

## PREFACE



*National  
Innovation  
Foundation  
Annual  
Report  
2001-2002*



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महानिदेशक, वै.ओ.अ.प.

एवं सचिव, भारत सरकार

वैज्ञानिक तथा औद्योगिक अनुसंधान विभाग

**R. A. MASHELKAR**, F.R.S

Director General, CSIR,  
& Secretary, Government of India  
Department of Scientific & Industrial Research  
Chairperson, NIF

I am extremely happy that NIF has justified the confidence invested by the society in it within such a short while. I am aware that in various programmes for promoting innovations in the government, we are not able to find as many innovations and traditional knowledge practices as discovered by NIF. The fact that only ten per cent of these 15,000 innovations and traditional knowledge practices discovered during the last two years were received directly in response to the advertisements shows the power that civil society organizations like Honey Bee Network have in meeting this goal. Identifying creative people in different parts of the country through *Shodhyatras* and other painstaking processes is an arduous task. I compliment NIF and its various collaborating institutions and individual volunteers,



वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद

अनुसंधान भवन, २ राफी मार्ग, नई दिल्ली- ११० ००१

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH  
Anusandhan Bhawan, 2 Rafi Marg, New Delhi-110 001

who have contributed to this mammoth task of making India innovative.

NIF has facilitated filing of patents in India and abroad on behalf of the innovators. It has supported incubation of several projects through Grassroots Innovation Augmentation Network (GIANS) and has also created awareness through participation in various science and technology exhibitions. We are grateful to Shri K C Pant, Deputy Chairperson, Planning Commission, who very kindly conferred the awards and encouraged the innovators by personally interacting with them.

I have no doubt that a great deal remains to be done. The personal attention that most creative people require poses a tremendous challenge to the small, young team of NIF and GIANS. We need very active support of large numbers of volunteers from various walks of

**“The wisdom of common people when fused with the great strength of institutional science will provide a spur to the knowledge economy in India.”**



life in building mentoring teams around different technologies being incubated.

It is true that linkages with formal science and technology institutions remain to be strengthened. I also realize that this process is going to take time because historically, such bridges were not formed in an institutionalized manner. I appeal to all my colleagues in the public and private sector labs to look at grassroots innovations and traditional knowledge critically but with due respect. Wherever they see a potential for blending formal and informal science, they should take it up for further valorization. The wisdom of common people when fused with the great strength of institutional science will provide a spur to the knowledge economy in India.

I hope that policy makers and other stakeholders including private sector firms will join hands with NIF in developing grassroots innovations and traditional knowledge into products and services for mass consumption. Only then can we reduce the drudgery of women, generate employment and explore a knowledge based approach to poverty alleviation.

I look forward to receiving suggestions and ideas for fulfilling the missions of NIF with greater speed and on a larger scale.

  
[R. A. Mashelkar]



**PROFESSOR V. S. RAMAMURTHY**  
SECRETARY

भारत सरकार  
विज्ञान और प्रौद्योगिकी मंत्रालय  
विज्ञान और प्रौद्योगिकी विभाग  
टेकनोलॉजी भवन, नया महरौली, नई दिल्ली - ११० ०१६

GOVERNMENT OF INDIA  
MINISTRY OF SCIENCE & TECHNOLOGY  
Department of Science & Technology  
Technology Bhavan, New Mehrauli Road, New Delhi-110 016

## FOREWORD



I am extremely happy that National Innovation Foundation (NIF) has achieved significant results within two years of its existence. Having documented more than 13,000 innovations and traditional knowledge practices in the second year, NIF has demonstrated the vast extent of creativity and wealth of knowledge that exist in the country.

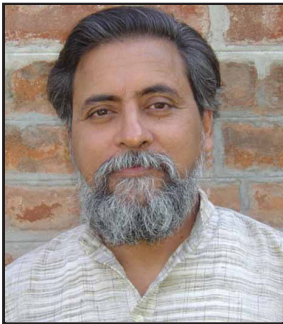
It is even more creditable when we note that NIF has achieved this with a very small team. The response to the awards given by NIF last year from various sections of society has been very encouraging. The concept of Prior Informed Consent institutionalized by NIF sets up a very good model worth emulating by other institutions. I am happy that NIF has also taken initiative to set up two more Grassroots Innovation Augmentation Networks (GIANs) for catering to the needs of northern and north eastern India. I appreciate the support from the state government in Rajasthan and IIT-Guwahati for the purpose.

A lot remains to be done. The linkages with formal institutions of science and technology have to be strengthened. The commercialization of technologies has to be speeded up. I have no doubt that with this zeal and enthusiasm, NIF will reach even greater heights in the coming year.

(V.S. Ramamurthy)



## PREFACE



Prof Anil K Gupta  
Executive Vice Chairperson,  
National Innovation Foundation and  
K L Chair Professor of Entrepreneurship,  
Indian Institute of Management, Ahmedabad

The movement for making India innovative got impetus through the launch function of the second campaign in October 2001. Shri K C Pant, Deputy Chairperson, Planning Commission, gave away the awards at the first award function held in New Delhi. He also pursued the appointment of nodal officers for NIF with various state governments so that the campaign for scouting innovations and traditional knowledge could get the support of the public systems. As in the previous year, during the Indian Science Congress in January 2002, the activities of NIF and Honey Bee Network were presented in the plenary session attended by the leaders of the scientific movement in the country. This was a sequel to the extraordinary opportunity given to grassroots innovators at the Indian Science Congress at Pune last year to address the delegates from the same platform from which Nobel laureates had addressed them. Mainstream science and technology institutions, it seems, have begun to take some note of creativity at the grassroots.

Efforts were made to strengthen the system of seeking Prior Informed Consent (PIC) of the knowledge holders. During the second

campaign, NIF with the help of Honey Bee Network collaborators scouted about 13,500 innovations and traditional knowledge practices compared to about 1,600 similar examples in the first year- an eight fold increase. Almost ninety per cent of the entries came through the network members.

NIF continued its efforts to set up GIAN (Grassroots Innovations Augmentation Network) in different parts of the country. Useful contacts were made with the Rajasthan Government for GIAN (North). GIAN (North East) was set up at the Indian Institute of technology (IIT), Guwahati, with the generous support of the institute. We hope that by setting up these GIANS, the process of converting innovations into enterprises will be expedited. In addition to GIANS, NIF also supported the activities of GRIDS (Grassroots Innovations Design Studio) set up by GIAN Gujarat at the National Institute of Design (NID), Ahmedabad, with the help of the Gujarat Government.

The Finance Minister announced in his



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**“Several challenges have emerged. A large number of the entries pertain to herbal drugs. Unless these are screened scientifically, we cannot validate their claims. Without such validation, honouring herbal healers becomes difficult.”**



budget speech in the parliament about the setting up of a National Micro Venture Innovation Fund by SIDBI in consultation with NIF. This fund when set up will certainly address a long pending need of grassroots innovators and knowledge holders.

In order to give fillip to the campaign, NIF Chairperson, Dr R A Mashelkar and I wrote a joint letter to all the members of parliament seeking their support for the purpose. Several leading MPs responded positively and suggested modifications in the MP Local Area Development scheme. This scheme did not permit allocation of funds for promotion of innovations *per se*. Certain changes need to be made in the scheme. We are pursuing the matter with the government.

In addition, NIF participated in various science and technology exhibitions to provide greater exposure to grassroots innovators and create demand for their technologies. Product development and design workshops were also organized or supported.

Two *Shodhyatras* (a walk through villages for eight to ten days aimed at honouring local knowledge experts at their doorstep and learning from them) during summer and winter were organized by the Honey Bee Network, SRISTI and supported by NIF.

While the campaigns have been successful, several challenges have emerged. A large

number of the entries pertain to herbal drugs. Unless these are screened scientifically, we cannot validate their claims. Without such validation, honouring herbal healers becomes difficult. We are pursuing the matter with the leading research institutions to find a solution to this intractable problem.

Despite the fact that NIF has very few professionals on its rolls, the activities continued to gain tremendous momentum. Undoubtedly, various Honey Bee Network collaborators and volunteers of SRISTI have helped in this task.

NIF could not have made whatever progress it has without the constant support and guidance from its Chairperson, Dr R A Mashelkar, Secretary DSIR and Director General, CSIR. He has sustained our spirit and encouraged us to take risks and commit mistakes so that new ways of reaching knowledge rich, economically poor people could be found.

Prof V S Ramamurthy, Secretary, DST, has supported our efforts unhesitatingly. I wish to also thank Dr P Pushpangadan, Chairperson, Research Advisory Committee (RAC), and expert members from various institutions as well as the informal sector who were a part of the Committee for helping us in screening the candidate technologies for awards. The members of the Governing Council of NIF have taken very active interest

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. Often we find that innovations by themselves may apparently look small or even insignificant. But the impact these could have or their potential for impact may be absolutely amazing.

**Dr A P J Abdul Kalam**



in the deliberations of the council meetings and guided our efforts from time to time. The support from the Indian Institute of Management, Ahmedabad (IIMA), has continued to be extraordinary in every sense of the term. I am grateful to all my colleagues at NIF, GIAN, SRISTI and other collaborating institutions for their continued support and involvement in achieving NIF's missions.

I hope that NIF will continue to receive similar support from various stakeholders in the future and we will be able to rise to the expectations of knowledge holders and innovators at the grassroots.



Anil K Gupta

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## Governing Council

1. **Dr R A Mashelkar** **Chairperson**  
Secretary, DSIR and DG, CSIR, New Delhi
2. **Prof Anil K Gupta** **Executive Vice Chairperson**  
Indian Institute of Management,  
Ahmedabad
3. **Dr V S Ramamurthy**  
Secretary, Dept. of Science & Technology, Government of India, New Delhi
4. **Dr Vijay L Kelkar**  
Adviser to the Minister of Finance and Company Affairs, Government of India,  
New Delhi
5. **Ms Elaben Bhatt**  
Founder, Self-Employed Women's Association, Ahmedabad
6. **Mr Anand G Mahindra**  
Managing Director, Mahindra & Mahindra Ltd, Mumbai
7. **Dr E A S Sarma**  
Principal, ASCI, Hyderabad
8. **Mr G Subba Rao**  
Chief Secretary, Government of Gujarat, Gandhinagar
9. **Prof Inderjit Khanna**  
State Election Commissioner, Chief Secretary, Government of Rajasthan, Jaipur
10. **Prof Bakul Dholakia**  
Director, Indian Institute of Management, Ahmedabad



“A Vote of no  
confidence against  
inertia, incompetence  
and  
inaccuracy: grassroots  
innovator at work”



11. **Prof Kuldeep Mathur**  
Center for Political Studies, Jawaharlal Nehru University, New Delhi
12. **Ms Lalita D Gupte**  
Joint Managing Director, ICICI Ltd, Mumbai
13. **Dr Punjab Singh**  
Secretary, DARE & DG, ICAR, New Delhi
14. **Mr T P Vartak**  
President, Four Eyes Foundation, Pune
15. **Finance Secretary**  
Ministry of Finance, Government of India, New Delhi
16. **Financial Adviser**  
Department of Science & Technology, Government of India, New Delhi



## **Genesis**

The National Innovation Foundation was set up in March 2000 by the Department of Science and Technology (DST), Government of India (GOI), as an autonomous society under the chairpersonship of Dr R A Mashelkar, Secretary, Dept of Scientific and Industrial Research, GOI, with a board comprising eminent personalities, in response to the more than a decade long pursuits of the Honey Bee Network.

## **Mission**

To make India innovative and a global leader in sustainable technologies by building upon the genius of green grassroots technological innovators and outstanding traditional knowledge experts, protecting their intellectual property rights and converting innovations into enterprises, be they in commercial or social spheres.



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*“Changing  
the context  
changes  
the content”*

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## Annual Update

**The scouting and documentation of about 13,500 innovations and traditional knowledge practices during the year, compared to hardly 1,600 in the first year - an eight fold increase - also demonstrates that NIF has earned the trust of the knowledge holders.**

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From a modest beginning in March 2000, National Innovation Foundation (NIF) has made significant progress during the year under report. Not only has it established new benchmarks in uncovering the creative potential of our society, but it has also forged new linkages with various stakeholders to strengthen its performance. The role of the Honey Bee Network has been of great significance in achieving these results. The scouting and documentation of 13,533 innovations and traditional knowledge practices during the year, compared to 1,613 in the first year - an eight fold increase - also demonstrates that NIF has earned the trust of the knowledge holders. But have we delivered any substantial gain to the majority of those who have shared their knowledge with us? Do we have any incubation and micro venture capital funds in the country to convert grassroots innovations or traditional knowledge into enterprises? How many more GIAN kind of incubators have we established so far, other than the one established in Gujarat in 1997? And have linkages with excellence in the formal sector of science and technology been forged to add value to people's knowledge and creativity?

Perhaps we don't have all the answers now. But we are confident that answers will indeed be found. In this report, we not only

share the achievements in the last year at the ground level, but also at the policy and institutional levels. The announcement by the Finance Minister in his Budget Speech in 2002 about the need for setting up a National Micro Venture Fund through Small Industries Development Bank of India (SIDBI) in collaboration with NIF is a definite step forward. We have to wait and see as to when this fund would become operational. When Mr K C Pant, Deputy Chairperson, Planning Commission, gave away the awards to the winners of the first national campaign for scouting innovations and traditional knowledge practices, it was another step in forging links with the nation's top think tank. Mr Pant has been a great supporter of the Honey Bee Network, and institutions like NIF and GIAN that have emerged from it.

We continued with *Shodhyatras*, journeys on foot through villages for eight to ten days in summer and winter to (a) explore the creativity and knowledge systems at the grassroots, (b) honour innovators and traditional knowledge holders at their doorstep, (c) create awareness among the young and the old about what others have done to solve problems without any external assistance by sharing the multi-media, multi-language Honey Bee database and initiating dialogue with the innovators, (d) discover and celebrate the knowledge of women on

**An additional GIAN was set up to provide support to innovators and traditional knowledge holders in north east India. This was possible largely because Indian Institute of Technology, Guwahati, offered to host it. No support from state or central government for this incubators yet**



local biodiversity and its rare uses and (e) look for young geniuses who possess extraordinary sensitivity towards the environment.

An additional GIAN was set up to provide support to innovators and traditional knowledge holders in north east India. This was possible largely because IIT, Guwahati, offered to host it. We took this step without waiting for any support from the state or central government. Discussions for establishing GIAN (North) were started at Jaipur with the assistance of Rajasthan Government. GIAN (Gujarat) graduated into GIAN (West) so as to extend its coverage to Maharashtra and Goa as well. It was supported by the Gujarat Government in setting up an IPR Assistance Cell that would help innovators seek intellectual protection within the country, as well as

outside it. NIF extended support to GIAN (Gujarat) for this purpose.

Several other steps have been taken, despite very limited staff, thanks to the generous help of the Honey Bee Network, and other stakeholders, including IIMA which played a significant role. The faculty and students have continued to take keen interest in the activities of NIF.

This report is divided into three sections. In section one, we reflect on the progress made in the second campaign, awareness created through *Shodhyatras* and awards given to grassroots innovators and traditional knowledge holders. The second section highlights the activities of GIAN. In the last section, we look at the challenges lying ahead for National Innovation Foundation.

## The Campaign



Eighth *Shodhyatra*, Bhikampura to Nilkanth, Rajasthan



Participants of the recipe contest organised during the seventh *Shodhyatra*, Dabhuda to Sarasla, Kutch, Gujarat

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The national campaign for scouting grassroots technological innovations and outstanding traditional knowledge practices has been identified as one way of spreading NIF's philosophy beyond the reach of the Honey Bee Network. The campaign was jointly sponsored by the Honey Bee Network, SRISTI and IIMA.

### ***Shodhyatra*: Journeys of Exploration**

*Shodhyatra* involves walking through villages, learning from local traditional knowledge experts and contemporary innovators, and honouring them at their doorstep. The experiences of the innovators participating in the *yatra* are shared with the local communities. In addition, the multi-media, multi-lingual Honey Bee database is showed through laptops, LCDs and posters to kindle the curiosity of the young and old alike. So far, eight *Shodhyatras* have been organized.

Two *Shodhyatras* were conducted during the year. The first *yatra* was organized in Rapar taluka of Kutch. The second *yatra* covered villages in Alwar district in Rajasthan.

These *Shodhyatras*, organized by the Honey Bee Network, were supported by NIF as they have proved to be invaluable as a means of creating awareness and generating solidarity among the network members.

**Dabhuda to Sarasla, Kutch (June 16-23, 2001)** The seventh *Shodhyatra*, covered 15 villages and a distance of 68 km. The *Shodhyatris* walked from Dabhuda to Sarasla in Rapar taluka of Kutch. The *yatra*, called *Sikshan Sodh Evam Shram Arpan Yatra* aimed at helping the people affected by the massive earthquake on January 26, 2001, and also to learn about creativity in adversity.

During the *yatra*, we met Dhanjibhai Laljibhai Kerai. This two-and-a-half feet tall, polio affected young man had modified his scooter and he could now use the vehicle himself. Such innovations, if adopted and worked upon further by automobile companies, could have a great impact on the lives of the physically challenged.

**Bhikampura to Nilkanth, Rajasthan (December 24, 2001–January 1, 2002)** The eighth *Shodhyatra* covered 45 villages and 150 km. The *Shodhyatris* walked from Bhikampura to Nilkanth in Alwar district of Rajasthan. This was the first time that the *Shodhyatra* did not include any village in Gujarat. The interaction with the Rajasthani people and the opportunity to learn about their culture was an instructive experience.

This *Shodhyatra* was organized by SRISTI in collaboration with the Tarun Bharat Sangh (TBS), a local NGO and Honey Bee Collaborator and NIF. TBS has won

international acclaim for its work in water-conservation in the drought-prone villages of Alwar.

In most *Shodhyatras*, the participation of women in various villages had been much lower than men and was often negligible. This time, we decided that this needed to change and we adopted a strategy to tackle the situation. We would start the meetings by showing the multi-media, multi-language database on innovations, which always attracted a lot of attention. After showing a few innovations, we would stop and insist that unless women were invited to the meeting, we would not proceed further. We were pleasantly surprised to see that this approach worked in every single case.

### **Innovations in news**

Commentator: Bullocks are becoming harder to keep in drought-prone Saurashtra. Asked by villagers, Mansukhbhai saw a way of replacing bullocks with an Enfield motorcycle and a pair of rear wheels to draw a tool bar that can plough, weed or sow seeds. Mansukhbhai was keen to show off his invention but he had to borrow a customer's machine because he's sold all the machines he's made.

Mansukhbhai (Translation): I don't mind if people copy my invention, I've still got my customers!

Commentator: Mansukhbhai doesn't yet worry about patent protection. He can only build 50 machines a year. He says he's glad farmers are benefiting but he does worry his market will be threatened in the future.

Anil Gupta: Should such an inventor be destined to only dream small? Dream local rather than global?

*Part of the transcript of "Patently Obvious", a film telecast on BBC World*

[www.tve.lifeonline/Index.cfm?aid=1133](http://www.tve.lifeonline/Index.cfm?aid=1133)

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## Rewarding Innovations



Kapuriben Chauhan, traditional knowledge holder, receiving an award in the first national campaign



### Screening for the First Campaign Awards

Entries comprising environmentally friendly technological innovations and outstanding traditional knowledge practices were solicited from individual innovators, communities and local knowledge experts. Entries could be submitted by entrepreneurs and workers engaged in small and cottage industries, farmers, village artisans, fisher folk, slum dwellers and workshop maintenance mechanics. Entries about uses of biodiversity, developing new farm implements, herbal pesticides, treatment of animal and human diseases and any other aspect of survival in urban and rural areas were also invited.

During the preliminary screening process, colleagues from SRISTI, the Honey Bee Network and GIAN assisted NIF. After the first round of screening, the accepted entries went through a second round of verification. For this, NIF sought support from various stakeholders, Honey Bee Collaborators, innovators and other experts. In the final round of selection, the entries were screened by different evaluation committee members constituted by our collaborators from Haryana, Karnataka, Kerala, Tamil Nadu and West Bengal. Shortlisted entries from these and other regions were pooled and finally evaluated at NIF, with the help of volunteers from SRISTI. Assistance was also sought from several individual experts from the National Research Development Corporation

(NRDC) and Indian Institute of Technology (IIT), Chennai. Prizes worth Rs 11.43 lakh were awarded in eight categories, including herbal technologies, plant varieties, agricultural practices, farm implements, other implements, energy conservation, water conservation and other utilities. NIF also paid the fare of one family member or friend of the awardees, so that they could attend the function and share the excitement.

Colleagues at NIF and SRISTI did the first round of the shortlisting of herbal entries pertaining to crop, animal and human use. An expert evaluation committee, formed under the supervision of Dr Pushpangadan, Director, National Botanical Research Institute (NBRI), with fellow scientists from NBRI, Central Institute of Medicinal & Aromatic Plants (CIMAP), and Central Drug Research Institute (CDRI) provided guidance in the selection of the best herbal practices.

### Awards for the First National Campaign

The awards for the first national campaign were announced on June 14, 2001 after the Board meeting held at IIMA. Following the evaluation of 1,613 innovations and traditional knowledge practices, 32 national and state awards, 48 consolation awards, five special consolation awards and 17 scouts awards were declared by Dr R A Mashelkar, Chairperson, NIF. Particularly noteworthy contribution in

The National Innovation Foundation, India  
Announces  
The Second National Annual  
**Competition**



**For Scouting  
Unaided  
Grassroots  
Technological  
Innovations**

**The National Innovation Foundation**, constituted by the Department of Science and Technology, Government of India intends to recognize, respect and reward grassroots technological innovators and outstanding traditional knowledge experts.

**The competition**  
The NIF invites entries about unaided technological innovations attempted by small and cottage industry entrepreneurs and workers, farmers, artisans, fishermen, and women, slum dwellers, workshop mechanics, local communities and/or individuals, and students, in any aspect of survival in urban and rural areas. Ideas for innovative technologies are also welcome.

**The awards**  
The first three innovations would be awarded Rs. 1,00,000, Rs. 50,000 and Rs. 25,000 each. The scouts would be awarded Rs. 50,000; Rs. 25,000 and Rs. 15,000 for 1st, 2nd and 3rd prizes respectively. There would be consolation prizes of Rs. 1,000 each, for both scouts and innovators. The best entries would be included in the National Register of Grassroots Innovations, Innovations and Outstanding Traditional Knowledge.

**How to participate?**  
Individuals or groups may send as many entries as possible on plain paper providing genesis of innovation, background of innovation and innovators, and any other information that may help in replicating innovations. We will appreciate if every entry is accompanied by photograph and/or video of the innovator and innovation with full postal address. The last date of entries for the Second Annual Competition is **December 31, 2001**. Entries for the Third Annual Competition will be accepted from **January 1, 2002 to December 31, 2002**.

**Send entries to**  
Executive Vice Chairperson, National Innovation Foundation,  
P O Box 19071 Ahmedabad 380 015  
email: [competition@nifindia.org](mailto:competition@nifindia.org)

**For more information about the winners of the first competition please visit**  
<http://www.nifindia.org>

National Campaign Co-Sponsored by





mobilizing entries was made by Sustainable Agriculture and Environmental Voluntary Action (SEVA), Tamil Nadu; People's Rewarding Initiative in Technology, Values and Institutions (PRITVI), Karnataka; and Peermade Development Society (PDS), Kerala.

The award ceremony of the first national campaign was held during November 29-30, 2001 at the IARI Pusa campus, New Delhi. Honourable Deputy Chairperson, Planning Commission, Mr K C Pant, conferred the awards in the presence of Dr R A Mashelkar, Chairperson, NIF, and Prof V S Ramamurthy, Secretary, Department of Science & Technology (DST). Representatives from various scientific institutions, the Planning Commission, NGOs and other stakeholders of NIF and the Honey Bee Network also attended the ceremony.

### Second National Campaign for Scouting Innovations

In the second campaign, NIF has received 13,533 innovations and traditional knowledge practices. NIF tried several strategies for scouting innovations, such as placing advertisements in newspapers, through *Shodhyatras* and online registration. It also spread the message through Honey Bee Collaborators, nodal officers, District Collectors and NGOs in various states. Only

about 12 per cent of the innovations/traditional knowledge entries were received directly. The rest were received through the Honey Bee Network and Collaborators.

As the majority of innovations/traditional knowledge practices were based on herbal diversity, dealing with human/animal health or plant protection, it was necessary to think of new strategies to get these screened and valorized in a timely fashion.

### Interaction with the Media

The award ceremony of the first national campaign was followed by a press conference. The role of the government in the improvement of the economic condition of the innovators was discussed. It was widely acknowledged that the award ceremony was a unique opportunity for showcasing grassroots innovations and outstanding traditional knowledge practices. The media too recognized the potential of these innovations in transforming India.

Regarding the issue of the steps being taken to protect the IPRs of innovators and commercializing their technologies, it was mentioned that patents were being filed on behalf of the innovators. It was true that in the absence of a low transaction cost system of patents specially suited for small innovators and traditional knowledge holders,

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Prof Inderjit Khanna, Dr R A Mashelkar (*third from left*) and Prof V S Ramamurthy (*centre*) at the exhibition organised along with the award function.



the conventional patents system was a lengthy and costly process.

Examples were given to highlight how several technologies had been licensed by GIAN. In one case, the Foot Pedal Sprayer technology was licensed to a company in USA with the help of M-Cam.com, a patent database company. This was noteworthy because in this case the innovator concerned had been unable to sell even a single sprayer in the Indian market.

Hon'ble Deputy Chairperson, Planning Commission, Mr Pant, assured the gathering of full assistance from the Planning Commission. However, he felt that it was difficult to specify the precise scope of such support. He agreed that certain institutions set up for the purpose might not have fared as satisfactorily as anticipated. But there was no reason to feel apprehensive about the fate of NIF.

Mr Pant was of the view that NIF deserved to be given a chance in view of its efforts to aid socio-economically disadvantaged innovators at the grassroots. In response to another question, he admitted that the lack of risk capital for such small innovators was indeed a major shortcoming of the current national policy on the subject.

Dr Mashelkar, Chairperson, NIF, added that the situation regarding the ability of the government to help inovators was not all that

grim. He cited the example of the Technology Development Board which had helped several innovators and entrepreneurs over the last two years.

Dr Mashelkar felt that the significance of the award` ceremony had not been fully grasped by some in the media. It was the first meeting of creative and innovative people in post independent India. He admitted that merely scouting innovations was not enough. This knowledge had to be diffused. In response to another question about traditional medicine, Mr Pant mentioned the need to build a national database of the same. The Traditional Knowledge Digital Library was a pioneering effort in this regard. It would prevent patent offices from issuing patents on the common knowledge of Indian people. Mr Pant also emphasized that it was very important to involve the private sector in the entire value chain.

An exhibition showcasing the innovations was also organized on the occasion. Mr Pant met the award winning innovators who were present with their models or posters and invited them to meet his colleagues in the Planning Commission.

#### **NIF Documentation Strategy**

Feedback on the National Campaign and National Register was solicited from Honey Bee Network members, nodal officers and

**It was felt that it might be necessary to pursue discussions with the government on the need for short-term IPR protection, so that innovators have some incentive to disclose their knowledge.**



Collaborators during the meeting held at IIM-A, from February 22-24, 2002. The following points emerged:

- The identity of the innovators may not be revealed, unless it is extremely necessary and explicitly demanded or authorized by the innovator. This will help prevent the exploitation of grassroots innovators by third parties. While this may increase NIF's mediation burden, it would ensure that the innovators get a fair deal.
- Complete technical details of the innovations should not be made available in various publications or on the Web. Even in the case of awardees, it was suggested that addresses should be provided only when authorized by innovators. It was pointed out that when enquiries are received, information about the innovators should not be shared indiscriminately. Most grassroots innovators may not have negotiation skills. This could lead to their exploitation.
- The need for legal protection of the database was discussed. This was to ensure that NIF or any other database user does not violate the IPRs of the knowledge providers. It was felt that it might be necessary to pursue discussions with the government on the need for short-term IPR protection, so that

innovators have some incentive to disclose their knowledge. Everybody associated with the process, as a part of NIF or otherwise, would have to sign the Non Disclosure Agreement before gaining access to the National Register, so as to maintain confidentiality.

The NIF Board shared these concerns and suggested possible action strategies .

#### **Grassroots to Global: International Outreach**

NIF and Honey Bee Network representatives interacted with the Commonwealth Science Council to review the Commonwealth Knowledge Network, and initiate the Commonwealth Innovation Foundation.

A delegation from Northern Province, South Africa, visited Gujarat to study Honey Bee Network's experience in building the value chain of grassroots innovations. They were particularly keen on studying the scope of transfer of certain technologies within the next few months to South Africa. The scope for the global diffusion of grassroots innovations through the Honey Bee Network seems imminent.

The Design Council in the UK recently invited well-wishers of the Honey Bee Network to form Friends of SRISTI and Honey Bee Network in the UK. This could provide well

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**A global value chain is being built around such innovations to harness the potential of global markets for grassroots innovators.**



wishers a common platform through which they could contribute to the augmentation of the value chain of innovations.

Four students of the London Business School pursued a project for SRISTI on developing a model for a social venture fund. This project could be useful for NIF's future venture capital activities.

Three students from Sloan School of Management at MIT, USA, developed a business plan for the Motorcycle Driven Plough unit, one of the NIF awarded technologies. The innovator has also been sanctioned a Technopreneur Promotion Programme (TePP) grant to develop better prototypes and expand his workshop. Meanwhile, students at National Institute of Design (NID), Ahmedabad, and Indian Institute of Technology, Delhi (IIT-D), are trying to improve the product's design. A law firm in Boston, namely Testa, Hurwitz and Thibeault (THT), is filing the patent in USA on *pro bono* basis.

Testa, Hurwitz and Thibeault has filed three other patents in the USA on *pro bono* basis on behalf of NIF through SRISTI. Two of these patents are for NIF awardees. Further, two additional patents are to be filed shortly. Thus, a global value chain is being built around such innovations to harness the potential of global markets for grassroots innovators.

## **Networking & Outreach**

Dr R A Mashelkar, Chairperson, NIF, was invited to deliver a lecture at The American Academy of Advancement of Science in Boston, USA. The distinguished gathering appreciated the efforts being made in India to recognize the technological innovations by grassroots innovators.

Prof Anil K Gupta, Executive Vice Chairperson, NIF presented a paper on 'Framework for rewarding indigenous knowledge in developing countries: Value chain for grassroots innovations' before the Expert Committee on WTO and Agriculture set up by the Gujarat Government at IIMA on September 3, 2001.

A paper on 'Creativity, conservation, and compensation: Honey Bee Network approach to augment, sustainably utilize biodiversity, and share the benefits' was presented at the Conference on Incentive Measures for Sustainable Use and Conservation of Agrobiodiversity: Experiences and Lessons from Southern Africa, in Zambia, during September 11-14, 2001.

Ms Riya Sinha, National Coordinator, Scouting and Documentation, NIF, attended the World Citizen's Assembly at Lille, France, held during December 2-10, 2001. The purpose of the assembly was to form

**It was realized that management support was as crucial as technical support for grassroots innovators. Successful entrepreneurs need to share their learnings and models for institutional support from the public and private sector had to be developed.**



an alliance for a responsible, plural and united world and to present a Charter on Human Responsibilities to meet the challenges of the twenty-first century.

The work done by NIF was featured in *The Financial Express*, *Times of India*, *The Week*, *The Hindu*, *Business Week*, and other publications. BBC World, in its film called *Patently Obvious*, covered the innovations being supported by SRISTI and GIAN (West). It highlighted the role that GIAN (West) has played in filing patents for grassroots innovations. Star and Zee News channels also covered grassroots innovators in their prime time programmes.

GIAN (West) participated in the Indian Science Congress 2001 held at Indian Agricultural Research Institute (IARI), New Delhi, and Udyog Darshan 2001 at Ahmedabad. The exhibition helped GIAN to spread its message of sustainable grassroots innovations. NIF also participated and put up a stall at the annual marketing fair at IIMA in November 2001.

#### **Value Addition and R&D**

Based on the recommendations of the National Coordinators on the feasibility of various innovations, projects of different innovators were provided support. These included those directly supported by NIF and

those supported through GIANS or Collaborators.

#### **Inter-Institutional Collaboration for Research and Value Addition at NIF**

##### ***Incubator for High Tech, High Impact Innovations at IIMA***

It was realized that management support was as crucial as technical support for grassroots innovators. Successful entrepreneurs need to share their learnings and models for institutional support from the public and private sector had to be developed. A grant was sanctioned and an initial amount of Rs 5 lakh was released to IIMA for this purpose.

##### ***Industrial Design Center, IIT Mumbai***

Students of Industrial Design Center (IDC), Indian Institute of Technology (IIT), Mumbai, took up three projects for product development. NIF collaborated closely with various departments to involve students and faculty in the development of more innovations. Some students expressed a strong desire to set up a grassroots design club at IIT, Mumbai. NIF would like to encourage the establishment of maximum number of Grassroots Innovations Design Studios (GRIDS) at technical institutions with design capability. Similar workshops were also held in collaboration with Indian

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**NIF would like to encourage the establishment of maximum number of Grassroots Innovations Design Studios (GRIDS) at technical institutions with design capability.**



Institute of Science (IISc), Bangalore and other institutions.

***IIT, Delhi***

An informal group was set up with the voluntary effort of Dr Subir Kumar Saha, Associate Professor in the Department of Mechanical Engineering, IIT Delhi. He was supported by Prof K Athre.

Three M Tech research associates are currently working on two innovations. One innovation was given to B Tech students as a classroom project.

The students organized a one-day workshop named "SRIJAN" on March 2, 2002, as a part of their Tech Fest. Participants (students from various engineering colleges) suggested improvements in the design of certain innovations. Six innovators participated and interacted with the IIT students and faculty regarding the value addition to be made in the innovations.

***REC, Surat***

The Mechanical Engineering Department of Rural Engineering College (REC), Surat, showed keen interest in innovations. It invited five innovators to MINDBEND (a student's technical workshop) to showcase their innovations.

## Projects Supported Directly by NIF

### Multi-Cylinder Single Acting Reciprocating Pump



This innovation, developed by Mr Sakun Das incorporates multiple cylinders that increases the quantity of water drawn from the ground. NIF worked on design improvement and prototype development for the product. It provided the innovator with financial support of Rs 44,000 and also applied to the Department of Science and Technology (DST) for support from TePP. A patent application for the product was filed in India.

### Groundnut Pod Separator



This innovation, developed by Mr Marut Rao Sarode, replaces the traditional method of manually

separating groundnuts from their pods with a mechanical alternative. A prototype for the product was developed by a student from IIT, Mumbai.

### Arecanut Husking Machine

This innovation, developed by Mr Narasimha Bhandari, removes husks of upto 20 kilos of arecanut in an hour (manually only five kilos of arecanut can be husked by a labourer). A student from IIT, Delhi, prepared a report on this innovation. On the basis of this report, the innovator was able to improve the machine.



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Each work has to pass through these stages - ridicule, opposition and then acceptance.  
**Swami Vivekananda**

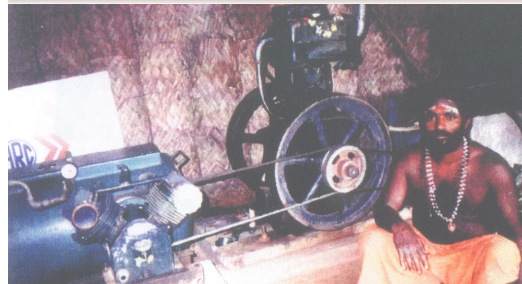


### Coconut Husker



Developed by Mr R Jayaseelan, it is a labour saving device that can remove husks from 150 nuts per hour. NIF provided the innovator with financial support of Rs. 25,000.

### Development of an Environment Friendly Oil Engine



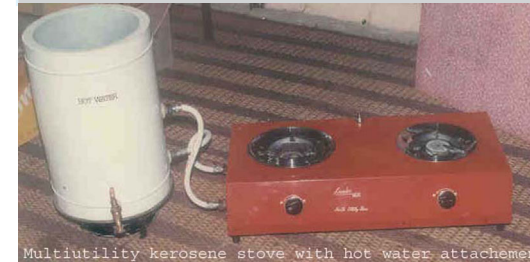
This innovation, developed by Mr M Akasi, is an engine that reduces pollution due to sound and smoke with the help of a muffler. NIF sanctioned Rs. 26,000 to the innovator for product development.

### Low Cost Hand Pump



This innovation, developed by Mr Ouseppachan Anchukandathil and Mr Reji Joseph, is a low cost, user friendly hand pump. NIF provided the innovators with financial support of Rs 25,000 for prototype development and applied to TePP for further assistance.

### Multi-Utility Stove



This innovation, developed by Mr S J Joe, is a stove that enables optimum usage of fuel by incorporating a built-in boiler that absorbs heat energy directly from the sides of the burner, allowing simultaneous generation of hot water or steam while cooking. NIF has provided the innovator with financial assistance of Rs. 28,000 for the development of a commercial prototype.

## Highlights-GIAN

The year 2001-2002 was an eventful year for Grassroots Innovations Augmentation Network (GIAN). The main events were:

- The launch of GIAN (North East) at Guwahati.
- The launch of GIAN (North).
- The establishment of the Patent Assistance Cell at GIAN (West).
- The establishment of Grassroots Innovations Design Studio (GRIDS) at NID.

### Launch of GIAN (North East)

IIT, Guwahati, agreed to host GIAN (North East) and take up value addition for some innovations. Subsequently, GIAN (North East) was set up on January 26, 2002 at the institute's premises. It would focus on the north eastern states. Mr Vijaya Vittala joined as the Senior Manager, Product Development and acting coordinator.

Two technical innovations and one traditional practice in the field of herbal medicine were taken up for research and development after being scrutinized by an expert committee. The research and development activities were supported by NIF. Further, few students from the North Eastern Regional Institute of Science and Technology (NERIST),

Arunachal Pradesh, worked on improving the design of an innovation - the bamboo cycle. Other formal institutions were also involved in the activities of GIAN (North East) in expanding project possibilities

### Establishing GIAN (North)

To strengthen the process of value addition in grassroots innovations from north India, NIF decided to set up GIAN (North) in Jaipur, in partnership with the Government of Rajasthan. GIAN (North) was conceived as an autonomous society. Its Governing Board consists of representatives of the government and NGOs, academicians, industrialists and innovators.

The Governing Board thus includes the Secretaries of the Government of Rajasthan, two eminent academicians, four social development leaders, industrialists, and innovators. The Chief Secretary of Rajasthan chairs the Governing Board in his individual capacity.

The Memorandum of Association and Rules & Regulations of the society were framed in line with those of GIAN (West). The Department of Science & Technology, Government of Rajasthan, provided a room for the operations of GIAN (North) at the Science Park premises in Jaipur.

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Daring ideas are like  
chessmen moved forward;  
they may be beaten, but  
they may start  
a winning game.

**Goethe**



To meet the operational costs of GIAN (North), the Government of Rajasthan was approached for a corpus fund support of Rs 1 crore. The planning department has included it in the state budget proposal.

### **Incubation Process at GIAN (West)**

#### *Patent Assistance Cell*

GIAN (Gujarat), now GIAN (West), applied for Intellectual Property Rights (IPR) protection for seven innovations. It is working on the applications for another three. It received a grant of Rs 4.72 lakh from the Industries Commissionerate of Gujarat, for setting up a Patent Assistance Cell for small and medium innovators. Once patents are granted, the Government of Gujarat would reimburse 50 per cent of the total cost of patenting.

#### *Grassroots Innovations Design Studio (GRIDS) at NID*

Research and Development linkages with the NID, Ahmedabad, and IIT, Delhi were forged. GIAN Gujarat set up Grassroots Innovations Design Studio (GRIDS) at NID with the help of the Gujarat government.

Two of the GIAN (West) supported technologies, partially improved with the assistance of NID students, were displayed at Auto Expo 2002 and received good response. NIF is exploring the possibility of

expanding the scope of GRIDS to include support to other GIAN projects.

#### *Venture Assistance/Value addition grant*

The following innovations received venture assistance from GIAN (West): Motorcycle Plough Machine - Rs 1.5 lakh grant, arranged from NIF; Oil expeller - Rs 2.5 lakh grant, arranged from SRISTI; 10 HP Tractor - Rs 1.25 lakh loan, obtained from the State Bank of Bikaner and Jaipur.

## Innovations in Gujarat from GIAN (West)

### 10 HP Tractor



Small three wheel and four wheel tractors, developed by Mr Bhanjibhai Nanjibhai Mathukia, are ideal for small farmers due to their cost effectiveness, easy manoeuvrability and simplicity of design. This year, the first prototype of the 10 HP Tractor was developed. After a painstaking two-year effort, the Mathukia family and the GIAN (West) team finally heaved a sigh of relief. The tractor, named "Vanraj", was tested. The field trials were successful. The prototype will be sent to Central Farm Machinery Training and Testing Institute (CFMT&TI) for final testing and certification.

### 5.5 HP Tractor

This innovation, developed by Mr Mulubhai Senjaliya, is a small 5.5 HP tractor, designed to fulfill the needs of farmers with small land

holdings. The innovation was modified with the help of a grant mobilized by GIAN (West) from Technopreneur Promotion Programme (TePP).



A professional consultant worked on design improvement of the machine.

### Tilting Bullock Cart

Developed by Mr Amrutbhai Agrawat, new design is aimed at reducing drudgery.



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What would life be if  
we had no courage to  
attempt anything?  
**Vincent van Gogh**



This year, GIAN helped Mr Agrawat develop a Fiberglass Reinforced Plastic (FRP) cart and project support activity was completed. GIAN arranged three technology transfers, to entrepreneurs in Gujarat.

### Kushal Sprayer

This innovation, developed by Mr Khimjibhai Kanadia, produces a mist spray which reduces the quantity of solution required for spraying and consequently reduces the wastage of pesticide. The innovation faced numerous operational problems due to the devastation caused by the cyclone, drought and illness of family members of Mr



Kanadia. GIAN (West) is exploring the possibility of transferring the business to an entrepreneur. It will be preferred that entrepreneur encourage the use of herbal pesticides instead of chemical over by use in sprayer.

### Pulley

The pulley, created by Mr Amrutbhai Agrawat, was designed to reduce drudgery. The innovation was successfully installed on about



200 community and private wells. The pulley travelled as far as Haryana, Maharashtra, Tamil Nadu and Uttar Pradesh. Mr Agrawat also introduced a new "Narmada" pulley. This uses the basic design of the old pulley with an innovative ratchet mechanism. The pulley was awarded the second prize in the annual campaign organized by NIF.

### Multi-Crop Thresher



The Multi-Crop Thresher for custom-hiring, developed by the innovator, Mr Madanlal Kumawat, won an award in the first NIF campaign. College of Technology & Agriculture Engineering (CTAE), Maharana Pratap University, Udaipur, was contacted for its technical evaluation and upgradation. The head of the Farm Machinery & Power Engineering Department visited Mr Kumawat and gave suggestions for improvement. TePP was approached for financial support.

### India too must protect its intellect

Largely because of the pharmaceutical sector, the impression that India pirates and is incapable of inventions dies hard. This is despite strong pressure for intellectual property protection emanating from the software, music and film industries and the success of the Centre for Scientific and Industrial Research labs. There is also a related impression that inventions require the R&D backing of huge multinational companies. This may be true of certain sectors, but is not universally true. The database compiled by the Ahmedabad-based Society for Research and Initiatives for Sustainable Technologies and Innovations and now selectively available in a compact disc brought out by the National Innovation Foundation proves the point. SRISTI and NIF have organised annual competitions to discover grassroots technological innovations and the database captures these sparks of ingenuity. As Dr Mashelkar of CSIR has often remarked, several such inventions fall by the wayside because the inventor doesn't often realise that there has been an inventive step and/or its commercial value.

Alternatively, venture capital funding to commercially exploit the invention is not available. The SRISTI and NIF-type initiatives help eliminate these constraints. If IP is recognised as capital, some day it might provide collateral for borrowing, as other capital does.

*Source: Editorial, The Financial Express  
October 17, 2001*

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## Looking Ahead

Be the change  
you want to see  
in the world  
**Mahatma Gandhi**

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## Acknowledgements

### Looking Ahead

Looking back over the past year, it is increasingly evident that much was accomplished with scant resources. Thus, the milestones that were reached appear increasingly significant.

Despite having only three full-time staff on its rolls, National Innovation Foundation scouted and documented about 13,533 innovations and traditional knowledge practices during the year. Undoubtedly, the support of the Honey Bee Network, SRISTI and IIMA was invaluable in this regard. Yet, limited staff strength is a constraint if activities are to be scaled up significantly.

The announcement in the Finance Minister's Budget Speech of the requirement of an innovation fund through a partnership between SIDBI and NIF is an important milestone. However, the operationalization of the envisioned fund remains a challenge. In view of the high transaction costs of business, the risk involved and the need for flexibility, the structure and management of this fund cannot be like any other typical micro venture fund. Thus, it will have to evolve and go beyond the classical guidelines.

While much has been achieved, we need to consistently extend our boundaries in terms of providing greater recognition to the

innovators and traditional knowledge holders. In this light, we will continue with our endeavor to showcase and provide a platform for creative grassroots innovators and thinkers. The national campaign for the scouting and documentation of grassroots innovations and traditional knowledge practices has been a significant step in this direction. Further linkages also need to be developed with formal science institutions.

An area that needs focussed attention is the considerably lower number of innovations and traditional practices by and for women. It is important to look at what initiatives have to be taken to increase and augment the innovations in this category. Our focus is on exploring a model of development that builds upon something which rural women and men are quite rich in - their knowledge, values and understanding of local resources.

### Acknowledgements

The support from Mr Vivekanandan, Dr T N Prakash, Mr James and Mr Velayutham in the second campaign deserves particular appreciation. We must thank our colleague Ms Riya Sinha, National Coordinator (Scouting and Documentation), who not only helped in her own functional area but also provided support in other NIF activities. Mr Jibanananda Khuntia, National Coordinator (Value Addition and Research and

We have an opportunity to start the resurgence of an innovative India today. This will not only entail building new social, legal and economic structures that support innovation, but also making a national symbol of 'I' in 'India' to stand for 'Innovation'. I am convinced that just as we had launched a freedom movement, which freed us from the stronghold of foreign powers, we must launch an *'Indian Innovation Movement'*

**Dr R A Mashelkar**



Development) also took a lot of interest in building research linkages with scientific institutions. The concerned contractual staff at NIF, GIANS, SRISTI, IIMA and other

collaborating institutions and volunteers of the Honey Bee Network deserve our thanks for their unstinted support.

### **Prior Informed Consent**

After evaluating any entry for inclusion in the National Register, the concerned innovator and traditional knowledge holder has the right to decide his/her terms under which the innovation/traditional knowledge should be shared with any third party. NIF is committed to protecting the IPRs of the innovators and traditional knowledge holders and abides by the instructions of the knowledge holder. Once an entry fulfills the initial criteria of inclusion in the National Register of Grassroots Technological Innovations and Traditional Knowledge, NIF sends a consent form to all the innovators to seek their written consent and choice of conditions for the dissemination and licensing of their products/processes/ideas. NIF strictly follows the conditions as laid out by the innovator/traditional knowledge holder.

The form provides a model of benefit sharing among five stakeholders – the innovator, his/her community, the innovators' fund, research and development professionals/institutions who add value to the innovations/traditional knowledge and the institutions that facilitate the whole value chain. The major constraint has been that we have not been able to explain the philosophy underlying PIC to many knowledge holders and hence have received very few responses. It can be inferred that either the innovators do not have total clarity about the preferences/options or they are unable to understand the framework behind the suggested benefit-sharing model. Awareness about the concept of PIC will have to be generated through regional workshops and also through the media.

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## Join us

If you share our vision of “India - an innovative and creative society and a global leader in sustainable technologies”, we welcome a seek your support.

You can join us in the following roles:

- Scouting and Documentation: Identifying potential grassroots innovators, traditional knowledge holders, entrepreneurs, etc.
- Value addition: Assisting in value addition of existing innovations.
- Angel investors: Making venture investments for setting up grassroots innovations based enterprises.
- Entrepreneurs: Assisting in the scaling up of innovations.
- Information dissemination: Helping in the commercial and non-commercial diffusion of innovations.
- Building linkages: Helping link formal and non-formal science, developing ties with policy makers and activists who have faith in the potential of green grassroots innovations for technological development, poverty alleviation and conservation of the environment.
- Mentoring of innovators: Extending professional expertise to our grassroots innovators and traditional knowledge holders.

Our work of recognizing, respecting and rewarding the creative potential of grassroots innovators and traditional knowledge holders is made possible by your individual and corporate support. We welcome contributions for specific projects or for a more general purpose.

For more information about our work and how you can help, please write, call or email us. We welcome your enquiries, feedback constructive criticism and involvement.