibility of time. At the same time, he wanted to be free from dependence on others for his movement. He wanted to purchase a car so that he could move around freely without anybody's help. He approached Maruti Company for

making a suitable attachment for him. The price quoted by them was almost 90,000 Rupees, which Rashid was unable to pay. Therefore, he decided to buy a second hand car and modify it himself. Spending only Rs 100, Rashid attached a rod to the clutch pedal so that it could be pressed. He also put a small hook to hold the pressed rod (and the clutch) so that he could free his hand and change the gear. Once the gear is changed, the rod is unhooked and the clutch released. This is the simple functioning of the mechanism.

Rashid was discovered by a young enthusiastic journalist Javed and felicitated during the 19th Shodh Yatra in Anantanag.

Will the state authorities approve his design and open the doors of independence for many more similarly constrained people?

Tehrim Qaiser
Umar Ali
Anantanag

Rural Refrigerator

The rural refrigerator developed by two children works on the principle of evaporation. There is an outer steel jacket having pores in the upper half. There is a main storage compartment made of copper and another inner compartment which acts as a cooler. The exterior of the storage compartment and interior of the inner compartment are covered with cotton lining. The outermost jacket and innermost jacket are filled with water which takes away the heat from storage compartment.

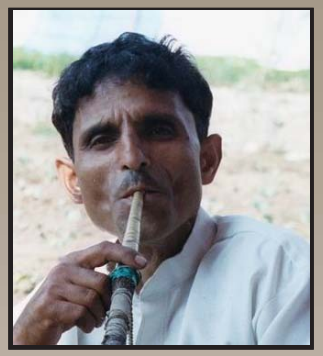
04

Electrical Painting Brush

Electrical painting brush is an automatic gadget for painting walls. This brushing system has a low powered motor that pumps paint through a plastic pipe into a specially designed painting brush which is controlled by the painter. The invention can be widely used by painters. It increases the output and the quality of painting as well. Since the brush is not required to be dipped in the paint drum, the wastage of paint is also prevented. Jahangir developed a proof of concept after getting support from NIF.

Jahangir Ahmad
Anantnag

05



Ghulam Mohammad Mir
Anantnag

Singing Lantern

The singing lantern is basically a modification in the conventional kerosene lantern widely used in Kashmir and elsewhere. The innovator has converted it into a rechargeable battery operated lamp and has also incorporated a radio receiver in its base. So this can be used for providing light and also be used for listening music or news. The look of conventional kerosene lamp gives it a unique design edge.

06

Solar Sprayer

Showkat Ahmad Peer
Anantnag

Made by a young student, this solar prayer consists of a small water tank and a connecting rod through which water is moved to the nozzle. The student has also incorporated a mechanism to track the amount of flow of pesticide used in the sprayer. Though the innovation's working mechanism is well known but the novelty lies in retrofitting the known things for application at low cost. The basic working principle of the machine is same as that of Knapsack Sprayers. This sprayer is also being incubated at GIAN J&K.

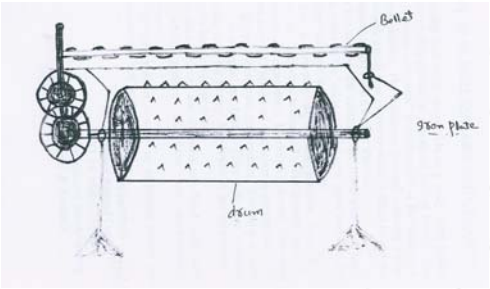
Shabir Ahmed Ganie*
Anantnag

*A professional registered in NIF database. NIF only helps such professionals by providing linkages and visibility.

Multiple Innovations

Farmers' Working Seat: It is a seat that his hung below the buttocks through belts tied on the waist while a farmer works on his hunches. This seat is light in weight, and can be made of wood, plastic or rubber tube filled with air. In this way the body weight is supported by the seat and less stress is there on his haunch. This enables the farmer to work for more hours with lesser physical stress.

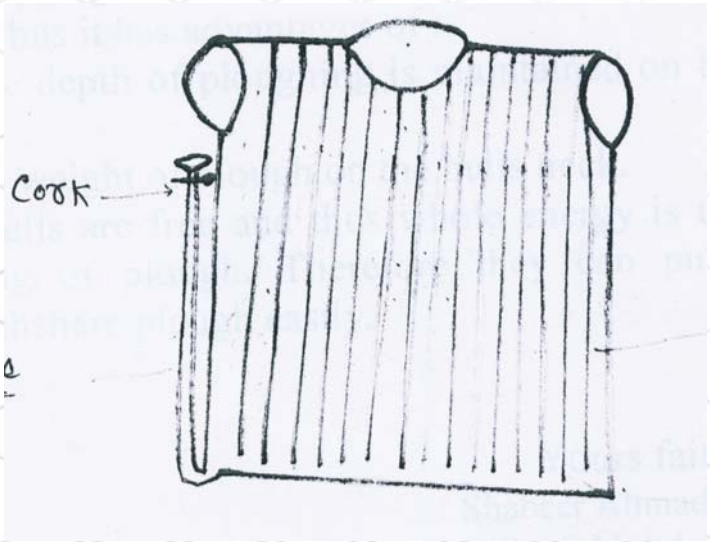
Modification of Paddy Thresher: Generally the manual paddy threshers are hold type, where user has to hold the bunch against rotating drum. To reduce the effort in holding the bunch, Shabbir has modified the design. He has provided a concave serrated belt, which moves up and down. The belt also acts as a conveyer. The bunch of paddy is placed in the gap between belt and threshing drum. The movement of bunch along with belt and rotary movement of threshing drum results in the threshing of paddy with reduced effort.



Modifications in Hand pump: Shabbir has used two elastic springs in a common hand pump where one end of the spring is attached to the upper end of the pump plunger and the other end is attached to the body of the pump. This facilitates the motion of the pump.

In another model, a pedal is attached to the handle though a vertical bar. The pedal is moved up and down using the feet thereby eliminating the need to use the hands for pumping.

Body Cooler/ Warmer: It is a body jacket made up of thin plastic or polyethylene having longitudinal tubes, which are connected to each other through parallel transverse channels. Depending on the weather, hot/cool water is introduced in the transverse channel, which then gets distributed through the network of tubes.



Aquib Javed Sheikh
Anantnag

Keeping the Herbal Tradition Alive

Aquib, a young student, used to observe her maternal aunt making various herbal concoctions and got interested in the same. During the 19th Shodh YAtra in Doru he showed us “Gulkand” (a kind of preparation of rose petals with sugar after a few months of fermentation in an air tight container), which when taken with hot water helps clear throat congestion and is also good for health. He had brought some other herbs from which he made a “Churna” (a powder formed by grinding the dried contents) for indigestion and another for curing worms in the stomach. He is also a budding innovator and has developed ideas to build devices for solving day to day problems. He was given SRISTI Samman 07 for his efforts to learn and practice traditional knowledge.

09

Keeping the Herbal Tradition Alive

Tabassum Jaan
Anantnaag

Nineteen year old Tabassum discontinued her studies after class tenth to help her mother in her day to day work. She developed an interest in embroidery right from her childhood, and started devoting her time on it. Along with it she also started learning traditional herbal practices from her elders. She has acquired good knowledge about these. She gives herbal medicines for anaemia, memory loss, stomach ache, ear pain and other conditions. Her parents, specially her father who owns a meat shop, are quite supportive of her efforts and encourage her. She has also involved a few other girls of the area with her in making herbal medicines. She was given SRISTI Samman 07 for her efforts to learn and practice traditional knowledge.

Ingenious Ideas from Creative Minds

Breaking Away From the Impact

Bharat Bhushan Sharma, Jammu
His idea is to have such a system in four wheelers that when an impact more than particular intensity occurs, the passenger cabin is moved backwards instantly (using some hydraulic or similar system) preventing injury to the passengers.

Motorised Shoes

Ashiq Hussain Meer, Anantnag
He conceives an idea to have wheels and motor in the shoes for fast and efficient transportation.

Carrying the Load Easily

Tawqir Ahmad Malik, Anantnag
He suggests a tall luggage carrier that would have shelves to hold luggage. The design thus changes from horizontal hand pull carts (as used in railway stations) to taller compact hand carts.

Electricity from Weeds

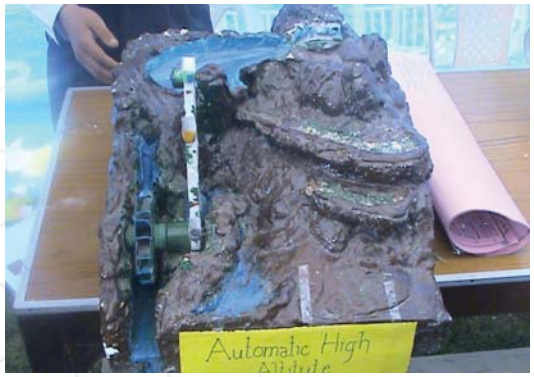
Basharrat Abbas, Anantnag

Large quantities of aquatic weeds are taken out from our lakes every year, disposal of which is quite a problem. Basharrat, after some preliminary research, has given the idea to use them to generate electricity. This might solve the problem of weed disposal as well as the energy generation albeit to a lesser degree.

He also has an idea to develop a dustbin where the waste gets digested anaerobically producing biogas thus making a Dustbin cum Biogas plant.

High Altitude Irrigation Pump System

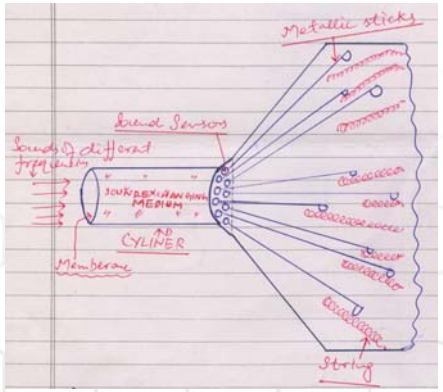
Najmus Saqib Wani, Anantnag
His idea is to build a pump that will use the potential energy of water to lift water from low-lying areas to higher altitudes. It will have a conveyor belt, which will pull up bucketsful of water to higher altitude using the energy generated by fast moving water in a river or stream.



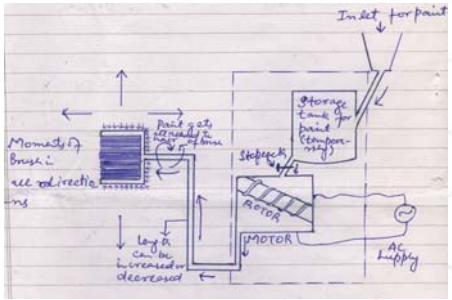
Producing Sound through Sound and Automatic Paint Coating Machine

Ghazi Umair Wani, Anantanag

The sound producing device of Umair, a student, produces a similar sound on the application of external sound. The device consists of a hollow cylinder, at the end of which there is a thin membrane and to the other a sound sensor. The sensor is attached to metallic sticks capable of striking strings mounted on a sound box when moved. When a sound is produced, its waves strike the membrane and through the cylinder get transferred to the sensor, which stimulates the metallic sticks. The metallic sticks strike the strings and sound is produced.



So, now any body, who does not know to play a musical instrument, can sing before the device and the device will play music for him to go along with the song.



Automatic paint machine is similar to the one made by Jahangir and has a paint brush with a feeder pipe that carries the paint when pumped by a motor.

Grass Cutter

Zahoor Ahmad Shah, Anantnag
The electrically operated grass cutting machine developed by Zahoor is light weight and strong. It has a cutting system that can be rotated around an axis and adjusted as per the need. The blades can also be tilted to facilitate transportation. The machine also has a winder to coil the extra yards of electric wire. It is very useful in cuttings grasses and other unwanted weeds. Though the design of the cutter may not be completely novel but maneuverability is high and the cost is low.

Compressed Air Driven Vehicle

Taloot Talib Wani, Anantnag
Taloot has developed a stationary compressed air engine using a 50 cc engine (Honda Majestic). An air tank is filled at 40-pound pressure through an air pump also developed by him. The engine cylinder head has been modified by replacing the spark plug. A timing valve has been attached to the crank valve to control the flow of compressed air. First, energy has to be stored in it by squeezing the air tightly using an air compressor. Once the compressed air is released, it expands. This expanding air is used to drive the pistons that power an engine. The process creates the forward thrust to move the vehicle.

Sieve for Workers

Niyaz Ahmad Khan, Anantnag
He has tied one side of the sieve, commonly used during construction work, to a pillar or a fence so that a single person can move it by holding on the other side and get the job done. This, thus, eliminates the need of a second person to hold the sieve from the other side. Idea may not appear new to many but how many times have we seen such attempts by children to save labour and cost.

Handmade But Machine Finish

Firdaus Ahmad Matkoo, Anantnag

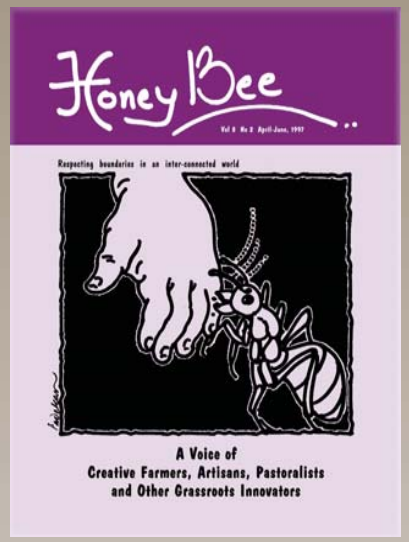
In Saufsali village, during the 19th Shodh Yatra we met Firdaus, a physically challenged person, who had a great gift of making clay toys and components resembling the ones made of metal. The finish was so perfect and the surface was so smooth that it was difficult to believe that it was a handcrafted product. Could not such talent be put to better use.

Iron Cutter

Abdul Rehman Sheikh, Anantnag
While walking past various shops in Verinag, the Shodh Yatris came across a signboard which mentioned steel art works. Normally no body would call a welding shop an art work but Abdul Rehman did. When the Yatris went inside and asked him if he had developed any innovative machine or device. It is then we discovered about an innovation in progress, a motorised iron cutter with various options which were not available in existing machineries at low cost.

Paddy Cutter

Shafiq Ahmed Shahbaz, Anantnag
It is a motorised paddy cutter comprising an electric motor, blades 14", bearings, frame for moving, belt and pulley mechanism. It could also be used with a battery.



Conserving Water and Forest Collectively: Learning from Ladakh

Ladakh constitutes the easternmost trans-Himalayan part of Jammu and Kashmir State of India. Intensive sunlight and high evaporation rate are the chief characteristics of this cold arid desert of strong winds. It snows heavily in winter and even the hottest months have sporadic snow falls. There is little moisture in the atmosphere, temperature fluctuation is wide (30° to -200° C), and the rains are very rare. This gigantic mountain of rocks and sand has only a small part that can be used for cultivation and animal husbandry. In such inhospitable climate conditions, it is imperative for all inhabitants to share some of the scarce resources. Since a single altitudinal level and eco-niche does not have the potential to provide the subsistence need of the villagers, farmers require access to different eco-niches (Buzdar, 1988). Some of the natural resources such as water and forest are not enough to meet all individual needs of community members. How much need of whose should be met, in what order and when, requires evolution and compliance of rules. Hence, there exists a common property resource management institution whereby all farmers have reasonable access to scarce natural resources.

For the complete article read Honey Bee, 17(3):10-11, 2006

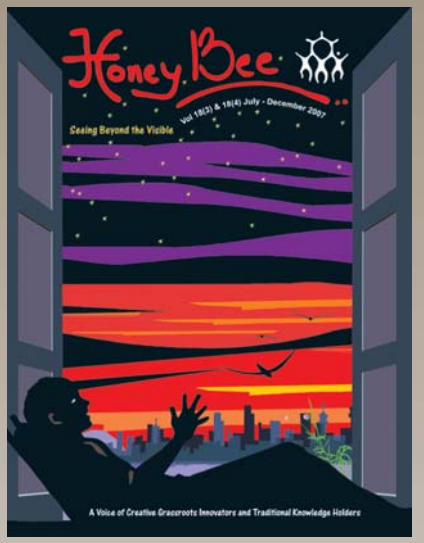
Traditional Earthquake Resistant Houses

Dhajji-Diwari Buildings

The Dhajji-Diwari buildings were the one to survive when part of the palace and other massive old buildings collapsed in the Srinagar quake of 1885. The most significant aspect of the Dhajji-Diwari buildings is the combination of the building materials used. These materials are locally available and have been used for generations. The basic elements in these buildings are the load bearing masonry piers and infill walls. There

are wooden tie-bands at each floor level. The foundation consists of rubble masonry with lime mortar whereas, mud mortar is used for the rest of the structure. The infill materials are usually adobe bricks bonded with mud mortar. The wooden bands tie the walls of the structure with the floors and also impart ductility to a structure that is otherwise brittle. The unreinforced masonry walls have stiffness but not strength. In the absence of strength, flexibility is essential for quake resistance. Here, the desired flexibility is provided by the combination of wood and unreinforced masonry laid in a weak mortar. The wooden beams tie the whole house together and ensure that the entire building sways together as one unit in an earthquake.

For the complete article read Honey Bee, 11(4) & 12(1): 13-14; 2000-2001

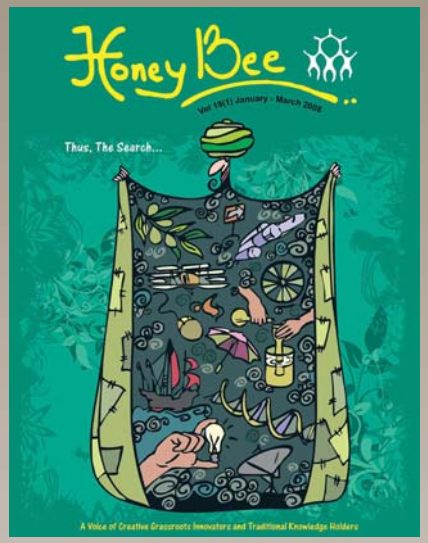


Khus Khus for Treating Dysentery

Ruby Jan, Anantanag
Seeds of 'Khus khus' (*Papaver somniferum* L.) are ground with cold water and given to patients suffering from dysentery. Honey Bee, 18(2):17, 2006

Treating Joints

Abdul Gani Choupan, Anantanag
A local herb, 'Kooth' (*Saussurea costus* (Falc.) Lipsch.) is used to cure acute pain of the joints. A herbal composition is made by mixing the stem of 'kooth' with sugar and water in appropriate quantity. This paste can be instantly applied to joints, twice a week for faster recovery. Honey Bee, 18(2):17-18, 2006



Herbal Remedy for Abdomen Pain

Md. Hussain Gani, Anantnag
Massage from the roots of 'Kooth' (*Saussurea costus* (Falc.) Lipsch.) is very useful to treat abdomen pain. Honey Bee, 18(2):18, 2006

Treating Round Worm Infection using "Tethvain"

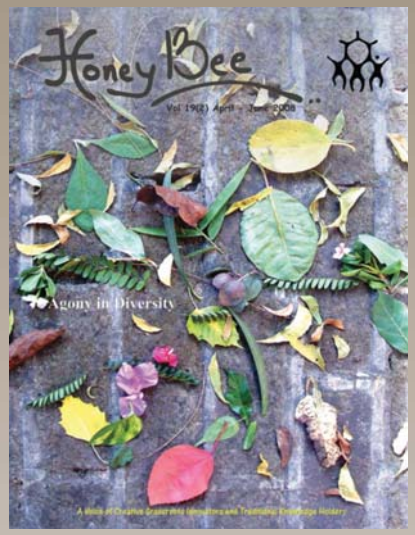
The juice of "Tethvain", Artemisia (*Artemisia absinthium* L.) leaves is given to patients to treat round worm infection. This is a common practice documented from the Anantnag district of Jammu & Kashmir. Honey Bee, 18(3) & 18(4):26, 2007

Breathing Problems

Hazi Abdul Rehman
'Anjeer' (*Ficus carica* L) and Almond (*Prunus amygdalus* Batsch) mixed with honey (1 tb spoon for adults, and 1/4th for children) provides relief to sinus patients. Honey Bee, 18(2):18, 2006

"Hand" for Fractured Bones

Umer Hamid Wani, Anantnag
Umer suggests that leaves of "Hand", Dandelion (*Taraxacum officinale* L.) when boiled, fried and eaten, help in healing fractured bones faster. Honey Bee, 18(3) & 18(4):26, 2007



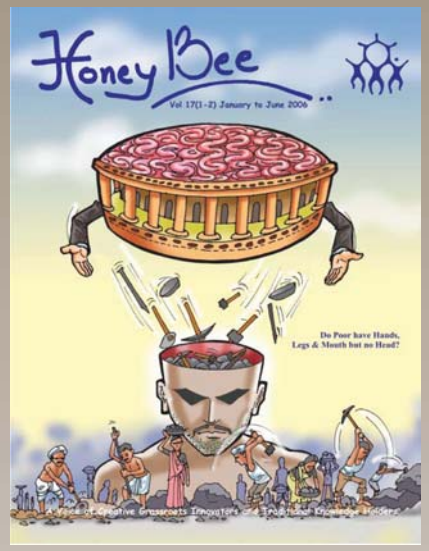
A Self-regulatory Valve for Drip-irrigation

Pankaj, Jammu
This device controls wastage of water during gardening, while ensuring that the plants receive the requisite quantity. Based on the property of expansion of wood when in contact with water, a piece of wood and a rubber tube are tied together in a limited space. The tube carries water to the plant. When water overflows from the tube, it falls on the wooden piece and the piece expands. As soon as the piece expands, the narrow opening closes and the flow of water through the tube stops.

Pankaj is a very enterprising young experimenter. He runs a shop in Jammu and has also attended many Shodh yatras. He strongly believes in spreading sustainable practices for resource use. Honey Bee, 17(1) & (2): 42, 2006

"Kaliyoth" to Treat Aching Joints

Manjoor Ahmed Sheikh, Anantnag
A local herb "Kaliyoth", Self heal (*Prunella vulgaris* L.) is crushed and mixed with salt water and boiled. After cooling, the decoction is used as bath water to cure joint pains. Honey Bee, 18(3) & 18(4):26, 2007



Treatment for Backache and Cumin to Rid Body Fat

Areena, Anantnag
To provide relief in backache, add powdered seeds of 'Jeera' (*Cuminum cyminum* L.) in four cups of water. Add a small amount of jaggery and ghee in to and boil it till it reduces to 1/4th of the original quantity and serve to the patient. Honey Bee, 18(2):18-19, 2006

To reduce extra body fat, one tablespoon of "Shahi Jeera" or "Safed Jeera" (*Cuminum cyminum* L.) seeds is boiled in four cups of water till it reduces to 1/4th of the original quantity. The mixture is left to cool down. Two tablespoon of lemon juice is added to it and consumed early in the morning. Honey Bee, 18(3) & 18(4):27, 2007

Remedy for Frost Bite

Danishta Faroq, Anantnag
During the 19th Shodh Yatra, a contest was organised at the Government Higher Secondary School, Mattan among children to bring their own innovative idea or even traditional knowledge practices learned from their elders. Idea was to kindle creativity at young age and also stem the erosion of knowledge of grandparents and parents. More traditional knowledge got transferred to children from elders through such contests than would have been perhaps possible during the entire lifetime so far. Danishta shared a practice that she had learnt from her mother about solving this problem. After making a turnip into a bowl by scooping out the center portion, one had to boil mustard oil in it. This oil apparently provided relief in frost bites. Honey Bee, 18(2): 8, 2007

Arresting Attention- The Mud House

Mohammad Yousuf Khan
Anantnag

We met Yusuf, a weaver, in Shangas village during the Shodh Yatra. While passing by the houses on the road, Shodh Yatris could not move forward after looking at his house. The walls looked freshly painted and were spotless. The Shodh Yatris went inside the house to discover the secret of such walls. His house was made of unbaked clay bricks. It was plastered with clay mixed with gunny bag fibre (jute), without any use of concrete and had absolutely no mark of rain or dust. More than 30 year old, the house looked very new. It was reported to keep warm in winter and cool in summer. It was also safe during earthquake. Will modern architectural engineers learn some thing useful from such futuristic designs and structures?


GOVT. BOYS HIGH SCHOOL QZD.
ENTER TO LEARN
LEAVE

19th Shodh Yatra
20th June to 27th June 2007
Quazigund to Khanabal, Anantnag

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 19th Shodh Yatra, over the period of eight 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.





Which road to take!!

A journey of discovery

The Enchanting Nature





Contradicting Conservatism

One of the Shodh Yatri recalled how women came forward in large numbers to ask questions about the purpose of this journey, where from had we come and what were we trying to pursue. In no other shodh yatra, had we noticed such a keen desire on the part of the women to come forward and discuss with us.

Functional Traditional Knowledge

Water bridge


Grain Storage


Chappals


Protecting the trees


Old water turbine for grinding


Painting stem of trees


Vegetable gardens in each paddy field


Mud houses

Poster Display

Idea Competitions

School Meetings

Honouring Innovators

Honouring TK Holders

Recipe Competitions

Village Meetings

Herbarium Display


What after us.....

"*If I want to study only science and mathematics, why do i need to study all subjects*?" asked Farid, a student we met during the Shodh Yatra

Illuminating young minds,
Can creativity begin early,
Rethinking pedagogy in schools

We have never come across so many inspiring slogans on school walls any where else in the country: 19th Shodh Yatra

NATIONAL INNOVATION FOUNDATION, INDIA

The Seventh 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 Seventh National Competition started on February 1, 2009 and entries will be accepted 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

PART II

HERBAL PRACTICES & PRODUCTS

This section contains details of herbal preparations used traditionally for various ailments and products based on such traditional knowledge.

Uses of *Crocus sativus* L. (Kesar)

NIF database

Source: http://www.srgc.org.uk/bulblog/log2006/081106/Crocus%20sativus.jpg

Uses from J&K

Cough/cold
Take a pinch of *kesar* along with a glass of milk
- *Mohammad Abbas Zargar, Anantnag, J&K*

Urinary disorder
Take the decoction of *kesar* and tea orally
- *Wajjat Ullah Shah, Anantnag, J&K*

Uses from other states

Eye irritation
Crush and apply *kesar* in the eyes along with honey
- *Mohd. Jafruddin Nirala, East Champaran, Bihar*

Wrinkle on face
Take *kesar* along with milk
- *Sita Kumari, Gopalganj, Bihar*

General health
Take 200mg of *kesar* and 1g each of ginger, cloves and cardamom. Grind them together to form a paste. Take a spoonful of the paste along with milk
- *Prakash Soni, Karol Bagh, Delhi*

Uses in Classical Codified Literature

Decoction of flower is given orally to cure asthma[1]; dried stamen acts as digestant[2]; it is believed to be act as contraceptive[3]. 'Kunkumadyam Thailam'[4] is a classical ayurvedic product, which is useful on pimples, black heads etc. 'Male Rejuv'[5] has been effectively used to restore male vitality and energy. Seven patents have been found on its medicinal applications such as to stimulate hair growth[6] and cure headache[7].

Uses of *Datura metel* L. (Dhatura)

NIF Database

Uses from J&K

Toothache
Smoulder the seeds and inhale the fumes
- Manzoor Ahmad Bhat, Anantnag, J&K

Rheumatism
Mix the seed powder in mustard oil and apply on the aching part
- Fazia Begam, Anantnag, J&K

Uses from other states

Alopecia
Smear the leaf juice on the head and leave for 30 minutes
-Bansi Ghosal, West Midnapur, West Bengal

Headache
Chew and spit the seeds for immediate relief
- Ganesh Das, Sirohi, Rajasthan

Asthma
Take a seed soaked in water orally. Gradually increase a seed every week for five weeks
- Rani Farhat, Hazaribag, Jharkhand

Veterinary practice

Diarrhoea
Roasted fruits are given with fodder
- Jawaharlal Prasad, East Champaran, Bihar

Uses in Classical Codified Literature

One fruit, filled with 10g *Piper longum* L. is burnt and 5g of the ash is taken with honey, morning and evening for 5 days to cure malaria[8]; the thumb is kept inserted within the fruit to treat finger felon[9]; and root paste is applied externally on poisonous bites[10]. 'Muscles & joint rub'[11] is a highly effective medicine for backache, muscular sprain and joint pain made from the plant.

Source:www.jungleseeds.comimagesDaturaBS.jpg
& www.steve.gb.comimagesplantsdatura_metel_%5Bflower%5D.jpg

Uses of *Ficus carica* L. (Anjir)

Source: http://www.profizahrada.cz/images_data/2837-ficus-carica-2.jpg

NIF Database

Uses from J&K

Stomachache
Take the fruit juice along with sugar
- Abdul Gani Bhat, Anantnag, J&K

Eczema
Apply the leaf paste topically
- Taraday Ahmad Khan, Anantnag, J&K

Cold
Take the fruit juice
- Mehnaza Tabassum, Anantnag, J& K

Kidney disorder
Eat the ripe fruit
- Roomi Jan, Anantnag, J&K

Uses from other states

Cardiac problem
Take the warmed fruit juice (2 spoons) regularly
-Sarathy Maity, East Midnapur, West Bengal

Blood purification
Take the fruit regularly
- Devaram, Sirohi, Rajasthan

Leucoderma
Take the bark powder (2 spoons) with water orally
-Sarathy Maity, East Midnapur, West Bengal

Uses in Classical Codified Literature

Decoction of fruit is taken orally to cure cough[12]; milky latex is applied externally to get rid of warts[13]; juice extracted from fruit is taken in case of constipation[13]; and fruit juice also acts as a laxative[13].

Refreshing fruit pack[11] prepared from fig rejuvenates the facial skin. Four patents have been found on medicinal applications of fig like in treating tumor[14] etc.

Uses of *Juglans regia* L. (Akhrot)

NIF Database

Uses from J&K

Dental care
Brush the teeth with the twig and root
- Niyaz Ahmed, Anantnag, J&K

Wounds
Apply the sap of fruit directly on the affected part
- Nasir Ahmed Sheikh, Anantnag, J&K

Apply the powder of unripe fruit rind on the injured body part
- Mohd. Jamal Sheikh, Anantnag, J&K

Skin disease
Apply the fruit shell paste topically
- Abdul Aziz Choker, Anantnag, J&K

Uses from other states

Memory enhancer
Take one tablet prepared from the ground mesocarp of the fruit orally thrice a day
- Sapam Deben Singh, Bishnupur, Manipur

Hair care
Apply oil on the scalp to reduce hair fall
- Joginder Singh Negi, Kullu, Himachal Pradesh

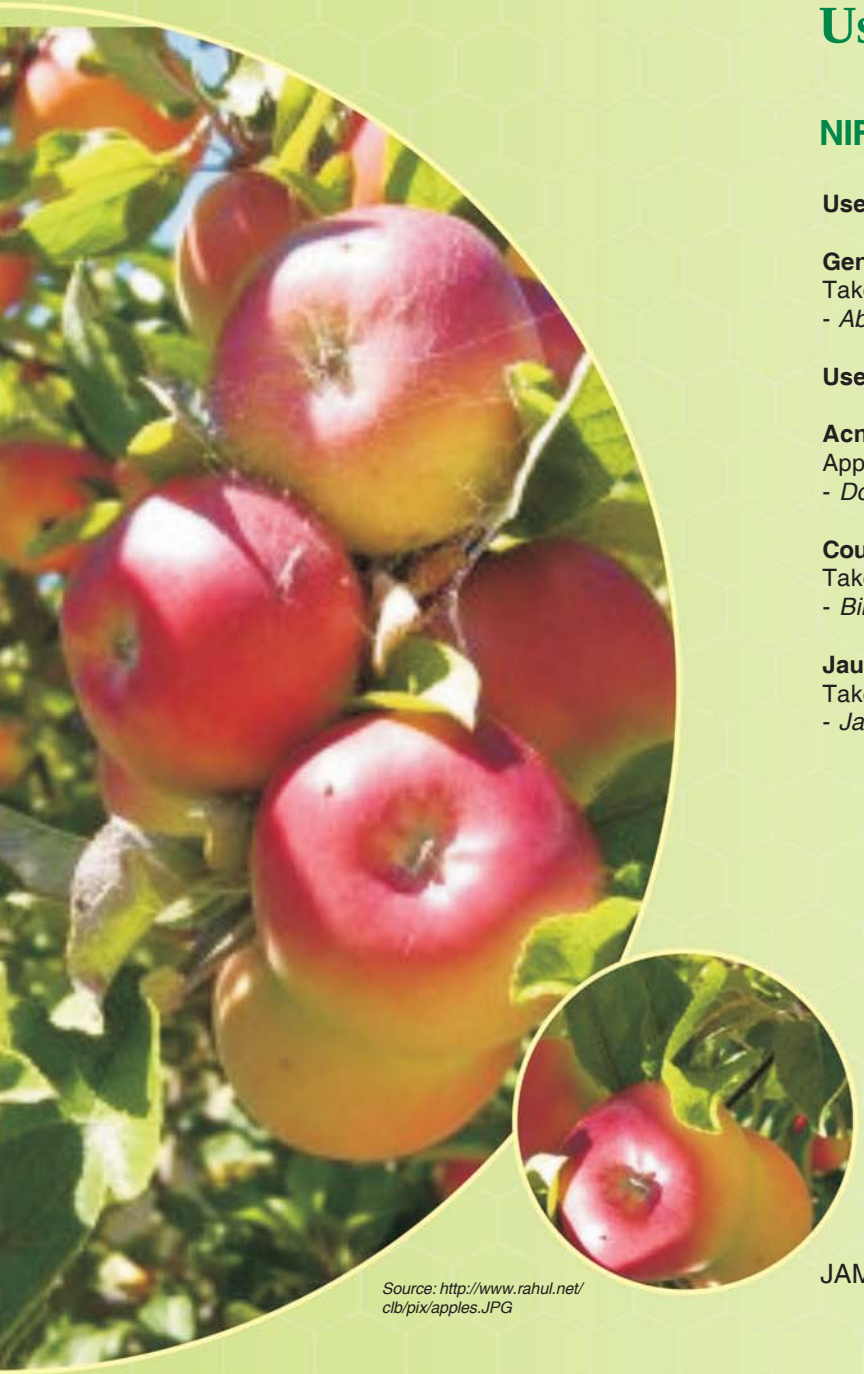
Tongue cleaning
Chew the bark along with the leaves of *Azadirachta indica* A. Juss.
-Shilpa Jain, Rajkot, Gujarat

Uses in Classical Codified Literature

Poultice of fruit is applied externally on abscess[15]; the fruit is used as carminative[13]; oil extracted from fruit is taken to get rid of tapeworms[13]; the plant is used to cure rheumatism[16]. 'Fairness cream'[11] improves complexion, nourishes and makes the skin soft; 'Gentle exfoliating walnut scrub'[11] gently exfoliates dead skin cells. Thirty patents have been found on the medicinal applications of walnut in antitumor[17] medication, for haircare[18], etc.

Source: SRISTI Database

Uses of *Malus sylvestris* (L.) Mill. (Apple)



Source: http://www.rahul.net/clb/pix/apples.JPG

NIF database

Use from J&K

General health
Take one fruit daily
- *Ab. Aziz Chopan, Anantnag, J&K*

Uses from other states

Acne
Apply the fruit juice along with condensed milk
- *Doli Kumari Chaudhri, East Champaran, Bihar*

Cough/cold
Take the fruit juice along with little sugar orally
- *Bindu Kumari, Gopalganj, Bihar*

Jaundice
Take the fruit juice orally
- *Jagjeet Bahadur, Sitapur, Uttar Pradesh*

Uses in Classical Codified Literature

Fruit decoction acts as antitussive[19]; fruit is taken orally to combat jaundice[20]; fruit decoction is taken as an appetizer[21]. Product 'Complete Cleansing'[5] and 'Anti-Toxin System'[5] a multiherb combination with trace minerals helps the body filter out toxins and waste products. Eight patents have been found on its medicinal applications such as aiding angiogenesis-metastasis[22] and dermatological activity[23].

Uses of *Morus alba* L. (Shetur)

NIF database

Uses from J&K

Wound
Apply the leaf paste topically
- *Fameeda Akhtar, Anantnag, J&K*

Accidental injuries
Chew leaves for immediate relief
- *Manzoor Ahmad Bhat, Anantnag, J&K*

Uses from other states

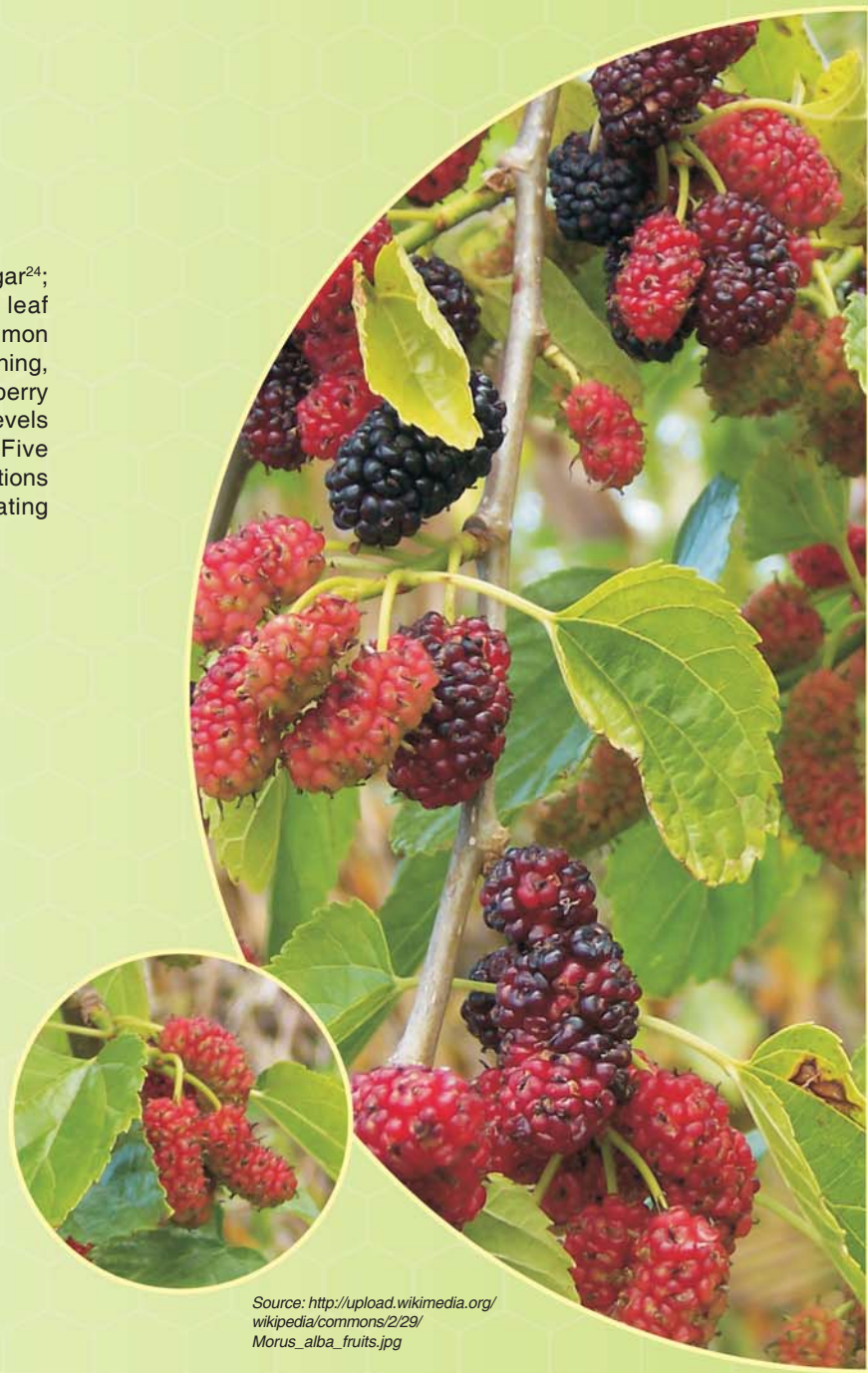
Toothache
Gurgle with the leaf juice
- *Chandi Pravin, Hazaribag, Jharkhand*

Throat congestion
Gurgle with the leaf juice
- *Champaram, Jaipur, Rajasthan*

Cough/cold
Eat the leaves along with little black salt
- *Anjali, Bulandshahar, Uttar Pradesh*

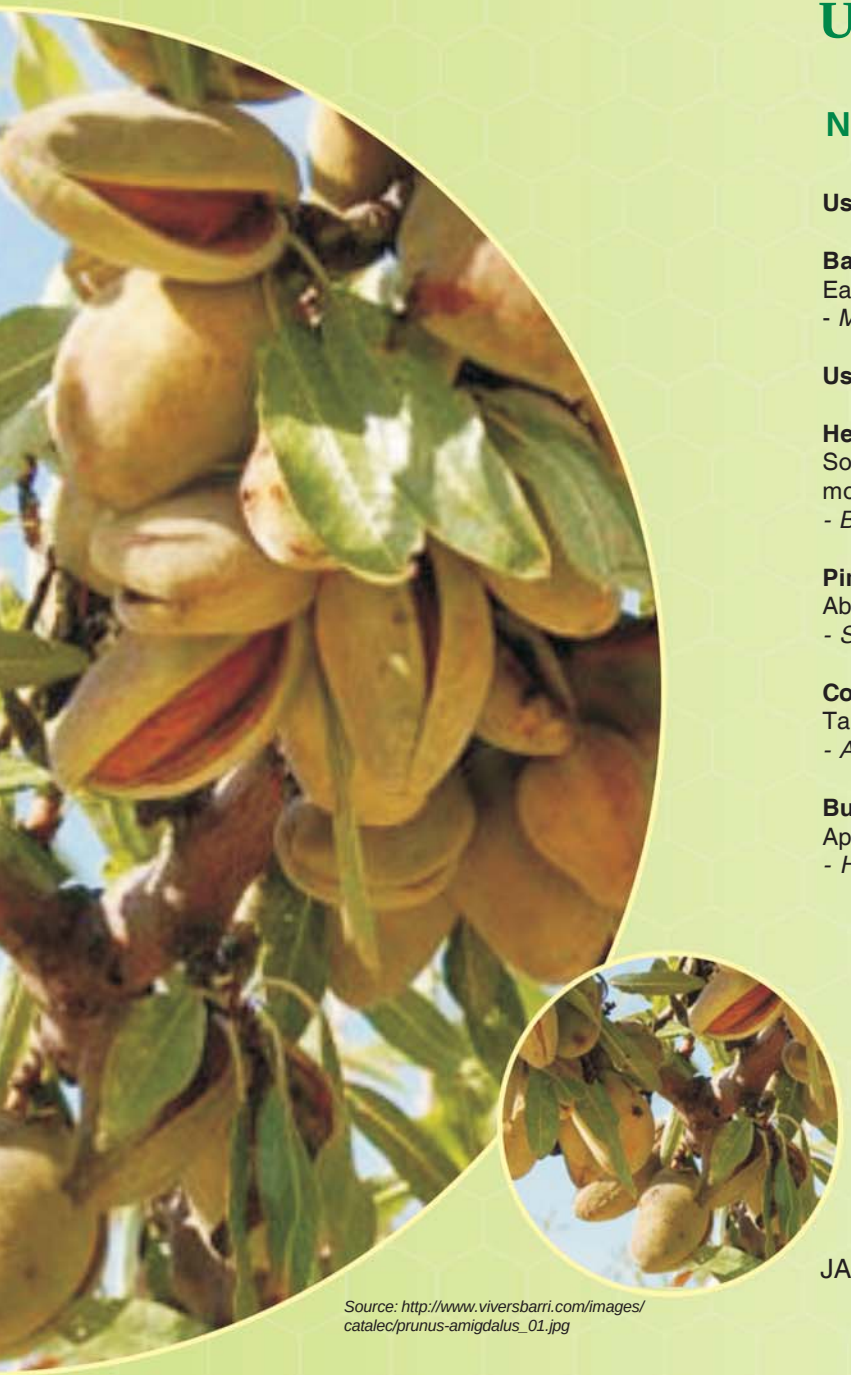
Use in Classical Codified Literature

Decoction of dried bark is used to lower blood sugar[24]; fruit is taken orally to cure stomach disorder[25]; leaf decoction acts as a diuretic[26]. 'Mulberry Ginger Common Cold Tablet'[27] is used to treat common cold, coughing, headache, sore throat. 'New Nordic Japanese Mulberry Extract 60 tabs'[28] help in balancing our energy levels after meals and reduce absorption of calories. Five patents have been found on its medicinal applications such as for neuro-protective activity[29] and in treating diabetes[30].



Source: http://upload.wikimedia.org/wikipedia/commons/2/29/Morus_alba_fruits.jpg

Uses of *Prunus amygdalus* Batsch (Badam)



Source: http://www.viversbarri.com/images/catalec/prunus-amigdalus_01.jpg

NIF database

Uses from J&K

Backache
Eat the kernel for relief
- Mohd Yusuf Wani, Anantnag, J&K

Uses from other states

Headache
Soak *badam* in milk overnight. Take it orally the next morning
- Bharti Kumari, Bulandshahar, Uttar Pradesh

Pimples
Abrade the kernel in milk. Apply the paste topically
- Sandhya Pathak, Bulandshahar, Uttar Pradesh

Cough
Take the kernel powder orally along with milk
- Amruta Kumari, Gopalganj, Bihar

Burn
Apply the seed oil topically
- Harendra Bakoliya, Nagor, Rajasthan

Uses in Classical Codified Literature

Fruit is taken to cure diabetes[31]; seed oil acts as laxative[32]; and externally, the oil is applied on dry skins[33]. 'Moisturizing baby soap'[11] nourishes and soothes the skin keeping it soft, supple and healthy. 'Diaper rash cream'[11], a specially formulated cream, reduces redness, irritation, and softens the skin. Seven patents have been found on its medicinal applications such as for treating epidermic disorder[34] and herpes[35].

Promotion of knowledge based enterprises and lateral markets

National Innovation Foundation in association with regional collaborator Peermade Development Society, Idukki, Kerala initiated a massive campaign through women self help groups to mobilize knowledge, innovations and practices among women. In this exercise more than ten thousand traditional knowledge practices were documented (many were quite common) from the field of cosmetics, nutraceauticals, health care, cooking etc., from just one block of a district in Kerala. This exercise has indicated the immense potential of knowledge at the grassroots, which can be converted into products and viable enterprises for augmenting livelihood options for rural women.

Initially four products having commercial potential were taken up for enterprise development. All knowledge holders of the four products were constituted as a single SHG named Amala and SSI registration was done. Nutrient supplement, baby massage oil and incense stick are the products selected for the initial intervention. The products were tested and standardized. All products were made available in the market under the brand name SAHYA.

The products were formally launched on August 11, 2007 in an auspicious function, attended by large number of women including the innovators. Amala enterprise was supported through the MVIF scheme of NIF.

Couldn't we trigger a local knowledge based distributed growth entrepreneurial revolution in J&K? It was saddening experience when we didn't find many locally made products in small village or town shops during Shodh Yatra in Anantnag district (2007). Here is an opportunity waiting to be tapped.

Herbal Formulations for Healthy Crops~

SRISTI SHASTRA

Arkhiben Vankar, Ranabhai Kamaliya, Banidan Gadhvi, Gemal Rana, Rajnikant Patel, Ahmadbhai Kadivala, Gujarat.

It flourishes the growth of the plant by increasing flowering as well as fruiting. Besides overall vegetative growth, it is not harmful to nature and human beings. It also controls sucking pests like white fly, heliothis, aphid etc.

SRISTI KRUSHAK

Popatbhai Rupabhai Jambucha, Gujarat

It is an excellent remedy for leaf curl disease. Besides controlling the disease it increases the vigor of the plants by increasing overall growth.

SRISTI SURAKSHA

Community Knowledge, Gujarat

It is a very efficient treatment for termite and acts as a vitaliser to the affected crops. To control termites the herbal formulation is mixed with sand and spread in the field. Some times it is released in the field along with the flow of irrigation water. In some cases, it is also drenched in the affected part of the plant and sprayed on the vegetation to repel termites.

SRISTI PRAYAS

Community Knowledge, Gujarat

It is a highly effective formulation to act as a herbal growth promoter, which stops shedding of flowers as well as increases the overall growth of the plant. This formulation strengthens the plants internally and enables them to withstand extreme weather conditions. Constant use of this formulation increases the yield and reduces the toxic content in our daily diet.

SRISTI SHAKTI

Community Knowledge, Gujarat

A herbal growth promoter, which helps in production of excellent quality organic food grain. Constant use of this formulation not only increases the yield but also reduces the toxic contamination in our food and environment.

Herbal Formulations for Livestocks and Poultry~

Coccicure

Sudakarbhai K. Gauli & Jeevalbhai M. Gauli, Dang, Gujarat

It is a unique herbal medication for prevention and curing of Coccidiosis (*Eimeria* sp infections) in Poultry. The primary function of the medication is to reduce the oocytes maturation and affects the life cycle of various *Eimeria* species.

Poultmax

Community knowledge, Valsad, Dang, Gujarat

It is a unique herbal medication for promoting poultry immunity. It cures symptoms like greenish diarrhoea, conjunctivitis, nasal sputum, drop in egg production and respiratory distress in poultry. About 30g/100 birds for 0-4 weeks & 60g/100 birds for 4-8 weeks may be administered for seven days in stress or for three days before and three days after expected stress.

Mastiherb

Ukhardiyabhai S. Raot, Dang, Gujarat

Mastiherb is a unique intramammary herbal medication for curing mastitis in animals. Clinical trials indicated efficacy of the medication over subclinical mastitis; clinical mastitis and chronic mastitis. It was also validated in case of mastitis due to *Staphylococcus aureus*. The dose rate was found to be single intra mammary infusion for minimum three days after adequate standardization.

~These formulations are based on traditional knowledge of farmers and developed by Sadbhav-SRISTI Sanshodhan Laboratory (www.sristi.org). These products are licensed to Matrix Biosciences Pvt. Ltd, Hyderabad, Andhra Pradesh. The benefits are shared with the knowledge providers, communities, nature, those who add value and other stakeholders in the knowledge and value chain.

NATIONAL INNOVATION FOUNDATION, INDIA

IGNITE 09- The National Students' Competition

Co-sponsors

Honey Bee Network

CBSE

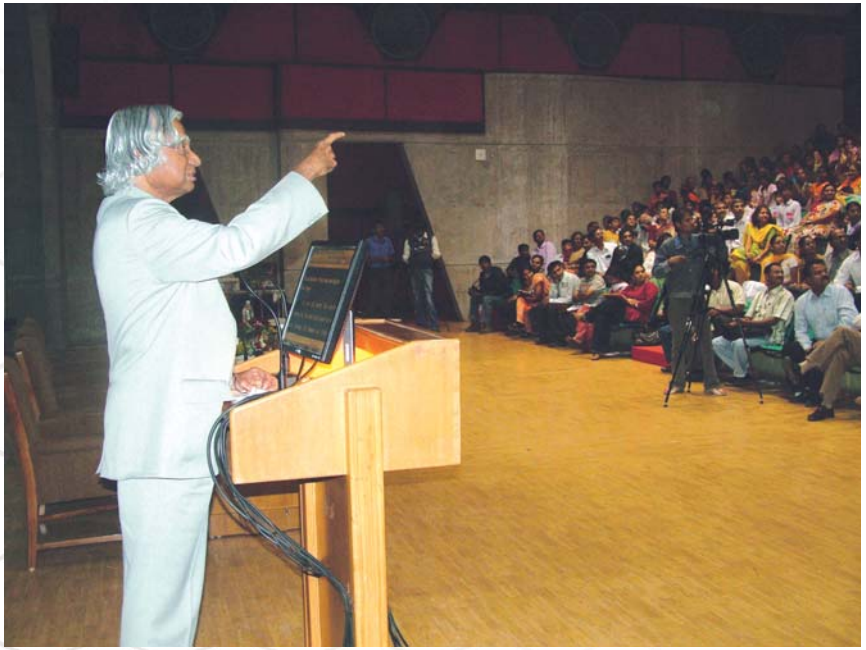
SRISTI

IIM-A

IGNITE is a national competition of ideas and innovations of school children organized by NIF. It is open fill August 31, 2009. The awards will be announced on October 15, 2009, the birthday of Hon'ble former President of India, Dr. A.P.J. Abdul Kalam; celebrated as Children's Creativity and Innovation Day. The awards will be given by Dr. Kalam at his convenience soon after. Those who can not submit entries till August can submit later also for the next annual competition.

NIF will provide support for patenting and incubating innovative projects in all deserving cases. All school going children up to class XII of any school (and even out of school) can participate in the competition either by sending their entries through post to our address mentioned below or through email at ignite09@nifindia.org (For more details, please log on to www.nifindia.org).

Children can submit entries in any or all of these categories: a) ideas of technologies not yet developed, b) innovative products developed by the students (does not matter if these are crude or just proof of concept), c) problems identified in their neighborhood with which we have lived for long without solving them, and d) traditional knowledge practices learned from elders. Please note that the projects guided by teachers/ parents will not be accepted.



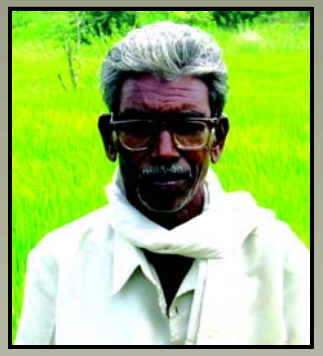
IGNITE 2009
National Innovation Foundation,
Bungalow No 1, Satellite Complex
Prem Chand Nagar Road,
Ahmedabad 380 015
ignite09@nifindia.org
www.nifindia.org

PART III

INNOVATIONS
for JAMMU & KASHMIR

This section contains details of national innovations, which are deemed suitable for introduction in J&K

01



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 varierty 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.

02

Kudrat 9- An Improved Variety of Wheat

Prakash Singh Raghuvanshi
Uttar Pradesh

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.

"*Kudat 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.

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.

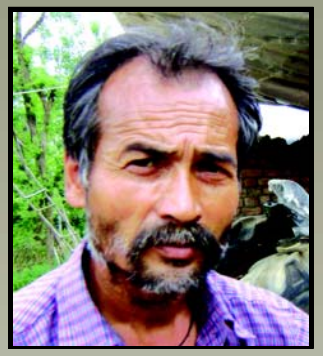
04

Aloe vera Gel Extractor

Dharamveer
Haryana

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.



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.

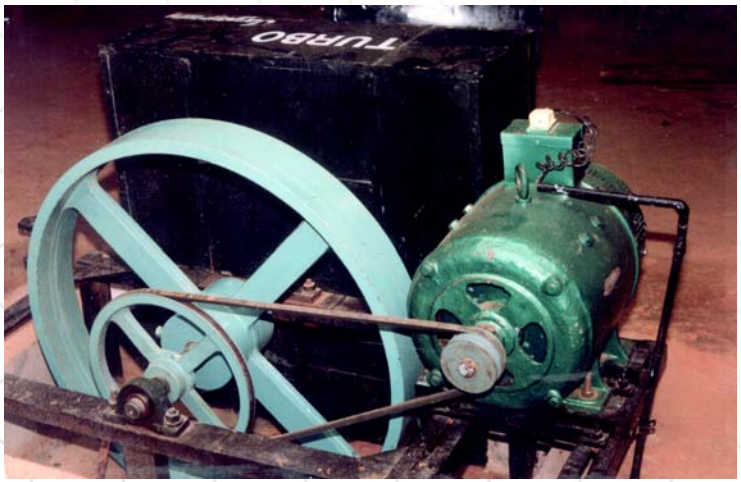
06

Modified Hydro Electricity Turbine

G K Ratnakar
Karnataka

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

This hydro electric turbine is specifically designed for the streams in the hilly terrains. 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 Dakshin Kannada, Kadagu, Hassan and Chikmagalur districts. The innovator is popularly known as 'Turbo' Ratnakar. He was given State Award in NIF's Second National Competition for Grassroots Innovations and Traditional Knowledge Practices in 2002 (also see Honey Bee, 14(4) & 15 (1): 11-15, 2003).



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.

He received a Consolation award in NIF's Fourth National Competition for Grassroots Innovations and Traditional Knowledge Practices in 2007. NIF also filed a patent for this device in the innovator's name. The Innovation has been taken up for value addition at CMERI Durgapur (WB) through the NIF-CSIR JIC Fellowship Scheme.

08

Improved Multicrop Thresher

Madanlal Kumawat
Rajasthan

Farmers across India require a reliable machine that achieves threshing with minimal grain breakage and 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.

Madanlal won a Consolation Award in NIF's First National Competition for Grassroots Innovations and Traditional Knowledge in 2001. 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. He was also featured among 50 pioneers of change in the country by India Today, 26 June 2008. A patent has been filed for his innovation.

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 for Grassroots Innovations and Traditional Knowledge Practices in 2007. 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 mounted washing machine and a scooter mounted flour mill.

10

Portable Painting System

Gurjeet Singh
Himachal Pradesh

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.

11

Arvindbhai Patel
Gujarat

Auto Air Kick Pump

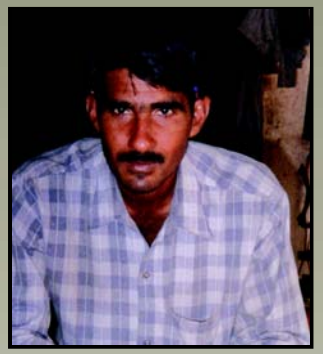
This innovation is a low cost, portable, compact aid to inflate tyre tubes/punctures of any vehicle, particularly two-wheelers, having kick start or auto start mechanism. One can fix the problem on the spot so that the vehicle can reach the nearby gas station or repair shop.

This device converts the compressor of two-wheeler into an air pump. A pinch of polymer granules is also inserted in the tube to seal the leakage. The user can kick and fill air in the tube. This may last for a few kilometers to reach a puncture repairing shop. An entrepreneur from Mumbai has taken non-exclusive license for this technology and has sold more than 2500 pieces so far, mainly in North Eastern India. Another technology licensing has been initiated by NIF North East cell, IIT Guwahati. Recently, with the help of GIAN West, another technology transfer to a different entrepreneur in Mumbai has been facilitated.

For this device, he won a National Award in NIF's Second National Competition for Grassroots Innovations and Traditional Knowledge in 2002.

12

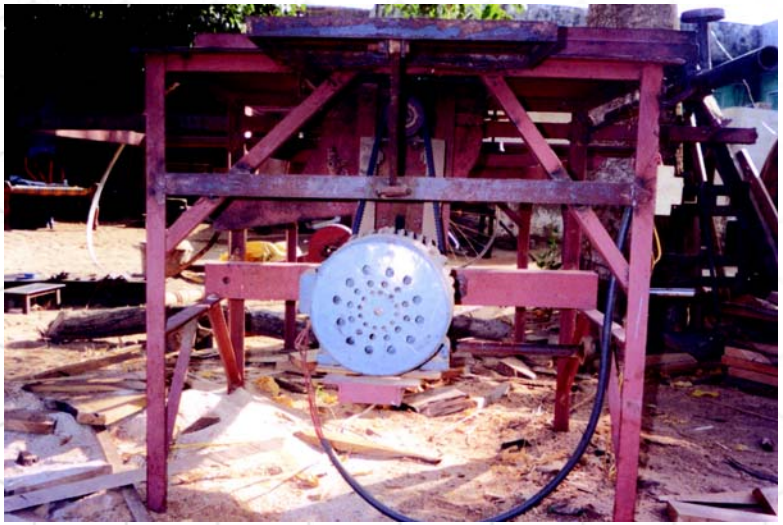
Safe Wood Cutting Machine



Kishanlal Jangid
Rajasthan

While using powered equipment intensely, sometimes carpenters get too close to the cutting blades while holding the log and feeding them. This opens the chance for accidents as well as related occupational hazards due to inhalation of the fine dust, chips and wood flakes.

The innovator has developed an improved machine to address these concerns. 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.



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.

14

Jalpari- The Water Carrier

Madhav Sawant
Maharashtra

Villages in India have women who walk miles with heavy water pitchers on their head, which results in considerable discomfort and even injuries. This innovation is an alternative and 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.

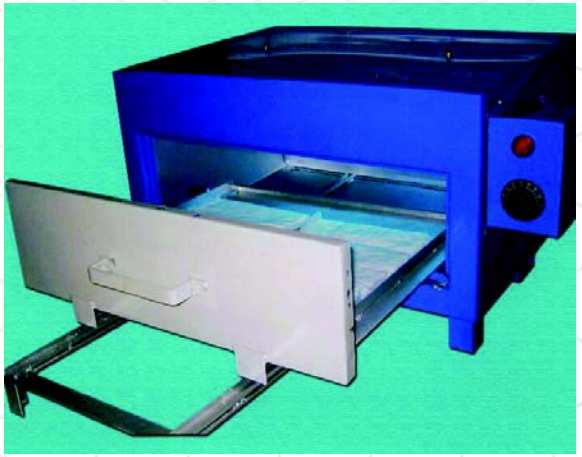
A Muruganandam
Tamil Nadu

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 industry standard raw materials 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 of NIF, the innovator has been able to install over fifty units in seven states.



16

Garlic Peeling & Lemon Cutting Machine

M Nagarajan
Tamil Nadu

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, and has 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 size. It can be operated by one person and cuts lemon into eight equal pieces. The innovator has been able to run a good business with the financial support of Micro Venture Innovation Fund and marketing effort of NIF. He received a National award in NIF's Third National Competition for Grassroots Innovations and Traditional Knowledge Practices in 2005.

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.

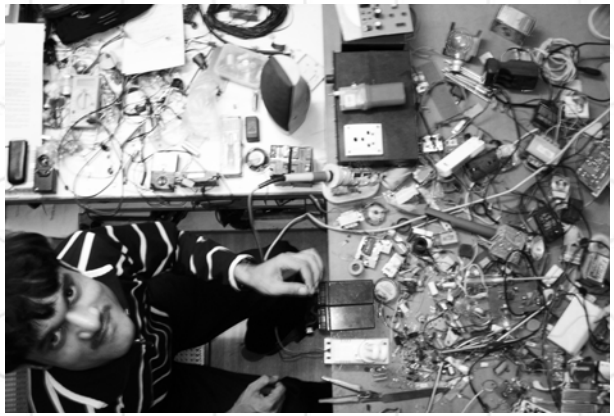
18

Mobile Operated Switch and Multi-media Poster

Prem Singh Saini
Haryana

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 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. Patent was filed by NIF in the innovator's name for this technology, which also won him a National Award in NIF's Fourth National Competition in 2007. 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. NIF facilitated a Mumbai based company to purchase two hundred units of the talking poster worth around eight lakh rupees for diffusion in various states. These were made available in five local languages.



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