



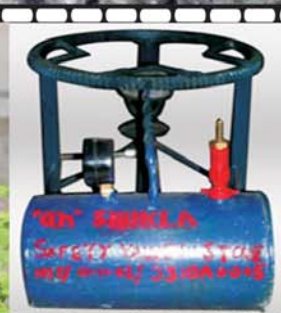
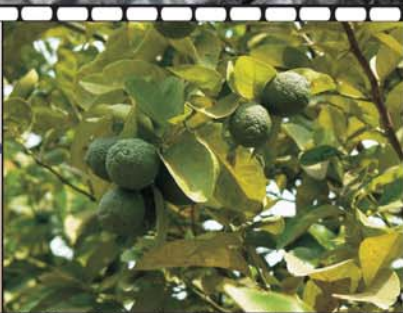
National Innovation Foundation

Delhi Innovates

The paths to creativity



Honey Bee Network



DELHI INNOVATES



National Innovation Foundation

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HONEY BEE NETWORK

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Cover page: Google Map image of
Cannaught Place, Delhi

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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 545 districts across India.

Thanks to the support of volunteers from Honey Bee Network, we have been able to discover many unsung heroes 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 Delhi. I am conscious of its limitation in terms of coverage and outreach. But if we could uncover so many 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 Delhi 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 introduction in Delhi 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.

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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.

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

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

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 545 districts of the country.

NIF has filed 212 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 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,

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- 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. The research institutions can be mandated to add value to the knowledge of innovative people and help in protecting their knowledge rights.
 - e. 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.

- f. 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.
- g. 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 Delhi. Tremendously rich knowledge of biodiversity and environment besides numerous grassroots innovations can be leveraged through the proposed collaboration.



Anil K Gupta
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Professor, Indian Institute of Management,
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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



“By adapting public policy in support of grassroots innovators and traditional knowledge holders, we can make economic development process more inclusive and sustainable”.

- Dr. R.A. Mashelkar

PART I

INNOVATIONS from DELHI

This section contains grassroots innovations originating from the different areas of Delhi

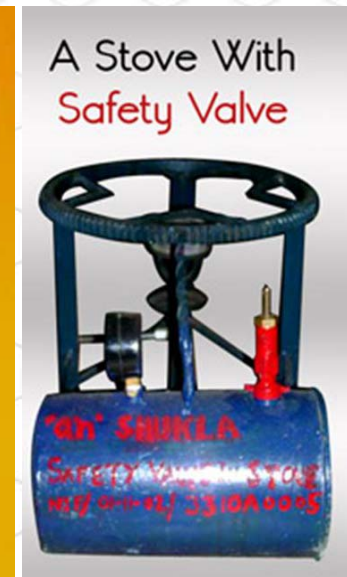




Agastya Narayan Shukla

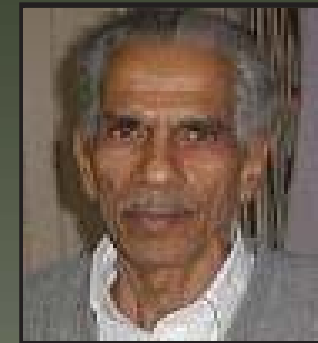
Advance toothbrush

This toothbrush has an integrated toothpaste dispensing mechanism. The toothpaste is filled in the body of the brush. By rotating the knob at the bottom of the brush, the paste is pushed out on the bristles. Thus only the required amount of paste is used. He also has developed a safety valve for pressure stoves and has conceived numerous other useful ideas.



Jewellery making machines

The innovator has indigenously developed an automatic jewellery making machine that can make chains weighing from 4g to 30g in different designs. The machine can perform sixteen operations at a time and complete a chain in 3-4 minutes. Apart from this, he has also developed a few other smaller machines to ease his jewellery making process.



Madan Mohan Verma





Ojasvi Goel

Rain water harvesting umbrella

Ojasvi has developed an umbrella, which can be used to harvest rainwater as well as protect oneself from the rains. The umbrella canopy has a circular opening leading to a tube, which opens into a bottle attached to the handle. Rain drops falling on the canopy drip into the opening and reach the bottle through the tube. Protection from rain and saving water at the same time, isn't it a nice idea! He won an award in IGNITE 08- the national competition of children's ideas and innovations.



Modified handpump

Chandan submitted an idea for improving the traditional hand-pump. His version allows one to pump the water and store it in the body of the pump itself. While using this pump, one must simply screw in the lower portion of the attachment all the way up, thus closing the outlet completely. One can pump water, which will be stored within the pump as well as in the outlet pipe. Once sufficient quantity of water is pumped in, the person can go to the other side and open the tap to get water. One can also control the size of the aperture to get the desired water flow.

04



Chandan Agarwal*

* Awarded earlier but now a professional as per NIF's present rules, which were revised 2003 onwards to focus specifically on the grassroots innovators. NIF only helps the professionals registered with it in providing visibility or linkages.

A bed that doesn't allow one to sleep long

Sandeep's idea is to have a bed with an alarm system integrated with an arrangement of blunt needles. At a preset time when the alarm rings, if the person does not get up from the bed, the system, sensing the weight of the person, will raise the needles so as to poke them slightly into the persons body. Thus the person will not be able to lie down more.

Sandeep Bhatia



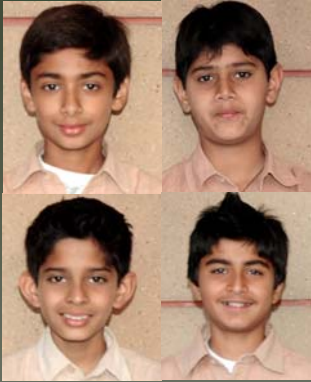
Portable chair

The innovator has developed a portable chair useful for those people who have to stand for long hours like security personnel. He has also developed a battery operated portable cooler weighing only 2.7kg.



Kamal Dev Sharma





**Mrudang Mathur,
Amnaya Sheel Khosla,
Shreyas Kadaba,
Abhiveer Arjun**

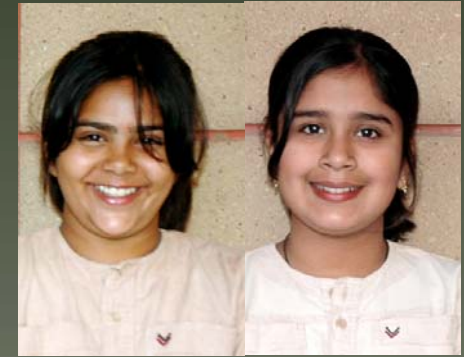
Double decker dustbin

The children have developed a double decker dustbin, where the upper part is like the normal dustbin where garbage can be dumped. The lower part has a drawbridge like system, wherein a side can be lowered enabling a person to sweep the dust directly into the dustbin. The children won an award in IGNITE 08- the national competition of children's ideas and innovations.

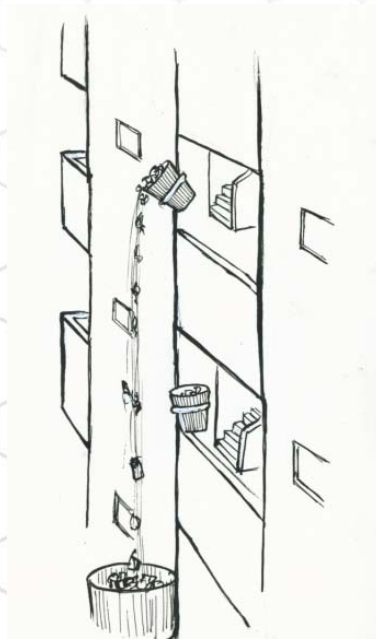


Automatic garbage disposal system

They conceived a dust/garbage bin that can take garbage till a particular weight. Once the weight exceeds, the bin automatically tilts and throws the garbage into another dustbin placed outside. The children won a consolation award in IGNITE 08- the national competition of children's ideas and innovations.



Riya Mishra & Seerat Dhillon





Atulya Gupta

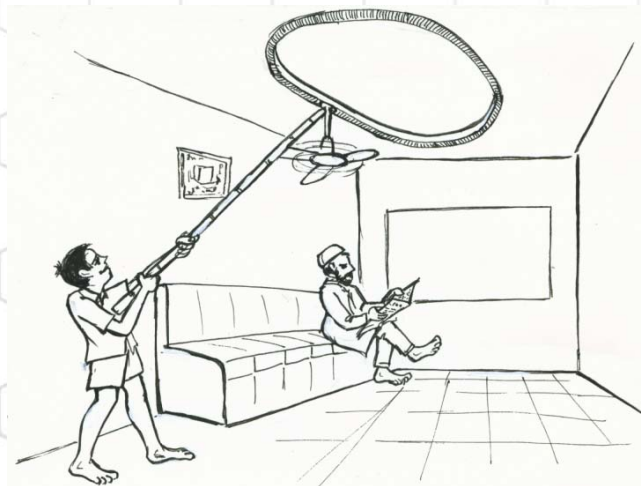
Garbage disposal system

Young Atulya has given an idea of garbage collection by putting a thin layer of magnetic material in the empty wrappers of eatables. Correspondingly the public dustbins will also have a similar magnetic material. These wrappers when thrown near the dustbins or even randomly flying in the air, will get attracted to the bin. He won an award in IGNITE 08- the national competition of children's ideas and innovations.



Movable ceiling fan

Rasheed has given an idea to have the ceiling fan mounted on a circular ceiling rail so that it can be manually or through a remote control, moved to obtain proper air flow in different parts of the room.



A Rasheed Qureshi*

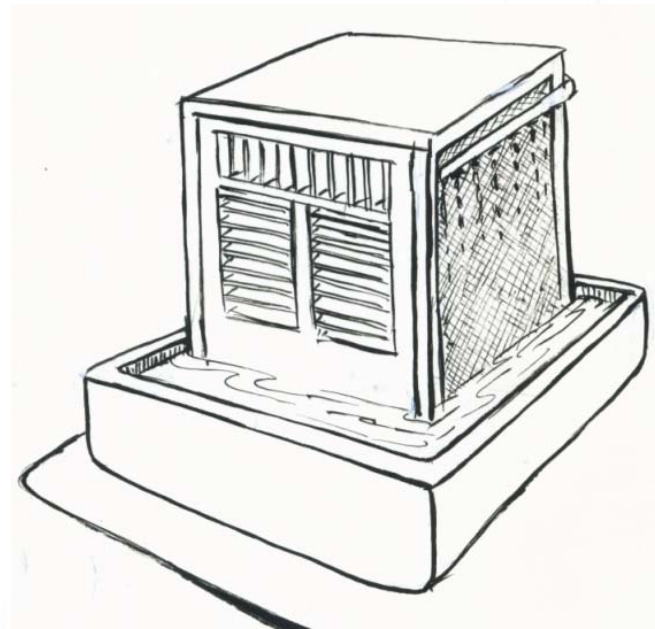
* Professional registered in NIF's Professional database. As per its mandate, NIF does not consider professionals for awards or financial support, but only helps in providing visibility or linkages.

Earthen desert cooler

Karan, an engineering student, thought about a desert cooler where the water storage is done in an earthen base instead of the regular plastic or metal body bases. This would help to reduce the temperature of the water that circulates thereby obtaining more cooling. He also adds that some additional cooling can be obtained if the walls of the cooler are also made of clay.

Karan Sharma*

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



Multiple ideas

The innovator has conceived many useful ideas like briefcase safety system, both sides driving system for four wheelers, distance assessing and braking system for four wheelers, scooter run on solar energy, remote start system for vehicles and other ideas related to automobiles.



Rafi Alam*

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



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 *Azadirachta indica* A. Juss (Neem)

NIF database

Use from Delhi

Skin disease

Apply the leaf paste topically
- Adesh Kumar Vansal, Delhi

Uses from other states

Earache

Mix the seed oil with honey and put a few drops in the ear
- Ramesh Kumar, East Champaran, Bihar

Stone

Take the leaf ash orally along with water
- Uttam Singh, Sirohi, Rajasthan

Joint pain

Apply the seed oil and massage on the aching joint
- Jagjeet Bahadur, Sitapur, Uttar Pradesh

Constipation

Pound the leaves of neem, *Aloe vera* and fenugreek seeds. Soak them in buttermilk and boil. Add cow ghee till it becomes thick like wax. Take a spoonful orally
- Amirdaraj Kaani, Tirunelveli, Tamil Nadu

Uses in Classical Codified literature

Dried bark is given orally to treat malaria¹; whole plant is used to cure various skin disorders²; dried fruit is given orally to get relief from piles³. 'Neem tooth paste'⁴, a high quality product, is used to prevent tooth decay and inflammation of the gums. Tablet 'Pilex'⁵ is used to treat chronic constipation associated with haemorrhoids. More than hundred patents have been found on its medicinal use such as for dental care⁶ and in treating haemorrhoids⁷.



Uses of *Citrus limon* L. (Nimbu)

NIF database

Use from Delhi

Piles

Add the fruit juice in a cup of milk and take orally
- Adesh Kumar Vansal, Delhi

Uses from other states

Cough

Take the fruit juice orally along with honey
- Nikita Chaudhri, Gautambudhnagar, Uttar Pradesh

Dysentery

Take the leaf juice orally along with little salt
- Gudiya Kumari, Gopalganj, Bihar

Intestinal worms

Make tablets from seed powder and jaggery. Take two tablets orally on an empty stomach
- Manbhar Kanwar, Nagor, Rajasthan

Uses in Classical Codified literature

The fruit is used to treat diabetes⁸; the fruit is taken orally to combat dysentery⁹ and is used to get relief from cold¹⁰. 'Lemon essential oil'¹¹, a medicated oil, is used to cleanse, refresh, cool and stimulate the skin. 'Anti dandruff shampoo'¹⁵ is a multi-herb formulation that controls dandruff, nourishes and strengthens hair roots and ensures a healthy scalp. Nine patents were found on its medicinal applications such as for antifungal activity¹² and weight loss¹³.



Source: http://farm3.static.flickr.com/2403/2077406273_d57edb8ca6.jpg?v=0 and http://www.kfunigras.ac.at/~katzer/pictures/citr_37.jpg

Uses of *Mangifera indica* L. (Aam)

NIF database

Use from Delhi

Diabetes

Take half cup of the juice of unripe fruit of *aam* and the seeds of blackberry orally

- Adesh Kumar Vansal, Delhi

Uses from other states

Toothache

Burn the stem of *aam* and leaves of *jamun* (*Syzygium cuminii* (L.) Skeels); add a pinch of alum in this ash. Brush the teeth with this powder

- Jitendra Singh Vagehla, Sirohi, Rajasthan

Asthma

Take one spoonful of powder of roasted seeds orally twice a day

- Narsabhai Bhagabhai Bubadiya, Sabarkantha, Gujarat

Stomachache

Take a cup of the juice of roasted fruit along with sugar

- Akash Kumar Jha, Sitamarhi, Bihar

Dysentery

Take one spoonful bark powder orally

- Gamaliyal Hembrom, Hazaribag, Jharkhand

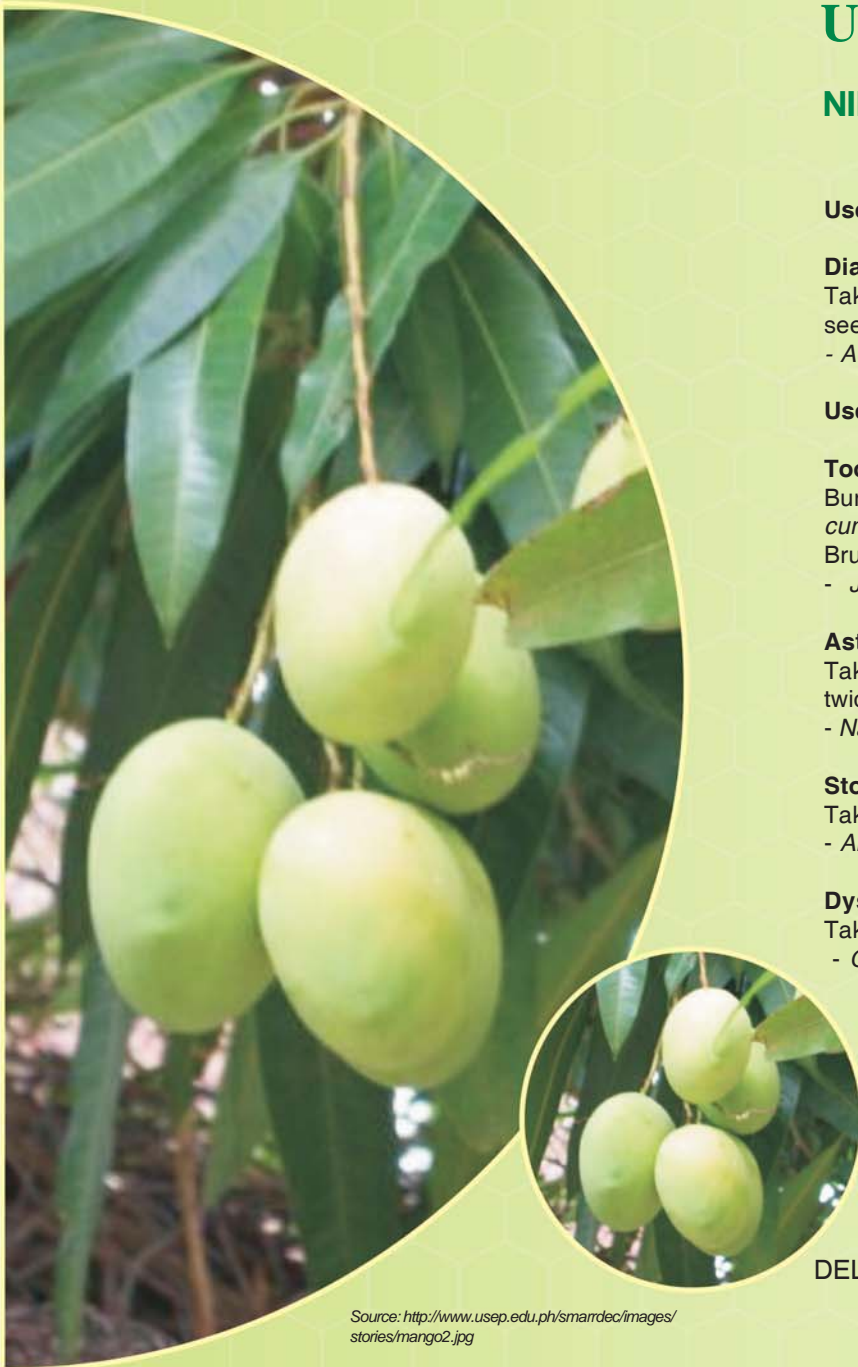
Scorpion sting

Apply the watery sap topically

- Dhanabhai Koted, Dungarpur, Rajasthan

Uses in Classical Codified Literature

Bark decoction is given orally to cure diarrhoea¹⁴; decoction of leaves and bark is given orally to cure pain and aches¹⁵; and bark of the plant acts as an appetizer¹⁶. 'Wildcrafted Angel's Touch Hand Crème'¹⁷, a herbal cosmetic product, is formulated to restore rough and reddened hands and to keep them velvety and soft.¹⁷ 'Mensta'¹⁸, a multi-herb drug, acts as uterine support and is the first non-hormonal menstrual modulator with spasmodic activity. Fourteen patents have been found on its various medicinal uses such as for treating gastrointestinal disorders¹⁹ and for hair growth²⁰.



Uses of *Ocimum sanctum* L. (Tulsi)

NIF database

Use from Delhi

Health tonic

Take equal amount of leaf juice of *tulsi* and *neem* along with little black pepper powder and black salt
- Adesh Kumar Vansal, Delhi

Uses from other states

Mouth ulcer

Mix the juice of *tulsi* leaves and lemon and apply on the ulcers
- Rahul Bharti, Hazaribag, Jharkhand

Fever

Take the decoction of leaves along with black salt
- Prem Prakash Kumawat, Nagor, Rajasthan

Diabetes

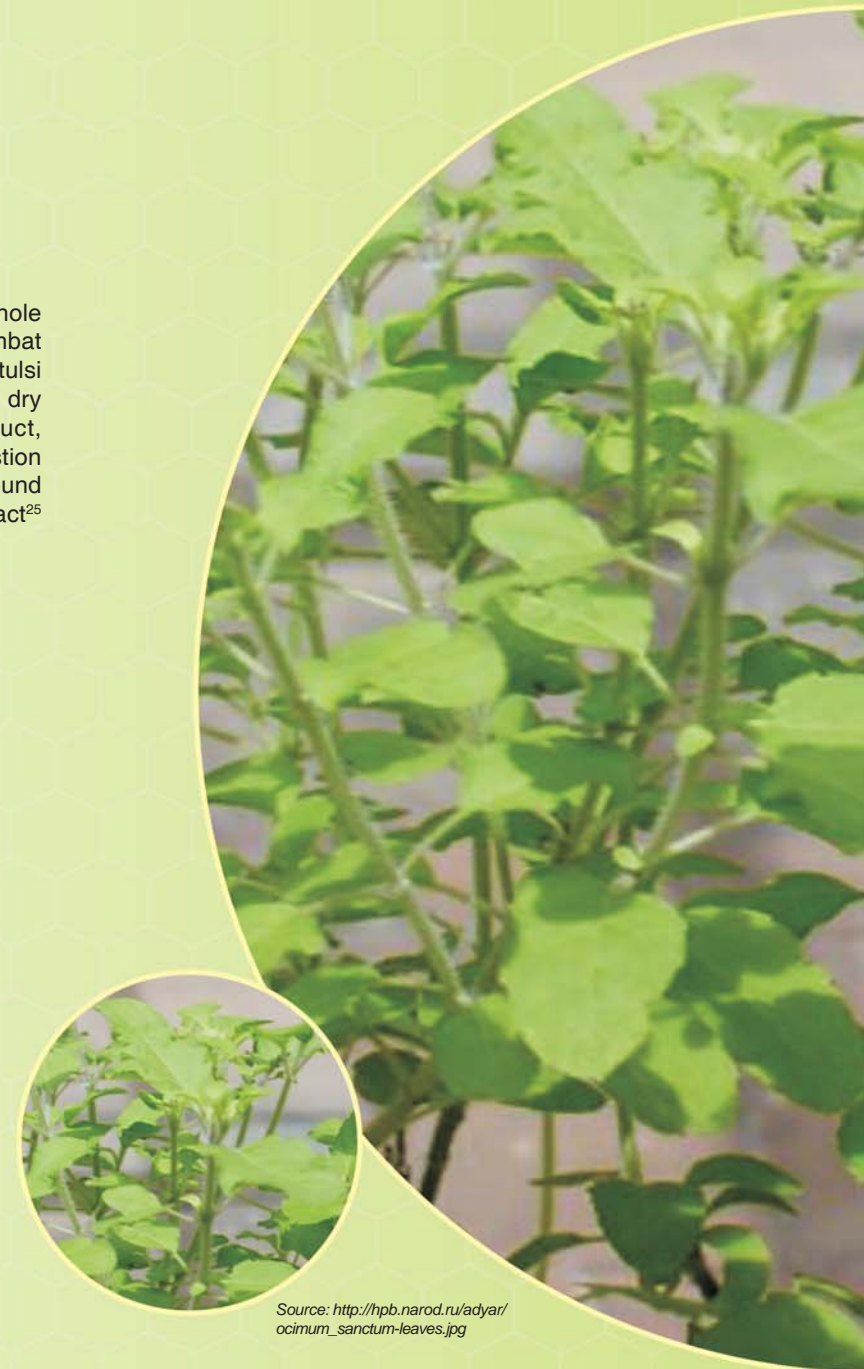
Make powder from equal amount of leaves of *tulsi*, *bel* and *jamun*. Take a spoonful orally along with cold water
- Birendra Singh Chowan, Jaipur, Rajasthan

Itching

Apply the leaf paste topically
- Kundan Kumar Singh, Gopalganj, Bihar

Uses in Classical Codified literature

The whole plant is used to cure bronchitis²¹; dried whole plant is used as tonic²²; and the plant is used to combat diabetes²³. 'Diakof'⁵, a sugar-free cough linctus, with tulsi as an ingredient, is beneficial for both productive and dry cough. 'Tulsi churna'²⁴, a natural ayurvedic product, provides antioxidants and is used to improve digestion and general health. More than fifty patents were found on its medicinal applications such as for treating cataract²⁵ and cancer²⁶.



Source: http://hpb.narod.ru/adyar/ocimum_sanctum-leaves.jpg

Uses of *Phyllanthus emblica* L. (Amla)

NIF database

Use from Delhi

Cough

Take the whole fruit for relief
- *Prakash Soni, Delhi*

Uses from other states

Jaundice

Take the plant powder (5g) along with milk
- *Kiran Batti, Dhamtari, Chhattisgarh*

Wound

Apply the leaf paste topically
- *Sevaram Bhaskar, Dhamtari, Chhattisgarh*

Gray hair

Wash the hair regularly with the fruit decoction
- *Sulekha Jabbar, Idukki, Kerala*

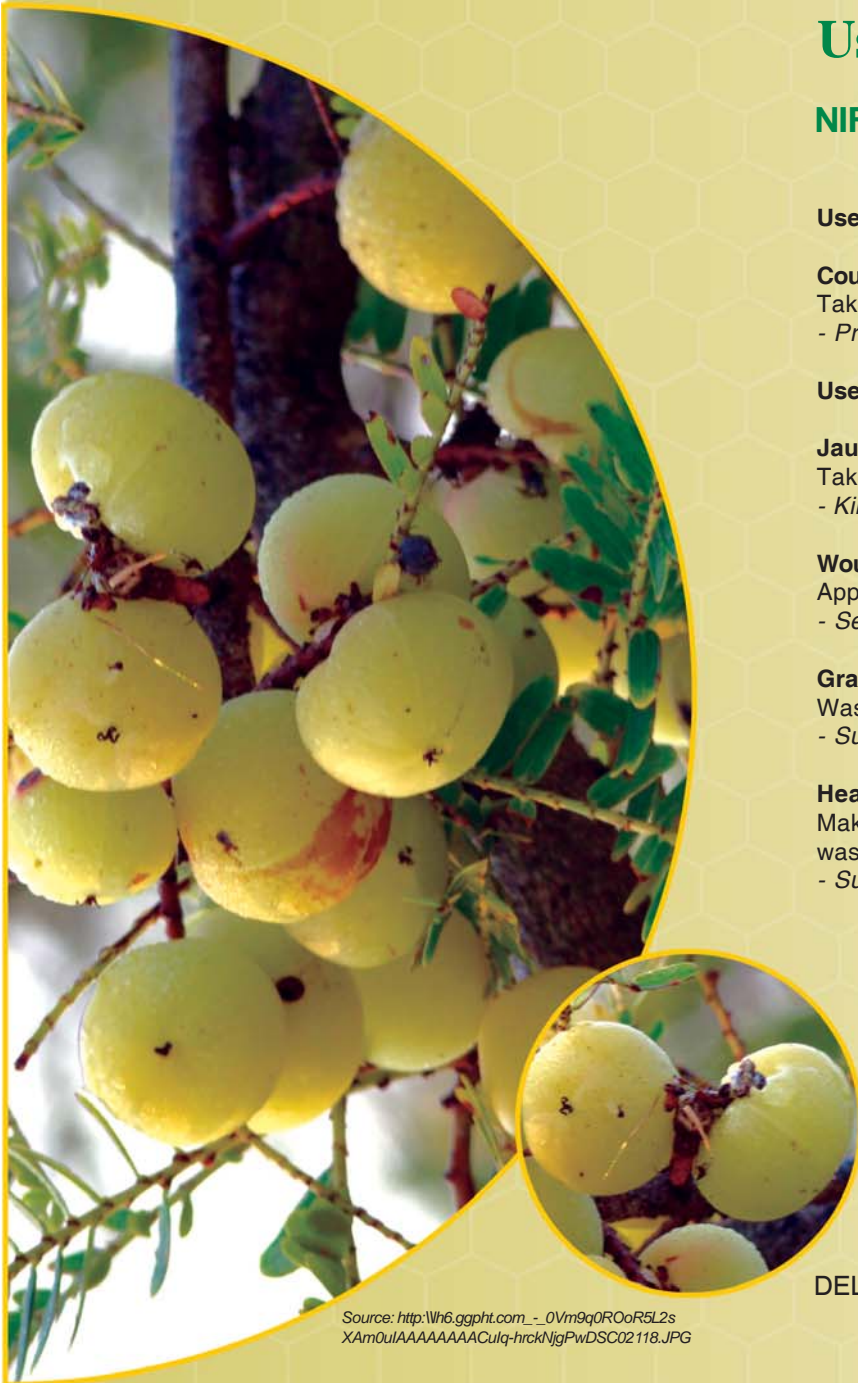
Headache

Make bark paste using the water in which rice has been washed. Apply the paste on the forehead
- *Sulekha Jabbar, Idukki, Kerala*

Uses in Classical Codified Literature

Bark and fruits are used in diarrhoea and dysentery²⁷; fresh juice of the fruit, mixed with pure cow's butter and honey, is administered to cure obstinate hiccough²⁷; juice relieves pain in urine trouble²⁷; pulp (2-3g) is eaten with warm milk to get rid of headache²⁸; powder of seeds after mixing with ghee is applied on the head to stop nasal bleeding²⁹; fruits are taken orally to reduce acidity³⁰; decoction of the fruit is taken to increase blood count³¹.

Phyllanthus is one of the main ingredients of well known medicines 'Triphala, Chavanprash and Amla hair oil'⁵. Seventy-six patents have been found on its medicinal uses such as for diabetes³², liver disorders and immune deficiencies³³.



Uses of *Zingiber officinale* Rosc. (Adrakh)

NIF database

Use from Delhi

Diabetes

Take *adrakh*, cardamom and clove in 1:2:3 ratio and make a paste. Take a spoonful orally
- *Prakash Soni, Delhi*

Uses from other states

Fever

Take dry *adrakh*, *harar* and *giloy* and make a decoction. Take half-cup of the decoction orally
- *Murugesan, Tirunelveli, Tamil Nadu*

Cough

Take the juice of rhizome orally
- *Pooja Rani, Bulandshahar, Uttar Pradesh*

Stomachache

Take a spoonful dry rhizome powder along with salt and water for relief
- *Suresh Jahangir, Nagor, Rajasthan*

Joint pain

Apply the rhizome paste on the aching joint
- *Bariya Kesharbai Bhurabhai, Dahod, Gujarat*

Uses in Classical Codified literature

Fresh leaves and rhizome are used to alleviate knee pain³⁴; decoction of the rhizome is taken orally to combat cough³⁵; rhizome is taken orally to get relief from stomach pain³⁶. 'Pain Massage Oil'⁵ is a herbal oil, which provides relief from neuromuscular pain and the pain associated with arthritis. Herbal product 'Sunthi'⁵ acts as a carminative and stimulant to the gastro-intestinal tract. More than fifty patents have been found on its medicinal applications such as for treating diabetes³⁷ and skin diseases³⁸.



Source: http://www.kfunigraz.ac.at/~katzer/pictures/zing_03.jpg

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, without being harmful to nature as well as human beings. It also helps in controlling sucking pests like white fly, heliothis, aphid etc.

SRISTI KRUSHAK

Popatbhai Rupabhai Jambucha, Gujarat

It is an excellent remedy for leaf curl disease, which not only controls the disease but simultaneously increases the vigor of the plants by increasing its 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 is spread in the field, some times it is released in field with the flow of irrigation water. In some cases it is also drenched in the affected part of the plant as well as 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 also 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.

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. Gaudi & Jeevalbhai M. Gaudi, 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 immunity in poultry. 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 & 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 & 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.



IGNITE 09- The National Students' Competition

IGNITE is a national competition of ideas and innovations of school children organized by NIF. It is open till September 15, 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.

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.



Co-sponsors



Honey Bee Network



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SRISTI



IIM-A

IGNITE 2009

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PART III

INNOVATIONS for DELHI

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





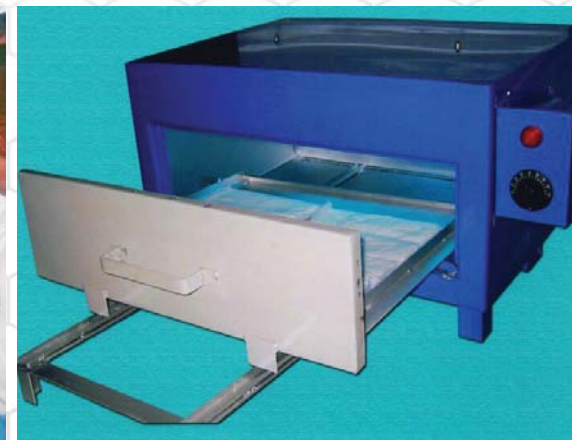
A. Muruganantham
Tamil Nadu

Sanitary napkin making machine: An option for women entrepreneurship

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 MVIF scheme of NIF, the innovator has been able to install over fifty units in seven states. NIF has filed a patent for the technology in the innovator's name.



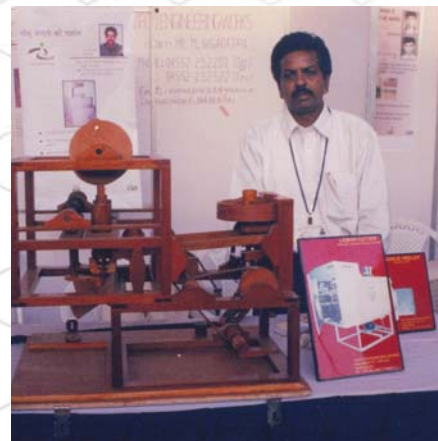
Garlic peeling and lemon cutting machine

Faster peeling of garlic in an effective way is a major requirement in the pickle industry. This product is a food-grade, fully automated machinery designed for bulk quantity peeling of garlic. The machine ensures minimal damage and has wide application in making pickles and herbal medicines. The machine is energy efficient, saves labour, 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 MVIF and marketing effort of NIF. Nagarajan won a National Award in NIF's Third National Competition for Grassroots Innovations and Traditional Knowledge Practices in 2005. NIF also filed patents of the machines on his behalf.



M. Nagarajan
Tamil Nadu





Dharamveer
Haryana

Aloe vera gel extractor

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

With this device, the innovator uses the specially designed pressure cooking chamber to extract the essence from *Aloe vera*. Being a compact portable unit, it can be quickly and easily transported and used anywhere even in the fields, 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 . One unit has been sent to Kenya on a pilot basis for application feasibility study in the country. Once the feasibility is confirmed, a contract order from the country is expected for more number of units. NIF has also filed a patent for the machine in the innovator's name.



Mobile operated switch and multi-media poster

Imagine a village where the farmer has the luxury of being able to stay at home and switch his irrigation pump in the faraway field on or off as required during the day or at night. This is made possible by this 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 for Grassroots Innovations and Traditional Knowledge Practices 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.



Prem Singh Saini
Haryana





Rai Singh Dahiya
Rajasthan

Biomass gasification system

There are lots of villages in the country which are still not electrified or are receiving power erratically. Crude oil is not a very likely solution as it is depleting and the price is also going higher day by day. Use of biomass as a fuel therefore appears to be a good solution!

People using the biomass gas (producer gas) as a fuel generally complains of choking in the engine after running for a certain period of time. The innovator has changed the conventional design of gasifiers especially the filters and cooling unit to get clean gas, ensuring smooth operation of engine at low operational cost. On an average the biomass requirement is one kg/kW-h and the costs of 10 kW, 25 kW, 30 kW and 35 kW biomass gasifier system are Rs. 1,25,000, Rs. 2,00,000, Rs. 3,00,000 and Rs. 3,25,000, respectively.

Scientists from TERI (The Energy and Resources Institute) have confirmed its uniqueness and over fifty users have confirmed its operational practicability. The innovator has sold over fifty units after getting MVIF Support from NIF through GIAN North.

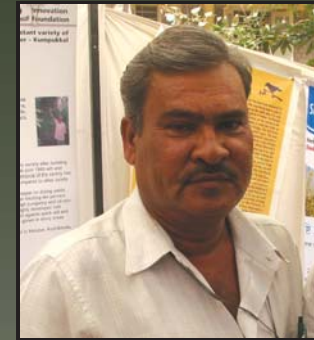


Auto air kick pump

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

This device uses the existing air inside the compressor, so that, while kick starting, this air is utilized and transferred to the tube. A pinch of polymer granules is also inserted to seal the leakage in the tube.

Arvindbhai won a National Award in NIF's Second National Competition for Grassroots Innovations and Traditional Knowledge Practices in 2002. NIF, apart from filing a patent in his name, facilitated sales of a few hundred pieces to customers in Assam and Arunachal Pradesh through dealership technology licensing and local entrepreneurs.



Arvindbhai Patel
Gujarat





Radhey Shyam Tailor
Nathulal Jangid
Yusuf Khan
Rajasthan

Trench digging machine

While on a trip, the innovators noticed laborers manually digging the ground to make long trenches to lay telephone cables, taking months to complete the work. This inspired the innovators to build a mechanized equipment to dig trenches rapidly.

The trench digging unit developed by the innovators can be fitted to any tractor. The modified unit has a hydraulic lever to adjust digging depth and to maneuver the running unit, a planetary gear system and motion converter unit to achieve speed reduction and deliver power from the tractor.

The compact machine can dig narrow and deep channels evenly, on hard and soft soil conditions. In one hour, it can dig a pit 65 meters long, 5 feet deep and 14 inches wide, while consuming only 2.5 liters of diesel per hour. The equipment costs less than half that of imported models. It is even used by the local telephone department to lay cables.



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 Competition for Grassroots Innovations and Traditional Knowledge Practices in 2007. He has also been supported under the MVIF 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 for use in the gardens in the Rashtrapati Bhavan with encouraging results.



Ishwar Singh Kundu
Haryana





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.



Maruti Jhoola- the health care chair

Modern life with its fast pace and sedentary lifestyle has created the need for solutions incorporating relaxation and invigoration. Maruti Jhoola is a unique health chair with multiple capabilities, functions and settings for various postures and seating dynamics.

It is ergonomically designed and serves the purpose of seating as well as exercising, with a capacity to accommodate a person weighing 120 kgs. It can double up as a hammock or a jhoola. The health chair has established itself as useful for people suffering from arthritis and joint ailments. To facilitate market, an entrepreneur has been engaged. Lot of cost was spent on packaging and transportation of the chair. It is now being redesigned and the cost may come down.



Sakrabhai Prajapati
Gujarat

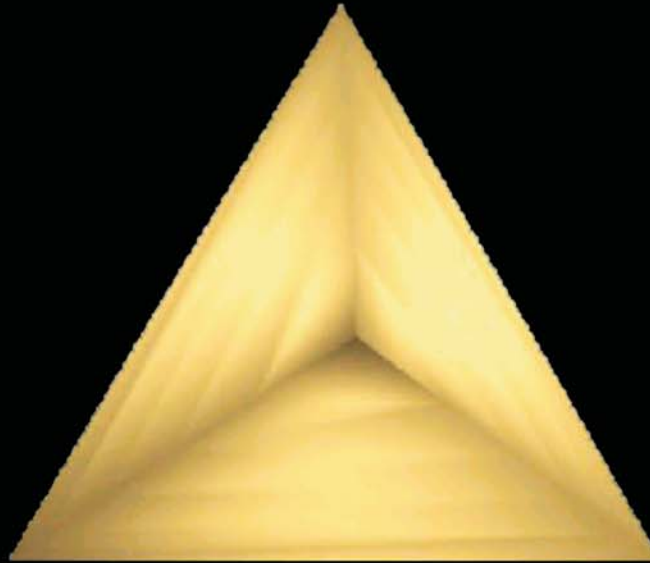


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Innovation



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