

**Annual Report: 2003-2004**  
**National Innovation Foundation**

**Preface**

The National Innovation Foundation (NIF) has identified over 45,000 innovations and traditional knowledge practices till date, and has undertaken several new initiatives to provide incubation support to selected technologies. It has also strengthened its linkages with technological institutes and business schools, many other organizations, and entrepreneurs.

I am happy to note that the ties among NIF, local communities and knowledge holders have been further strengthened. There is no doubt that NIF has to eventually become a pivot for capturing and articulating diverse societal aspirations that seek to build a viable value chain from innovation to products and to enterprise development.

NIF has continued to emphasize the development of a proper framework for protecting the IPRs of knowledge holders. NIF has used the existing IPR system to protect the interests of those innovators whose rights can be protected. It has facilitated the filing of more than two dozen patents in India and one international patent with USPTO. This is perhaps the first time when an Indian farmer cum artisan has been able to demonstrate the potential of his intellectual property at the international level. But this is also an area where considerable improvement is called for. I am happy that NIF has created new benchmarks in this respect.

Stemming the erosion of traditional knowledge is an important concern for NIF. NIF believes that providing various incentives to innovative individuals and communities would help in the long term. These incentives will help conserve and enhance the knowledge and resource base. NIF's initiative to link the People's Biodiversity Register developed at the community level with the National Register of Grassroots Innovations and Traditional Knowledge maintained by NIF is indeed timely.

I have no doubt that the NIF team will continue to strive to excel in serving the creative people of the unorganized sectors of this country. I wish NIF all success in fulfilling their unique mandate. I also appeal to volunteers from various sectors of Indian society to come forward and join us in making India innovative and helping it along on the path of sustainable development.

(R. A. Mashelkar)

National Innovation Foundation

## Foreword

The tradition of scientific exploration in India is very old. However, many people did not document their experiments or the results they achieved in a manner that would have enabled easy replication or verification. At the same time, in many facets of everyday survival, common people have developed solutions to everyday problems, which could be replicated and verified independently. If that had not been the case, how could so many people have survived against so many odds? As part of the process of survival, many technological innovations have been developed. NIF has been entrusted with the mandate of documenting not only the traditional knowledge base of creative individuals and communities, but also unaided grassroots technological innovations.

I am very happy that NIF has continued to reach out to remote corners of India to discover grassroots innovations which had remained hidden for long. It is possible that several people around the country sometimes develop similar innovations independently. We at DST receive representations from some of these more articulate innovators alleging that their creativity may have been copied by others. We try with the help of NIF to ensure that all such cases are investigated thoroughly and that there is no room for misunderstanding or miscarriage of justice.

Many people submit ideas; these are distinct from innovations and traditional knowledge. NIF tries to prioritize all such entries with the help of the Research Advisory Committee comprising senior scientists from the ablest science and technology institutes and management schools of the country. Still, it is possible that some knowledge-holders may genuinely feel that their ideas have not been prioritized appropriately. I can only request such creative innovators to be patient with the emerging processes for screening at NIF so that innovations are given priority over just ideas, and within ideas, those which may impact the lives of common people are preferred over others.

I am sure once the human resource base at NIF is further strengthened, we should be able to help many more innovators and traditional knowledge holders. I wish the NIF team success in this endeavor. DST will spare no effort to strengthen the capabilities of NIF, which has conducted itself very devotedly and also frugally to the cause of augmenting innovations at the grassroots.

**(V. S. Ramamurthy)**

National Innovation Foundation

## Introduction

Creating new benchmarks in uncovering the creative potential at the grassroots is an evergreen passion at NIF. With thousands of additional traditional knowledge practices and grassroots innovations identified during the year, the workload of the National Innovation Foundation has increased manifold. Some of the challenges ahead include obtaining the Prior Informed Consent (PIC) of thousands of knowledge holders, and screening their contributions to identify novel or socially relevant technologies for awards, value addition, business development and diffusion. This requires the support of a large number of experts in the formal and non-formal sectors for product development, and of volunteers for technical documentation and benchmarking of technologies.

Several new initiatives were taken during the year to meet these challenges. The Scouting and Documentation team of NIF tried to bring in new regional collaborators for scouting out innovations and traditional knowledge practices. The third campaign (conducted during the calendar year 2002) was popularized in hundreds of districts, and many more NGOs were involved. The awardees of the first and second campaigns also contributed in spreading the word about the third campaign. The efforts by Honey Bee network volunteers continued to be an important means of creating awareness. This included the bi-annual Shodhyatras-exploratory walks through villages to explore creativity at the grassroots along with biodiversity competitions and recipe competitions among women, and so on.

SCAIs (Students Club for Augmenting Innovations) were initiated in several business schools and technical institutions to draw upon the energy and enthusiasm of young budding managers and technocrats to explore business opportunities for grassroots innovators. Students of Indian Institute of Management, Ahmedabad organized a business plan competition, DISHA, among business schools. Young entrepreneurs were invited under the aegis of SAKAAR to facilitate matchmaking among innovators and entrepreneurs. Several other initiatives were taken to broaden the support for value addition and business development processes. In the coming years, rural development and social work students will be involved in developing strategies for social diffusion of innovations, which is a core mandate of NIF.

The idea of a full-fledged risk capital fund for helping small innovators and traditional knowledge holders remained unfulfilled till March 1999, when the then Finance Minister announced the need to set up a Micro Venture Innovation Fund. The idea of a micro venture fund was evolved by Honey Bee Network in 1997 to address the requirements of venture capital for product development in a small way. The first ever such dedicated fund with a corpus of Rs. 5 crore was set up in October 2003 at NIF with the help of SIDBI.

If NIF were to convert a few thousand innovations and traditional knowledge practices into products, it may be able to take about fifty to market, and then with adequate design and other support, may be just ten of these will succeed on a large scale. The incubation of technologies at that scale is still a far dream.

NIF has helped establish GIAN North and an outreach centre of NIF in the form of NIF North East cell at IIT Guwahati for developing regional innovations for incubation. There is a need for many more regional GIANS to provide handholding support to innovators dispersed all over the country in hundreds of districts.

NIF's governing council recognized the need to valorize herbal technologies, which constitute the largest number of entries in NIF's data base. These technologies cannot be valorized unless the large number of research institutions in the public and the private sectors join in. Therefore, two technical consultation events were organized at the state and national levels. It is hoped that the process of valorization will gain momentum over time. This would help NIF validate the contributions of tens of thousands of traditional knowledge holders who have submitted their traditional knowledge and innovation details.

The visit of grassroots innovators to South Africa through the Commonwealth Science Council was an important step in building south-south linkages for learning. With the visit of professionals and science leaders from that continent, institutional linkages are also being developed.

The support from the Governing Council continued to be as enthusiastic as one could expect. The inspirational support from Dr Mashelkar, Chairperson, NIF and Secretary, Department of Scientific and Industrial Research, Prof. V S Ramamurthy, Secretary, Department of Science and Technology, and other GC members, continues to be a major source of strength for NIF.

The year was full of challenges in documentation, validation, value addition and business development. NIF is aware of the tremendous tasks that still remain to be done. A small team handling huge expectations characterizes the difficulties and dilemmas. NIF staff have had to stretch themselves a great deal and I must acknowledge the pressure borne by the Scouting and Documentation team. The responsibility of NC (S&D) Ms Riya Sinha was compounded when she had to also shoulder the responsibility of Chief Innovation Officer (CIO) with additional officiating charge.

I compliment her and her team at NIF. They have dealt with a very large and complex task smoothly. The filing of patent applications was another area in which considerable headway was made and NC (Intellectual Property Rights) deserves appreciation. Likewise, the Business Development (BD) team initiated and strengthened the BD function with creditable results. The Information Technology Function also started receiving much more attention and dissemination activities got a considerable boost. I wish to put on record my appreciation for Mr Ram Prakash Yadav (IPR), Mr Manish Saxena (BD) and Mr Sandeep Sharma (IT), and their teams, for very valuable contributions.

I hope NIF will continue to receive valuable feedback from persons from different walks of life. We need the support of those who share our vision of making India innovative and a global leader in sustainable technologies.

Anil K Gupta

## **Governing Council for the Year 2003- 2004**

- 1 Dr R. A. Mashelkar**  
Secretary, Department of Scientific and Industrial Research & Director General,  
Council of Scientific and Industrial Research, New Delhi, Chairperson, NIF
- 2 Prof. Anil K. Gupta**  
Indian Institute of Management, Ahmedabad, Executive Vice-Chairperson, NIF
- 3 Ms Elaben R. Bhatt**  
Founder, Self Employed Women's Association, Ahmedabad
- 4 Ms Lalita D. Gupte**  
Joint Managing Director, Industrial Credit and Investment Corporation of India  
(ICICI) Limited, Mumbai
- 5 Dr Vijay L Kelkar**  
Advisor to Minister of Finance and Company Affairs, Government of India, New  
Delhi
- 6 Prof. Inderjit Khanna**  
State Election Commissioner, Rajasthan
- 7 Shri Anand G. Mahindra**  
Managing Director, Mahindra & Mahindra Limited, Mumbai
- 8 Prof. Kuldeep Mathur**  
Center for Political Studies, Jawaharlal Nehru University, New Delhi
- 9 Prof. V. S. Ramamurthy**  
Secretary, Dept. of Science & Technology, Government of India, New Delhi
- 10 Shri P. K. Lahiri**  
Chief Secretary, Government of Gujarat
- 11 Prof. Bakul Dholakia**  
Director, Indian Institute of Management, Ahmedabad
- 12 Dr E.A.S. Sarma**  
Principal, ASCI, Hyderabad
- 13 Dr Mangala Rai**  
Director General, Indian Council of Agricultural Research, New Delhi
- 14 Shri T.P. Vartak**  
President, Four Eyes Foundation, Pune
- 15 Financial Advisor**  
Department of Science & Technology, Government of India, New Delhi

- 16 Finance Secretary**  
Ministry of Finance, Government of India, New Delhi
- 17 Chief Innovation Officer**  
National Innovation Foundation, Ahmedabad

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## 1. Exploring the Context

Every time new innovations are identified, novel ways of solving local or universal problems come to the fore. In that sense, the innovation movement is also helping in transforming the way in which creativity at the grassroots gets noticed and articulated. We are forced to confront unknown worlds and ways of thinking, problem solving and doing.

For instance, if an innovator develops different solutions to solve different problems, e.g. ways to pump water and cooking food, then the innovator surely exhibits his skills in developing novel and multifunctional applications. Likewise, if someone develops a new variety of a crop and does not get recognition for that, he teaches us lessons about institutional inertia and indifference. In fact, we also came across cases in which large institutions or companies have claimed the entire credit after just purifying the seeds of varieties bred by farmers. Obviously, we are far away from the stage when it will become almost impossible for anyone to deny the credit due to the original knowledge holders.

The lessons about creative ways of solving problems remain to be learned systematically. NIF seeks partnership with academic institutions and others who are interested in enriching the repertoire of creative heuristics for solving technological problems. Our database provides a rich knowledge base and a wide range of approaches to solve problems. Blending these heuristics with the ones used by institutional scientists might enrich both. In this regard, discussions about an MoU between CSIR and NIF are on and we hope that in due course such an understanding will pave the way for a synergistic blend between informal and formal science and technology systems.

The traditional knowledge systems of India signify the constant effort on the part of common people at the individual and community levels to use local, and at times external, resources to manage livelihoods and health of human, animal and plant eco-systems. Within traditional knowledge systems there are variations. Though most of the people in the community know about a traditional knowledge practice, only very few know how to practice it and link the solution with the problem. Should incentives that are given to “those who merely know” be at par with “those who know and also have the skill to practice it”? That is an issue that remains to be resolved. The notion that traditional knowledge systems are frozen in time and carried from one generation to another without much change is not what we subscribe to at NIF.

We believe that every generation adds its own perspective to many traditional knowledge practices. Innovations in traditional knowledge systems, thus, are of great consequence. NIF is trying to analyze the trends in traditional knowledge systems and will share its findings with the public in due course.

It is necessary to examine the large number of innovations and traditional knowledge practices not only from the technical view but also from the market perspective. Thus, apart from technical documentation, efforts were undertaken to create markets for products and technologies based on traditional knowledge. At NIF, linkages were established with institutional science and technology systems to enable screening of a vast knowledge database based on available herbal traditional knowledge. A micro venture innovation fund (MVIF) was established to provide risk capital for incubating grassroots technologies.

## **2. NIF Annual Update**

### **2.1 SATTVIK 2004: Celebrating Creativity, Diversity and Conservation**

The Honey Bee Network (NIF, SRISTI and GIAN) organized the first Traditional Food Festival at IIM-A campus on February 28 and 29, 2004. February 28 happens to be the Foundation Day of NIF and the festival was also a way of celebrating NIF's commitment to diversity, local knowledge and innovations based on agro-biodiversity.

The objectives of the festival were to stimulate demand for local crops and their varieties from dry regions, hill areas and other rain-fed regions, to generate incentives for their conservation, and to increase awareness about organic farming among urban consumers. A competition was held to identify interesting recipes based on less common plant species and to stimulate demand for such women-centred traditional knowledge.

About 14,000 people visited the festival, enjoyed the rare recipes and bought unique fabrics dyed with vegetable colors and treated with herbal extracts. The Traditional Food Festival became an occasion to celebrate diversity of culture and creativity in cuisine and to explore local conservation practices. A book on traditional food recipes in Gujarati published by SRISTI was also released on the occasion. The festival brought together the various stakeholders in organic farming onto a common platform.

A poster exhibition of grassroots technologies and traditional knowledge which have been recognized by NIF was also organized on the occasion. Some of the technologies incubated by GIAN West were also showcased and many inquiries were received.

The recipe competition organized on the occasion was judged by the executive chef of Hotel Taj, faculty from Institute of Hotel Management and other local food experts. There was also considerable interest among the representatives of major hotels who had visited the food festival.

If this initiative sets a trend, it could herald a major breakthrough in the areas of agro biodiversity and associated knowledge systems. Demand for minor millets and other crops from the hotel industry could provide incentives for conservation and production of these health crops. Further research is required in the area of nutritional measures and validated benefits of organic produce.

### **2.2 SHODHYATRA: The Movement Spreads**

#### **11<sup>th</sup> Shodhyatra: Udham Singh Nagar, Uttaranchal**

Honey Bee Network organized the eleventh *Shodhyatra* in Udham Singh Nagar district of Uttaranchal and Pilibheet district of Uttar Pradesh in collaboration with SRISTI and Sristi Gyan Kendra in May 2003. Walking for about 220 kilometers in the Terai region of Uttaranchal provided the 200 *Shodhyatris* with an understanding of ecological and socio-cultural diversity. The oldest traveler was about 74 years young and the youngest was four years old.

This region gets its name after the freedom fighter Udham Singh who had killed the ex-governor of Punjab Sir Michael O'Dwyer in 1940. Apart from big agricultural farms, the

area has many sugar factories, flour and rice mills. The farmers grow rice, wheat and sugarcane. The famous G B Pant Agricultural University is situated in this district.

Terai Organic Farmers' Association (TOFA) helped the Honey Bee Network in spreading the message of sustainable farming techniques during the Shodhyatra. The objectives of Shodhyatra included saving traditional plant varieties and practices for posterity and recognizing innovative farmers who had developed new varieties through trial and error. The Shodhyatris met Indrasan Singh, who had developed a new variety of rice in 1971. The variety became so famous over the years that it came to be called Indrasan variety. Then there was Beni Singh, whose claim to fame is that he has developed a variety of sugarcane that grows up to 21 feet. We also learned from women centenarians and knowledge-rich *tharu* tribal women.

Apart from storing knowledge of traditional recipes, women have also developed innovative remedies for common problems. One of the finest examples in this category comes from women working in paddy fields. They usually develop fungal infection while working in the waterlogged fields. Some women of Bidori village have found their own remedy as they did not find a satisfactory one in the market. Similarly, the yatris met a woman in Thiliya Pur village who had learnt from her mother the art of treating all kinds of burns with locally available plants.

Ashok Kumar Singh of Khateema has developed a pump to lift water in hilly areas by using compressed air. The yatris also witnessed a very simple innovation for the universal requirement of housing. Sukhranjan Mistry of Devpura village wanted to make a roof for his house and realized that the tiles available in the market were beyond his means. He retrofitted the rear wheel of his bicycle with a plank to hold the raw material for creating low cost tiles which had a longer life. When he rotates the wheel, the air bubbles come out and the sand and clay mixture is uniformly spread over a pre-cast tile covered with a plastic sheet.

### **12<sup>th</sup> Shodhyatra: Malnad, Karnataka**

Farmers, innovators and SRISTI members from Gujarat joined the twelfth Shodhyatra held from December 25-31, 2003 in the Malnad region of Karnataka, joining 60 other yatris from around the country. The warmth of the local people helped in overcoming most of the barriers in communication arising from many languages. There was tremendous enthusiasm among the local communities who hosted the yatris.

It was a unique experience for the yatris as they met the ignited minds of those villagers who exhibited their brilliance in doing things differently. Some of the eye-opening instances included meeting a woman contractor in Gudde Khota village who has hired an all-woman team, and examining Bhandari's arecanut husking machine, Ratnakar's hydro turbo-propelled turbine and Hurulihakkalu Vasudeva Rao's unique way of irrigating the local vanilla crop. There were farmers who had developed unique ways of controlling palm pest while some others had developed areca peeling machine. It was a rich socio-cultural experience, since there was a visit to the Sringeri Mutt and participation in Anteke-Pinteke, a tribal folk song tradition.

### **2.3 Initiating MVIF: Risk Capital for Grassroots Innovations**

For implementing a new concept like Micro Venture Innovation Fund (MVIF) it was necessary to chart new policies, guidelines and institutional arrangements. To explore these, a seminar, "Key Challenges in Building Value Chain around Grassroots Innovations and Outstanding Traditional Knowledge", was held on July 19, 2003 and was attended by IIM-A faculty, academicians, representatives of GIANS, NIF staff members, innovators and entrepreneurs.

Dr R A Mashelkar, Secretary, DSIR; DG, CSIR and Chairperson, NIF stressed the need for modern science and traditional knowledge to merge and form a *sangam* (confluence). He emphasized the importance of building networks among the private and public sectors to establish the context of technology appreciation and augmentation of grassroots innovations.

The importance of a network between the innovators and entrepreneurs was also highlighted. Prof Pankaj Chandra of IIM-A mentioned that voluntarism does not work all the time and there have to be incentives for different stakeholders in the value chain. Therefore, the question is, "How will different intermediaries in the chain come together and benefit?" In his opinion, both Business Value Chain and the Technology Supply Chain have to be strengthened and linkages with big exporters and producers can be a useful tool to promote products.

Prof Piyush Sinha of IIM-A added that NIF has to find out the drivers that need to be focused upon. The product portfolio could be divided into various groups of technologies and the most value adding activity for that particular group in the incubation process can be found out.

Prof. Sriram of IIM-A suggested that NIF should not limit the scope of the Micro Venture Innovation Fund (MVIF). If it is micro-venture, individual projects will not be able to bear the various risks associated with the projects. Therefore the Fund should visualize a large fund for satisfying the aspirations of a very large number of innovators.

Prof. Koshy suggested that NIF should develop different strategies for different products and he went on to categorize innovations in the following groups: Paradigm Shifters or Disruptive Innovations, Category Creators, Market Accelerators and Market Shifters. Prof. Koshy said that the priority of NIF should be to translate an innovation into reality and this would involve identifying issues in the supply chain, addressing problems in marketing and resolving issues in management, networking and providing sound advisory services.

Prof. Mukund Dixit of IIM-A gave a presentation on the topic Policy Challenges in Harnessing Grassroots Innovations. He covered various aspects of grassroots innovations, the need for harnessing such innovations and the role of policy challenges and also highlighted some aspects about decentralization and networking, innovation bank and an alternative IPR regime.

Prof. Dileep Mavalankar of IIM-A talked about service innovations as distinct from product innovations. He also added that NIF has to make a choice on what type of innovations it wanted to promote as this was crucial because of the scarcity of the resources available at NIF's disposal.

Prof. Chandra stressed the need to identify the strengths and weaknesses of the value chain

and to develop an ideal road map to commercialize the innovations.

Other points discussed during the event include ways of handling multiple expectations, and whether NIF should provide only initial technological support or engage in technology brokering and providing media support for innovations.

### **3. NIF Activities**

#### **3.1 Scouting & Documentation Activities**

In the fourth biennial campaign, which started on January 1, 2003, NIF attempted several methods to document grassroots innovations and traditional knowledge from different parts of the country. Like in previous years, the Honey Bee collaborators played a vital role in identifying creative solutions developed by people from different states.

Some of the key initiatives during the year were:

##### **3.1.1. Linking Community Biodiversity Registers and National Register of Grassroots Innovations and Traditional Knowledge**

Prof. Madhav Gadgil of Indian Institute of Science, Bangalore and several other colleagues in the country have been involved in a pioneering effort to build community biodiversity registers. NIF representatives participated in several meetings, and this was followed by a discussion in the Governing Council meeting on March 9, 2004. The idea was that NIF and the local communities enter into an MoU wherever the community wanted to deposit its unique knowledge of traditional practices with NIF in order to make it a part of the national register.

The Governing Council approved the idea of linking Community Biodiversity Registers (CBRs) or People's Biodiversity Registers (PBRs) with the national register (NR). It also recognized that without the help of IISc and other institutions, it would not be possible for NIF with its limited resources to visit each community in the country to sign MoUs. However, with suitable local facilitation, NIF has proceeded to engage in MoUs with those communities that have agreed to be a part of the National Register developed by NIF. In one such case, NC (S&D) visited local communities in Karnataka where such registers were first offered for submission to NIF. Facilitated by IISc faculty, staff and local collaborators, the MoU was signed by NIF and these communities.

##### **3.1.2 Building Value Chain around Biodiversity based Traditional Knowledge**

A case for SAMPADA (*Strategic Alliance for Medicinal Plant-based People's knowledge for Drug development and other Applications*) initiative was made during the GC meeting organized on March 9, 2004 to discuss building a value chain around biodiversity-based traditional knowledge.

The objectives of the meeting were:

- To develop a framework for a national strategy for valorizing biodiversity-based folkloric traditional knowledge and contemporary innovations included in the National Register of Traditional Knowledge and Unaided Grassroots Innovations.
- To decide on modalities to operationalize a benefit sharing system along with the concept of Prior Informed Consent (PIC).
- To work towards a national technology mission to screen, characterize, formulate,

test and develop herbal drugs and other products based on people's knowledge, for Indian and global markets.

- To develop a strategy to pool various plant-based databases in the country so as to facilitate identification of unique herbal knowledge for prioritizing the value chain development.
- To facilitate development of sui generis intellectual property rights systems for protection of traditional knowledge and contemporary biodiversity based innovations developed by communities and individuals included in the National Register.
- To finalize time-bound plan of action with distributed leadership involving the private and public sector industry as well as the civil society sector organizations.
- To help India become a global leader in biodiversity-based products and services.

The Department of AYUSH, in a recent policy document, "National Policy on Indian Systems of Medicine and Homeopathy, 2002" recognized the importance of folkloric knowledge system of medicine which has sustained the health of millions of people in our country. It also acknowledged that various research councils have documented about 10,000 such practices, along with the details about the source of knowledge holders and communities. It recognizes the need to document many more practices, to acknowledge the contribution of knowledge holders, to extend to them financial benefits and to protect their intellectual property rights.

Traditional healers, who have met the health needs of millions of people living in places where trained doctors have not yet reached, need opportunities to do the following:

- (i) Expand their repertoire through lateral learning as well as interactions with formally trained experts; formal experts need to learn from traditional knowledge holders as well
- (ii) Gain access to research resources for valorizing their knowledge
- (iii) Protect their intellectual property wherever applicable in the name of communities or individual experts as the case may be
- (iv) Diffuse their expertise and products thereof, through commercial and non commercial channels (such as community self help medicinal kits being promoted by many NGOs)
- (v) Improve their livelihood through linkage with markets as well as national policy for health care
- (vi) Equip and train the next generation in unique yet proven and location-specific healthcare practices, approaches and techniques.

In the last three years NIF has documented more than 45,000 innovations and traditional knowledge which require proper screening, value addition and benefit sharing with knowledge holders. NIF cannot do justice to this knowledge base on its own. Thus the need for a major countrywide initiative for collaboration among public, private and civil society sectors.

NIF has had limited success in honouring and recognizing these herbal healers for want of proper technical validation. Unless folkloric systems of knowledge become part of national health strategies and dynamic emerging herbal product markets in India and outside, some of these knowledge traditions may die out.

On the subject of benefit sharing, it was clear that PIC and Benefit Sharing system would require a massive effort at the national level. It was agreed that milestone-based benefit sharing system was needed. It requires taking part of the benefit into a common pool so that apart from sharing the benefits with the community that provided the specific lead, other communities sharing their knowledge can also be benefited.

The benefits could be shared at various stages: when access is made, something useful is found, the product is developed and finally, when it is commercialized. NIF has explored tie-ups for benefit sharing with Honey Bee Network members, associates, Arya Vaidya Shala and Tropical Botanical Garden and Research Institute (TBGRI).

It was noted that a database of about 8000 plants reportedly exists with various research councils. National Botanical Research Institute (NBRI), Central Drug Research Institute (CDRI), National Institute of Science Communication & Information Resources (NISCAIR), Traditional Knowledge Digital Library (TKDL), National Institute of Science Technology & Development Studies (NISTADS), Central Institute of Medicinal & Aromatic Plants (CIMAP), Foundation for revitalization of Local Health Traditions (FRLHT), Society for Research and initiatives for Sustainable Technologies and Institutions (SRISTI), Indian Institute of Science (IISc), and several other agencies and initiatives have also contributed in this regard. However a central database is required across all these institutional databases, so that uniqueness of any folkloric knowledge can be established.

### **3.1.3 Discussion on IPR Protection in Governing Council (GC) Meeting**

On the issue of intellectual property rights protection, some of the relevant issues discussed in the Governing Council meeting were:

- (i) Regarding disclosure requirement in patent application: This was an issue that has also been raised at the WIPO-based Inter-Governmental panel on Access to Genetic Resources and Traditional Knowledge and Folklore.
- (ii) Whether traditional knowledge be considered as prior art and if so, why would anybody feel obliged to share benefits?
- (iii) Under what statutes must communities or individual healers be enabled to protect their traditional knowledge and for what period?
- (iv) What should be the basis for protecting the information disclosed by local communities through PBR or directly to NIF?
- (v) Should priority be given to communities that first developed a knowledge, practice or innovation or should all communicators or knowledge holders communicating a particular herbal use be made co-holders of the rights?
- (vi) Should the provision of collecting societies be made applicable to traditional knowledge protection also, so that local associations, panchayat samitis or NGOs can file for protection on behalf of the communities?
- (vii) Should there be a parallel track system for protection of innovations with lower inventive threshold?
- (viii) Should sacred marks protection be accorded to specific cultural symbols associated with knowledge, innovation or practices?
- (ix) What kind of clearing houses should be organized for linking knowledge, innovations and practices with potential investors and entrepreneurs?

Regarding Prior Informed Consent (PIC), a suggestion was made by GC Members that instead of having PIC between knowledge providing individuals or communities and NIF,

one could involve other third parties such as NGOs, or association of healers in the PIC. This might generate greater confidence in the minds of knowledge holders. Right now, NIF was considering a two stage Prior Informed Consent process so that preliminary consent may deal with each entry whereas the detailed PIC may be sought only in the case of short-listed and prioritized entries for validation and IPR protection.

In his concluding remarks, Dr Mashelkar stressed the fact that Indian traditional knowledge system was essentially representing the knowledge base of one-sixth of the humanity. The blend between individual and community knowledge cannot be achieved without drawing upon the strength of existing networks. He also drew attention to the cases where CSIR had developed hugely successful commercial products drawing upon local knowledge. He acknowledged the merit of several ideas that came up for discussion such as the idea of Food for Knowledge, incentives for knowledge providers, generating awareness through education system and developing a regulatory framework to guide the relationship between people and professionals. He agreed that screening facilities had to be strengthened and that NIF's role and capacity had to be strengthened.

#### **3.1.4 Action Points in the Governing Council Meeting**

- Framework: Develop a framework as per section 41 of the Indian Biodiversity Act on people's biodiversity knowledge. A Task Force can be formed for developing a framework for pooling traditional knowledge and licensing its use for commercial purposes. Involvement of different ministries to give their inputs in the institutionalization of PBR process would be very helpful. Special policy for revitalization of traditional health practices is also necessary.
- Library of Protocols: Develop protocols for different kinds of validation of local practices and look at existing Ayurvedic, Unani and Siddha protocols also. CDRI and CIMAP will help in developing protocols.
- Collaboration: Identify colleges and institutions who are willing to join the SAMPADA initiative for validating practices dealing with different disease groups; develop questionnaires for use by societies such as Anthropological Society and Anthropological Survey of India and deliver value added information to knowledge providers in a time bound manner.
- Indian Medicinal System Institutions: Identify various Indian System of Medicine (ISM) institutions which can take responsibility in different regions to characterize knowledge.
- Data integration: Integrate the databases of traditional practices, even if the formats used are not uniform.
- Multilingual Multimedia database: Evolve strategies to ensure access of database to the PBR knowledge holders and communities in local language as well as multimedia mode. This could be one major incentive for the traditional knowledge holders.

#### **3.1.5 Food for Knowledge Program**

In the drive to make India a knowledge society, Food for Knowledge Program may symbolize India's determination to value people's knowledge properly. Just as PBRs have evolved to document people's biodiversity knowledge, PKR may evolve as registers of peoples' knowledge.

The objectives include developing and delivering proper incentives linked to the use of the knowledge so pooled, working out time bound targets for validation, value addition and dissemination of traditional knowledge that is linked to biodiversity use. This is to be done with proper attribution, reciprocity and respect in close cooperation with NBA and other stakeholders.

Some of the unique aspects of NIF's efforts are enumerated below:

**a) Unique issues characterizing traditional knowledge database**

The thousands of traditional knowledge practices contributed to NIF bring up several issues. First there is great variance in the quality of documentation. In most cases, one has just the name of the plant (often in local language with or without its botanical name) used for treating a particular disease without description of the symptoms, dosage, or even the method of making the medicine etc. In such a situation, NIF faces several challenges:

- (i) Correct identification of the plant by getting plant sample and/or by consulting experts familiar with the region from where local plant names had been submitted.
- (ii) Annotating the claim using databases of Indian Systems of Medicine and also allopathic databases.
- (iii) Since NIF does not have access to TKDL, NIF in most cases needs to generate the annotation afresh.
- (iv) Identifying the unique practices after doing prior art search (PAS).
- (v) Validating single claims or pooling the best practices and then taking up their validation. So far, the voluntary process for annotation has met with limited success. We may have to hire experts and get the annotation done through ayurvedic as well as allopathic knowledge systems of medicine.

**b) New paradigm for handling non-grassroots professionals**

In the earlier rounds, NIF had recognized some of the innovations from the non-grassroots professionals. That was because in the initial years NIF wanted to focus on a wider platform of grassroot innovations. As NIF gained experience, NIF decided to focus on thousands of unaided innovators with little or no education, means or exposure, from the rural hinterland.

The guidelines were amended in the Third National campaign. The professionals were excluded from the purview of NIF's competition. NIF, however, offered to provide appropriate technical and institutional linkages.

**c) Recognition of non-awardee innovators**

A concern at NIF has been the modalities of recognition for the innovators who had contributed innovations and practices to NIF but who had not made it to the list of awardees. After all, NIF can only honor a hundred innovators among the thousands of innovators who submit entries. Several non-monetary incentives are being considered. Another scheme is to send certificates of acknowledgement to all those innovators, whose entries have been accepted under the National register.

**d) Outreach: Building linkages with Open University schools**

NIF has established linkages with the faculty and staff volunteers at North Maharashtra Open University so that thousands of their participants in various courses could also become scouts of local knowledge, innovations and practices. A workshop of MSW faculty from different colleges was also organized. NIF is confident that the scouting process in Maharashtra will be strengthened through this process.

**e) NIF as collaborating center under NATP project of ICAR**

ICAR recognized NIF as one of the collaborating centres under NATP project and thus provided support for both scouting and documentation as well as for value addition and validation of technologies.

**f) Organizing workshops of Women NGOs and workers**

NIF has been receiving many entries from women innovators and traditional knowledge holders. Two workshops were organized to fill this gap. The first one brought together leaders of Women Self Help Group (SHG) federations from seven states and the second focused on SHG leaders and NGOs of Gujarat. The second meeting was also attended by the then Chief Secretary, Government of Gujarat and Dr Vijay Kelkar, GC Member of NIF.

**3.2 Value Addition, Research & Development (VARD) Activities**

**3.2.1 Projects directly supported by NIF**

In addition to providing support through GIANS and other collaborators, NIF provided financial support to innovators for various incubation activities like prototype development, testing the innovation, design optimization, development of proof of concept model, etc. Wherever necessary, technical support was also provided by the VARD team to the innovators. VARD has also acted as a facilitator between various research institutes and the innovators for testing purposes. (See Table 1 for list of projects.)

**3.2.2 Student Training**

Students from technological institutes were given summer training at VARD. They were allotted specific projects, as part of which they had to undertake the technological assessment, market feasibility and/or benchmarking of the selected innovation.

**3.2.3 Innovations from North East: Product Development Testing**

Some of the products from the North-East that were taken up for testing include:

- (a) Power disc: Transfer of technology was achieved for the power disc innovated by R.K. Debgupta after successful trials at IIT, Guwahati and Kirloskar Small Engines Division, Pune.
- (b) Two herbal products - Herbal Termite Control and Herbal Mosquito Repellent, developed by girl students, were sent for testing to Forest Research Institute, Dehradun.
- (c) Low Discharge Zero Energy Water Pump by Imli Toshi is being tested by NIF-NE team.
- (d) Innovative fan blades were tested at Tezpur University and NAL, Bangalore.

- (e) Kerosene cum Water Stove by Rajeev Agarawal was tested at IIT, Guwahati.

### **3.2.4 Innovations from North East: Products taken up for Prototyping**

The following technologies from the North East were supported for prototype development:

- (a) Manual wood cutting machine by Karuna Kant Nath: Three different prototypes were developed and another model was sold to an interested customer.
- (b) Zero head water turbine by Nirpen Kalita: The prototype for this innovation has been made and successfully tested as a water pump. Theoretical research on its electric generation capacity was initiated.
- (c) L drop auto door protector by Govinda Gogoi.
- (d) Water filter by Imli Toshi.
- (e) Detachable Bicycle attachment and power tiller by Kanak Das.
- (f) Bicycle power disc by R K Debgupta.
- (g) Innovative arrangement of fan blades by Nipul and Bipul Bezborra.

### **3.2.5 Workshops and Exhibitions**

#### **(i) Workshop at Sri Siddhartha Institute of Technology (SSIT) for GIAN Cell**

This workshop was organized at Tumkur on September 22, 2003 for technical documentation and validation of technological innovations from South India. More than twenty students participated in the validation process. Dr G Parameshwara, Higher Education Minister, Karnataka, delivered the keynote lecture and Prof Anil K Gupta inaugurated the workshop. The NIF Resource Team presented samples of innovations to elicit support of faculty and students at the campus in building linkages with the innovators specially invited for this meeting. A local steering group met to develop specific norms for the working of GIAN cell.

#### **(ii) Demonstration Workshop at Vairag 2003**

The workshop was organized by innovator Bharat Kamble on September 23, 2003 for testing, demonstration and dissemination of his innovation "Motor Protection Device". The prototype of the innovation was successfully demonstrated during the workshop. Scouting and documentation of other innovations from the area of Sholapur was also facilitated as a part of the workshop. Financial assistance has been provided to Mr Kamble.

#### **(iii) Mind Bend 2004**

MINDBEND is a symposium organized every year by SVNIT, Surat, Gujarat. As a part of the symposium, a student competition "SAMAJ" was held, where students were invited to propose solutions to a few selected problems encountered by farmers and artisans. VARD identified twenty problems from its database of technological innovations for the students' competition at Mind Bend on February 21, 2004. Fifteen proposed solutions/entries were received, out of which five were selected for the awards. The technical solutions provided by the students were useful in design optimization.

#### **(iv) Workshop for Validation and Value Addition of Traditional Herbal Practices**

The workshop was organized on March 3, 2004 with the aim of building network of scientists and researchers from various institutions and laboratories dealing with medicinal plants. Herbal practices for various categories of disorders were shared with the participants and proposals for taking up validation and/or value addition of these traditional practices were invited. About sixty-five researchers from various parts of Gujarat participated in this

event.

**Table 1: Projects directly supported under VARD**

Sl. No	Innovation	Innovator	Financial Support	Value Addition Measures
1	Bullet Proof Jacket	Makarand Kale	–	Testing of the material properties was conducted at LD College of Engineering and the claims made by the innovator were validated.
2	Intercom Device	Madan Singh Chavda	–	VARD has provided technical support in developing a compact flexible prototype for testing
3	Magnetic Shock Absorber	Kalpita Patil	–	VARD has integrated all innovation and functional concepts in one model for testing purposes.
4	Multi-Utility Stove	S J Joe	Rs 24,000 through PDS, Peermade Development Society	Building and testing of two prototypes at National Institute of Technology, Kozhikode at the Energy Development Center
5	Mini Washing Machine	Remya Jose	Rs 5000	Modified design with more comfortable setting and pedaling arrangement and modified wire mesh for holding clothes has been developed.
6	Coconut Dehusking Machine	R Jayaseelan	Rs 15,000	Further design and development facilitated at IIT- Bombay at Industrial Design Center. The modified prototype is now available with SEVA Madurai

### 3.3 Business Development (BD) Activities

#### 3.3.1 Business Development Department: Initiatives and Strategies

The business development activity had earlier been taken up primarily through GIAN Gujarat (later converted into GIAN West). The experience of GIAN was built upon while developing NIF's strategy. Accordingly, a comprehensive strategy was developed and presented to the Governing Council of NIF on July 19, 2003. The strategy highlights included details on the necessary infrastructure, including facilities, people resources, IT systems, and the milestones for the technologies to be taken up for immediate commercialization. Key strategies envisaged included:

- Developing institutional infrastructure for BD activities like involving business management students in diffusion centric activities, strengthening the role of GIANS by extending handholding support, building linkages to scout

entrepreneurs.

- Extending financial support to innovators and entrepreneurs for incubation activities under MVIF.
- Networking with industry associations and clusters, and private sector participation in commercialization initiatives.
- Improving internal systems and processes at NIF for better coordination and effective delivery of BD function.

### **3.3.2 Student Involvement: BD Outreach**

Involving students creates opportunities for youth to engage with live grassroots projects. For NIF, it is one way of bridging the gap between formal and informal contexts of incubation.

The students were expected to conduct following activities:

- Developing channels for diffusion of innovations
- Mobilizing marketing and technical inputs for various stages of incubation
- Learning from innovators about the technology and how innovators perceived the market
- Pursuing technical as well as market benchmarking
- Conducting market research for demand assessment to prepare business plans
- Scouting for potential licensees and entrepreneurs and generating interest among them for taking the innovation forward.

While conducting the surveys in the field, students were also encouraged to scout for innovations from industrial clusters, local industries, slums.

### **3.3.3 Students' Club for Augmenting Innovations (SCAI)**

NIF has taken an initiative to set up "Students' Club for Augmenting Innovations (SCAI) at Grassroots", a nationwide student movement comprising students from India's best management and technology institutes. The purpose is to provide product development, mentoring and monitoring support to innovators and traditional knowledge holders at the grassroots. In the year 2003-04, nine SCAI Chapters were set up at various Business Schools across India that included Dept of Business Management, College of Engineering, Andhra University, Visakhapatnam, IIM-Ahmedabad, IIM-Bangalore, IIM-Kozhikode, IIM-Lucknow, K J Somaiya Institute of Management Studies and Research Mumbai, TISS Mumbai, XIM - Bhubaneswar and XLRI - Jamshedpur.

### **3.3.4 DISHA - National Level Business Plan Competition**

DISHA is a national level business plan competition organized every year to convert grassroots innovations and traditional knowledge into practical business propositions. Students from management and engineering colleges, agricultural universities, pharmacy colleges etc., prepare business plans for commercially attractive technologies from the database of NIF. The best business plans get rewarded and these plans provide NIF with suitable techno-commercial models which can be presented to prospective entrepreneurs.

The first such nation-wide competition was launched in September 2003. Students from IIM-

Ahmedabad organized and hosted the competition. DISHA-2003 was completed in January 2004. More than 500 students had registered with NIF to prepare market feasibility reports for various technologies. Six finalist teams were short-listed and invited to make presentations before a panel of distinguished judges. The team from XLRI, Jamshedpur was the winner this year.

### **3.3.5 SAAKAR**

SAAKAR is an event organized to scout for entrepreneurs who were expected to make bids for licensing the grassroots innovations. Agribusiness Club at IIM Ahmedabad, supported by NIF, organized SAAKAR to look for entrepreneurs in Gujarat. Student participants were offered venture capital support to convert their business plans into enterprises. It is proposed that SAAKAR could be organized on a national scale in coming years.

### **3.3.6 National Incubation Portal @ [www.indiainnovates.com](http://www.indiainnovates.com)**

The unique portal INDIAINNOVATES was originally developed as an IIM-A student project supported by SRISTI and later by NIF. It is envisaged as a platform for mobilizing volunteers from a cross-section of society. These volunteers may be working professionals or retired professionals, housewives, students or anybody who wants to contribute to incubation activities either by providing consultancy or contacts. To make such partnerships sustainable, incentive options are being worked out so that it is in the best interests of all the stakeholders.

NIF received twelve letters of intent for various technologies. A separate database of these is being maintained. The portal was launched in the month of December 2003 and since then sixteen parties have registered for mentorship. The portal hopes to become a one-stop window to approach Indian innovators, primarily for grassroots individuals and also for professionals. The portal will also generate licensing opportunities as NIF endeavors to reach out to markets that are often inaccessible to grassroots innovators.

At present, forty seven technologies have been put on the website and queries are being received from USA, Zimbabwe, Mexico, etc. NIF and the GIAN network are following up the responses.

### **3.3.7 Micro Venture Innovation Fund (MVIF)**

MVIF is a national level incubation fund set up on October 2, 2003 with financial assistance of Rs 40 million from SIDBI, with an additional sum of Rs 10 million to meet the transaction costs of managing the fund. MVIF has been conceptualized to provide an impetus to the process of forming a large number of micro and small enterprises based on grassroots innovations. Through the efficient management of this fund, NIF aims to support the small innovators and help the innovations move up the value chain and become micro-enterprises.

#### **Objectives of MVIF**

- To provide a means of finance for innovation and traditional knowledge-based micro-ventures, which are generally not given any support by conventional financial institutions.
- To support the technology development life cycle that includes Prototype Development, Technical Validation and Benchmarking, Field Trials, Market

Research, Certification by Regulatory Authorities, Protection of Intellectual Property Rights, Promotion and Dissemination.

- To offer innovative and flexible financing options for seed capital and working capital requirements. These could be tailor-made to the needs of grassroots' entrepreneurs and enable them to minimize the financial risk associated with their ventures.

### **Fund Management Committee**

The first meeting of the Fund Management Committee, an executive committee of MVIF was called on October 20, 2003 at NIF to discuss various operational issues pertaining to investment of the corpus and developing guidelines for investments in projects. The Fund Management Committee is an executive body, which has representation from SIDBI and NIF. It was decided that MVIF would operate within the framework to be developed by NIF under the guidance of FMC.

The delivery functions including project appraisal, disbursement, monitoring & mentoring and recovery shall be taken care of by NIF and its regional arms such as Grassroots Innovation Augmentation Network (GIAN) Cells and other associate organizations.

### **Incubation Advisory Committee**

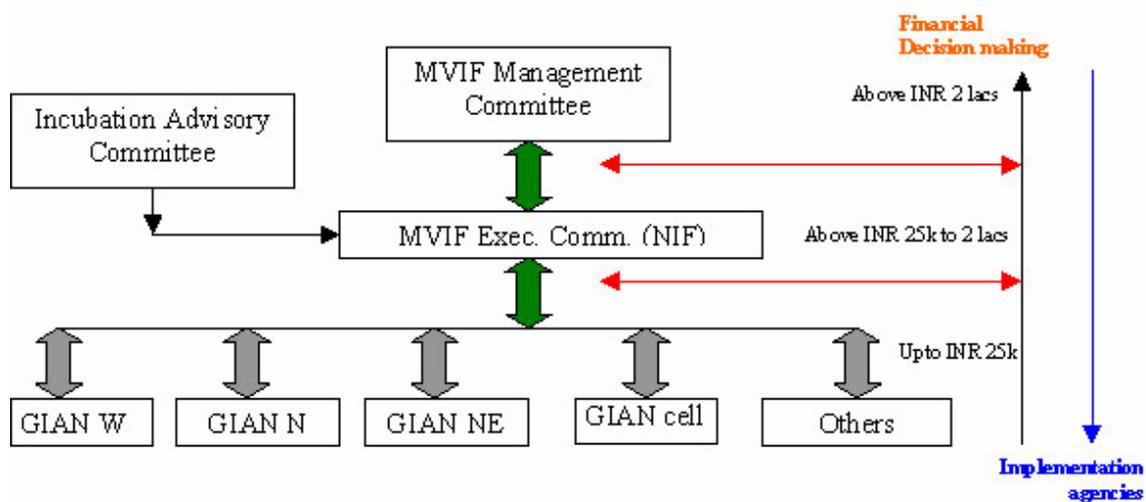
An Incubation Advisory Committee was constituted in January 2004 to oversee the entire process. Its members represent various fields such as technology incubation, innovation and management and include Rahul Patwardhan, CEO, India Company, Chair: Prof. Pankaj Chandra, IIM- A; Prof. V R Gaekwad, Retired Professor, IIM- A; Prof. P K Sinha IIM- A and Prof. Sharad Sarin, XLRI, Jamshedpur.

### **Performance of MVIF in 2003-04**

In the financial year 2003-04, a total of nine projects were provided MVIF assistance with total sanctioned amount of over 1.11 lakh (Rs. 1, 11,055).

Out of these nine projects, three projects were initiated by NIF. The assisted projects include six projects coordinated through GIANS and other collaborators. The other projects were initiated and executed through incubation network partners. These projects cover different application sectors such as telecom, energy, general machinery, utility, etc.

### **Fig 1: Three-tiered Operating Structure of MVIF**



**Table 2: List of MVIF Assisted Projects**

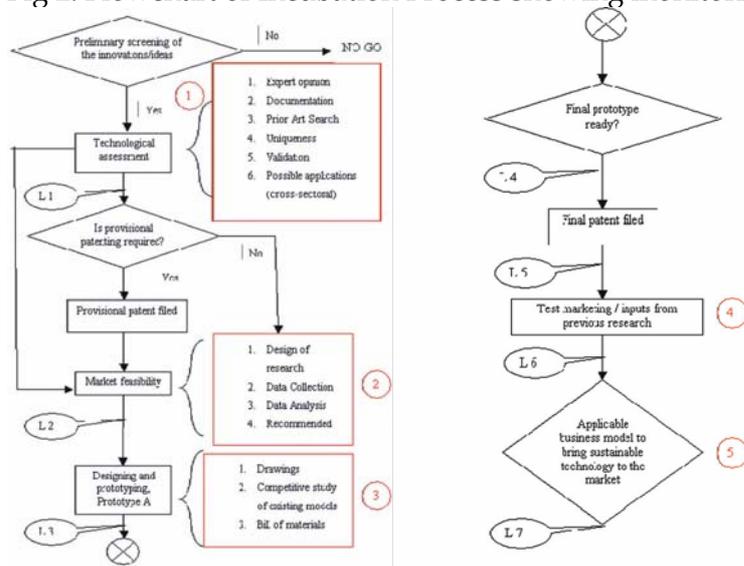
Sr. No.	Innovator Name	Innovation Name	Development Agency	Sanctioned Amount (Rs.)
1	Sheikh Mohamad Nazim	Solar Cooker	GIAN-W	2500
2	Sudip Ghosh	Electrical Apparatus	NIF	1000
3	Ashok Dhiman	Automatic Tea Making Machine & Remote Firing of Crackers	GIAN-N	37000
4	Abid Hussain	Purchase of Three Electric Generators	NIF	34515
5	Madan Singh Chavda	Intercom Device Project	NIF	3294
6		Gyan Ganga Krishi Mela- Junagarh	GIAN-W	9839
7	Mahabir Chobey	Improved Screw	NIF	750
8	Kalpesh Gajjar Manshukhbhai Patel Bhanjibhai Mathukia Arvindbhai Patel	Oil Expeller, Cotton Stripper Machine, Vanraj Tractor, Airkick Pump	NIF	14457

9	Arvindbhai R Patel Gopal Malhari Bhaise Pardeep Kumar Khimajibhai Kanadia Madanlal Kumawat Bharat S Kamble Gopalbhai Suratiya Manubha Jadeja Anil Rashmikant Kamdar	<b>Different Sprayers:</b> Automatic Portable Sprayer Multi purpose Agri. Device Multipurpose Electric Boiler Manual Sprayer Improved Multi crop Thresher Battery Operated Sprayer Manual Sprayer Double Acting Pump Buttonhole Stitching Machine	NIF	7700
<b>Total</b>				<b>111055</b>

### 3.3.8 New BD Systems, Processes and Activities at NIF

In order to generate greater detailing of the processes for MVIF, a workshop was organized with the support of Incubation Advisory Committee. A process chart for monitoring the incubation process was developed at the workshop (see figure 2).

Fig 2: Flowchart of Incubation Process showing monitoring stages and documents



Various evaluation formats were presented and finalized and included SD1 (Scouting & Documentation), EV1 (Evaluation document), L1 (Licensing process and check-list)) and E1 (Enterprise Plan). An online Incubation Monitoring System was also developed to facilitate better monitoring of the incubation process across locations.

The online incubation portal introduced at NIF offered password-based access to remote mentors, experts and development agencies working on a wide spectrum of projects. The

transaction cost and decision-making time was reduced substantially. The online system is currently under beta stage and review is on to create the next version based on feedback.

#### **Demonstrations of Technologies at Crompton Greaves Ltd (CGL), Mumbai**

Joint presentations were made by NIF and GIAN teams to senior R&D team at Crompton Greaves Ltd., Mumbai. Major technologies discussed were: Bamboo Fan, Turbines, Motor Protection device, Small Diesel Engine and Gear-cutting Device. The CGL team provided critical inputs on technical and market feasibility. The Bamboo fan was short-listed for testing and validation by CGL. The results of the test conducted in October 2003 were satisfactory.

#### **Linkage with Kirloskar Oil Engines Ltd, Pune**

NIF BD organized performance tests at Kirloskar's Pune plant for a unique energy-saving coupling developed by Kanak Das at Guwahati. Based on the results, a modified test was suggested by Kirloskar's R&D team and this is to be conducted at IIT- Guwahati.

#### **Linkage with Petroleum Conservation Research Authority (PCRA), New Delhi**

Various energy saving technologies were discussed with PCRA in October, 2003 to mobilize support for further development of technologies.

#### **Other Networking and Showcasing Events**

An interactive workshop on 'Grassroots Innovations: Enterprise Opportunities' was organized by GIAN N with the support of NIF at the India International Center (IIC) in New Delhi on December 22, 2003 in collaboration with Punjab Haryana Delhi Chamber of Commerce (PHDCCI); EMPI Business School, New Delhi and India International Center (IIC), New Delhi. A total of fifteen technologies primarily from Northern India and two from Western India were showcased. More than fifty entrepreneurs from National Capital Region participated in the program.

### **3.3.9 Business Development Support in North East**

#### **Rice Pounding Machine**

With the help of NIF NE-Cell, Bharali, a local innovator from North Lakhimpur has been able to sell more than 500 units of his rice-pounding machine within three months.

#### **Automatic Flow Control**

Automatic flow control is an innovation by Stephen Sangluaia of Aizawl, Mizoram for automatic control of water flow in roof top water tanks. He was linked up with an interested entrepreneur for the Mizoram market, and with CIPET for developing moulds for the plastic float component. Patenting could not be done as a similar innovation was also in the database.

### **3.4 IT & Dissemination Activities**

The various activities concerning IT and dissemination undertaken at NIF during the year included:

#### **3.4.1 Entries in Electronic Database**

In the second competition, the total number of entries received was 6228, while total number

of innovations received was 13,533. In the third competition 9843 entries and 21,931 innovations were received and entered in the database.

### **3.4.2 Document Management System**

Scanning of around 1400 entries and 7500 entries of the second and third competition, respectively, was facilitated to reduce the need for accessing physical files and to generate an electronic backup.

### **3.4.3 New Website and Maintenance of Other Sites**

A new website **scai.org.in** was launched for Students' Club for Augmenting Innovations at Grassroots, which is envisaged to be a voluntary network of students cutting across all disciplines. Another site **indiainnovates.com** designed by SRISTI was revamped with a new design, look and feel and updated content.

Regular updating and maintenance is being done at regular intervals for various sites of NIF and Honey Bee network.

### **3.4.4 Website Hosting**

The sites which were earlier running on other servers were converted into open source compatibility and hosted at NIF's own web server at Bangalore.

### **3.4.5 Technology Exchange Link**

A link at [www.indiainnovates.com](http://www.indiainnovates.com) was made operational to enable prospective and potential licensees, entrepreneurs and established industrialists to enable them to bid for technologies ready to be licensed. This software has been contributed by SRISTI for use at NIF.

### **3.4.6 Software Development**

Some software using GNU (open source) technologies are being developed with the help of an outsourcing company, CRANTI Technologies. Some of them are:

- Plant Reference Database
- Intranet Application (Sanchalak)
- Modification in Inward / Outward application
- Report generation module for National Register
- Document Search Engine

### **3.4.7 Dissemination Activities**

- a. Multimedia CDs: Thousands of multimedia CDs describing Honey Bee philosophy, NIF's genesis and objectives and innovations were prepared and distributed among the public and visitors for dissemination purposes. Version-wise printing of CDs has been initiated.
- b. Exhibitions, Seminars and Workshops: Several exhibitions and workshops were conducted at different locations in the country.

### **3.4.8 Dissemination Events 2003-04**

- a. Posters: Around 100 posters of different innovations and general themes were prepared. These were displayed on various occasions and events organized in India and abroad.
- b. Shodhyatra: Details have been provided in the Annual Update section in the beginning.
- c. Fourth Campaign: The announcement brochure for the Fourth National Competition was prepared.

**Table 3: Dissemination Events 2003-2004**

Sr. No	Date	Description	Organizer
1	September 2003	Workshop and Exhibition, Tumkur, Karnataka	NIF + SSIT
2	October 2003	Exhibition at Porbander, Gujarat	KVIC
3	October 2003	TII Workshop, Hyderabad	CII
4	January 2004	Exhibition during 91 <sup>st</sup> Session, Chandigarh	Indian Science Congress
5	January 2004	Exhibition at Uttarayan Mela, Ahmedabad	Government of Gujarat
6	January 2004	Mindbend, Surat, Gujarat	SVNIT

### 3.5 Intellectual Property Rights Activities

During the year, twenty nine patent applications were filed and ten more were readied for filing. Four complete specification applications were filed in coordination with various GIANS and other partners. The MoU between NIF and local communities maintaining Peoples' Biodiversity Register (PBR) was developed so that the data may be incorporated in the National Register.

NIF constantly tries to create IPR awareness within the organization. Senior scientists from DSIR, and Department of Science and Technology visited NIF for capacity building in the field of Intellectual Property Management.

Internship opportunities were provided to various college students. These students were involved in conducting Prior Art Searches for various technologies from NIF database. They were also provided exposure on prosecution of patent applications.

**Table 4: List of Patent applications filed during April 2003-March 2004**

Sr. No	Title and Patent Application No	Innovator	Law Firm	Status
1	Motorized Weeder 641/MUM/2003	Ramkumar	Anand & Anand, India	Examination Reply Filed
2	Leaf Mat Making Apparatus 498/MAS/ 2003	P Marthandan	Anand & Anand, India	Request for Examination filed
3	Cardamom Drier 517/MAS/2003	P J Abraham	Anand & Anand, India	Request for Examination filed

4	Water level Indicator 516/MAS/2003	Eldose Markose	Anand & Anand, India	Request for Examination filed
5	Mobile Charger 431/MAS/2003	A N Manoharan	Anand & Anand, India	Request for Examination filed
6	Moped LPG Kit 978/DEL/2003	Ram Kumar	Anand & Anand, India	Request for Examination filed
7	Manual Washing Machine 643/CHE/2003	Remya Jose	Anand & Anand, India	Request for Examination filed
8	Power transmission Device for vehicles 380/ KOL/2003	Rabindra Kumar Debgupta	NIF [with innovator and entrepreneur]	Complete specification filed
9	Anti-locking Device 379/KOL/2003	G C Gogoi	NIF	Complete specification filed
10	Process for preparation of Mosquito Repellent 449/KOL/2003	Leena Talukdar	Innovator	Complete specification filed
11	Combating termites with Ipomea carnea Jacq. 448/KOL/2003	Upasana Talukdar	NIF	Complete specification filed
12	Power Saving Pump 354/DEL/2003	Ram Naresh Yadav	Subramaniam, Natrajan and Associates	FER request filed
13	Process for Medication for Kidney-stone	Ramesh Kumar Nehra	Surana & Surana, Chennai	Complete specification filed
14	Multi- purpose Bicycle	Mohd. Kamaruddin	Anand & Anand, India	CS filed 1255/DEL/2003 F.D. 13/10/2003
15*	Manual Sprayer 884/MUM/2003	Khimjibhai Kanadia	Anand & Anand, India	Response for examination filed
16*	Automatic Sprayer 883/MUM/2003	Arvind R. Patel	Anand & Anand, India	Response to examination filed
17	Manual Sprayer 1051/MUM/2003	Gopalbhai Suratia	Anand & Anand, India	Request for Examination filed
18**	Multipurpose Electric Boiler	Pradeep Kumar	Anand & Anand, India	Response for Examination to be filed
19**	Multifunctional Electric Motor Protecting Device 963/MUM/2003	Bharat Srirang Kamble	Anand & Anand, India	Response to examination to be filed
20	Portable battery operated Sprayer 940/MUM/2003	Lalit Surana	Anand & Anand, India	Response to examination filed
21**	Buttonhole Making Machine 1261/MUM/2003	Anil R Kamdar	Anand & Anand, India	Response to examination to be filed
22	A formulation and process of preparation of novel remedy for Alopecia Areata 225/KOL/2004	Kailash Chandra Mishra & Yogesh Mishra	NIF	Complete specification filed

23	A method of and apparatus for extraction of oil from Meat 602/KOL/2003	Vekho Swuro	NIF	Complete specification filed
24	A process for the preparation and treatment of backaches and bone fracture 369/KOL/2003	Pushpalata Saikia	NIF	Complete specification filed
25	Areca Nut Dehusking Machine 239/KOL/2004	Uddhab Kumar Bharali	NIF	Provisional specification filed
26	Sprinkling apparatus with multiple nozzles	Annasaheb Udgavi	Anand & Anand, India	Abandoned 1005/MAS/2002 31/12/2003
27	An Improved Screw 06/KOL/2004	Mahabir Chowbey	Anand & Anand, India	Compliance to examination
28**	Jute Making Stick 345/MUM/04	U S Patil	Anand & Anand, India	Report complete
29	Portable Hand Pounder	Uddhab Kumar Bharali	Directly filed by GIAN NE	CS filed 52/KOL/2004 FD 10/02/2004
30	Motor Protection Device	Bharat Srirang Kamble	Anand & Anand, India	963/MUM/2003

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## **4. GIAN Activities**

### **4.1 GIAN West Activities**

#### **4.1.1 Introduction**

In addition to the five technology transfers enabled previously, GIAN West facilitated one more technology transfer during the current year. In August 2003, for the first time, a group of four technologies was licensed to one entrepreneur. Non-exclusive rights for manufacturing and marketing of four different types of sprayers - Auto Sprayer developed by Arvindbhai Patel, "Kushal" Mini Sprayer developed by Khimjibhai Kanadia, Hand-Driven Sprayer developed by Gopalbhai Surtia and Battery-Operated Sprayer developed by Lalit Surana of Madhya Pradesh - were licensed for India to Nilgiri Industries of Ahmedabad. A young entrepreneur Nileshbhai Satasiya has paid Rs 1.11 lakh out of the negotiated total technology transfer fee of Rs 2.11 lakh and has also agreed to pay 2.5 per cent royalty on sales for a period of five years.

#### **4.1.2 Benefit Sharing Mechanism**

In this technology transfer, GIAN-W has also for the first time implemented a novel benefit sharing mechanism, developed by SRISTI, based on Prior Informed Consent (PIC). The amount received from the entrepreneur was divided amongst the innovators (40%), Institutional Agency (9.5%), IPR expenses (9.5%), community and environment (9.5%), Western-region Association of Indian Grassroots Innovators for Augmenting, Nurturing Innovations and Creativity (WAIGIANIC) (28.5%) and expenses involved in facilitating the technology transfer (3%).

#### **4.1.3 WAIGIANIC - A New Initiative**

In the past six years, GIAN-W has faced difficulties in arranging funds for the development of ideas and other small social innovations like Kittanal, Pulley etc. Such innovations suffer due to lack of funds or delay in mobilizing the necessary funds from the concerned authorities. To overcome this problem, GIAN-W proposed the creation of a separate fund with the money generated from the licensing of successful innovations supported by GIAN-W. WAIGIANIC is being set up with an initial outlay of Rs 85,000 from the contributions received from successful technology transfers.

GIAN-W is in the process of giving final shape to WAIGIANIC. It has sought the opinions of innovators and policy makers on the formal structure of WAIGIANIC. Keeping in view the administrative hurdles and extra burden, WAIGIANIC has been proposed as an informal body managed by innovators of the region under the supervision of GIAN-W and SRISTI.

#### **4.1.4 GIAN West: Projects**

The project completed by GIAN West include the Aaruni Bullock Cart, Pulley, Cotton Stripper Machine, Motorcycle Sprayer, Kittanal, Natural Water Cooler, Foot Sprayer, Kushal Sprayer and Erisilk.

The ongoing projects include herbal formulations, Vanraj tractor, 4.5 HP tractor, Oil

Expeller, double acting reciprocating pump, compact diesel engine, bicycle hoe, Motorcycle operated plough, dual blade sickle, head load reducing device, innovative wind mill, button hole machine, gum scraper, milking machine, check dam and enhanced version of motor protection device.

New projects under consideration by GIAN-West this year for value addition include modified bicycle, seed-fertilizer dibbler, sugarcane rotavator and innovative stove.

#### **4.1.5 GAIN West: IPR Initiatives**

##### **Patent Applications**

With the assistance of IPR division of NIF, GIAN has filed Indian patent applications for five innovations viz. Hand Driven Sprayer, Automatic Compression Sprayer, Kushal Sprayer, Buttonhole Reinforcing Machine and Double Acting Reciprocating Pump. GIAN has also filed one application in the US Patent and Trademark Office for the Auto Air Kick pump developed by Arvindbhai Patel.

##### **Patent Assistance Cell**

As per the Patent Assistance Cell (PAC) Scheme of the Government of Gujarat, 50 percent of the total expenses incurred by the patent applicant were to be reimbursed at the time of grant of the patent. Given that patent award in India can take as much as five years, GIAN made a request to the government to revise the scheme so that the reimbursement could be sought by the applicant at the time of filing of the patent on the basis of the Patent Application Number. The government is considering the request positively.

#### **4.2 GIAN North**

##### **4.2.1 Introduction**

GIAN North has several innovations at various stages in the incubation cycle. Eight innovations whose incubation has so far been facilitated are now being taken to the market and attempts have been made to get these innovations commercialized. Three of the eight were facilitated this year.

The technology incubation projects included many innovations such as trench digger, tea making machine, power saving pump, LPG kit for mopeds, herbal medicine for treating kidney stones, horizontal windmill, Marble cutting machine, steam operated stove, power saving device, forage cutter, seed cum fertilizer drill, multi crop thresher, LPG driven pump, remote and safe firing of fire crackers.

##### **4.2.2 Validation of Innovations**

A Focus Group Discussion (FGD) on grassroots innovations was organized at GIAN-North on November 17, 2003 with a view to seek expert opinion on technical feasibility of the innovations, product development plans, and market potential and business development planning. Innovations that were discussed in the FGD included:

- (a) Remote Operated Cracker Firing Device for Safety by Mr Balram

- (b) Innovative Tea Making Machine by Ashok Dhiman
- (c) Electricity Generation from Road Transport by Preamsingh Saini
- (d) Engine driven by Compressed Air by Preamsingh Saini
- (e) Electricity Generation from Road Transport by Preamsingh Saini.

The first meeting of the regional Research Advisory Committee (RAC) was organized on December 15, 2003 to discuss and evaluate the short-listed grassroots innovations from Rajasthan. A total of eighty six innovations and practices were discussed, which broadly comprise three categories, namely,

- (a) Herbal Medicines
- (b) Agricultural Innovations and Practices
- (c) Engineering (including farm implements).

A team of nine experts from various disciplines evaluated the latter two categories of the innovations and practices. A separate RAC meeting was organized in January 2004 to discuss and comment on the herbal innovations and TK. The committee recommended eight innovations for further perusal.

### **Products: Technical Evaluation**

A product model for saving power, developed by Prakash Suthar of Bhilwara has been demonstrated and submitted to the Department of Electronic and Communication Engineering, MNIT, Jaipur. They have given their preliminary report highlighting the need of developing another prototype, which could prove the potential of the device, particularly for lighting applications. Modified bicycle and an improved diesel engine developed by Madan Singh Ratnu were discussed with the Professors of the Mechanical Engineering department, MNIT, Jaipur. They recommended improvements on the concept models for prototyping and further evaluation.

### **Field Trial of Herbal Pesticides**

A project on conducting field trials to determine the efficacy of two herbal pesticides developed by SRISTI Sadbhav Sanshodhan Lab and one developed by an innovator from North East was commissioned in collaboration with an NGO called SOAM (Society for Organic Agriculture Movement), Jaipur. SOAM has submitted an interim field trial report of these pesticides to GIAN North, which mentioned that thirteen farmers of different villages were conducting these trials in wheat crop against termite and heliothis attack.

### **Exhibitions, Workshops and Presentations**

A presentation-cum-discussion on GIAN North was held at the Center for Entrepreneurial Leadership (CEL) of BITS Pilani during their national event "IDEAS 4 RURAL INDIA" in March 2004.

GIAN-N facilitated participation of innovators and other stakeholders in:

- GRAM SHREE MELA-Rural Science Congress organized by Magan Sangrahalaya Samiti in February 2004 at Wardha, Maharashtra,
- INDIAN SCIENCE CONGRESS at Chandigarh in January 2004,
- An interaction with entrepreneurs on December 22, 2003 at IIC, New Delhi,
- Exposition on Grassroots Innovation and Exhibition at Chandigarh on April 2003,

- TECHKRITI - 2003, a technology fair organized by IIT, Kanpur in February 2003
- STONEMART 2003, an international fair on marble industry organized at Jaipur by CII and RIICO in February 2003.

Dr R A Mashelkar, Chairperson, NIF and Secretary, DSIR, Govt. of India and Shri Madhav Singh Diwan Honorable Minister, S&T of Rajasthan visited GIAN-N on July 15, 2003. The Minister also visited GIAN-N on July 23, 2003 to discuss the possibility of association between DST Rajasthan and GIAN-N to support need-based grassroots innovations and their dissemination.

### **New Awards Announced**

Taking cognizance of the initiatives and interventions of NIF and GIAN-N, DST, Govt. of Rajasthan has decided to institute a state award to encourage grassroots innovators. It has announced "Rajasthan State Award for grassroots innovations" to be given to three innovators and one best scout from Rajasthan. To sensitize the media in this direction, Bhoruka Charitable Trust has sponsored a competition for "Best reporting on grassroots innovations" in both print and electronic media for three years.

### **5. Acknowledgements**

We are deeply grateful to our innovators, scouts, volunteers, collaborators from all over India and abroad, Honeybee and other networks, SRISTI, GIANS, RAC members, IIMA and hundreds of technology institutes, organizations and individuals for their extended support and cooperation during this historic innovation movement powered by ignited minds.

## 6. Join Us

Come forward and join NIF in this innovation movement. Together let us build the value chain to convert innovations into sharp products and successful enterprise.

With your passion and expertise, you can assist us in the following areas:

### *Scouting and Documentation:*

You could help us in identifying and documenting the work of local grassroots innovators, traditional knowledge holders and in linking NIF with entrepreneurs who may be interested in setting up business ventures around chosen innovations.

### *Value addition:*

As a technical expert, industry professional or student, you could assist us in adding value to innovations towards technology incubation.

### *Angel investors And Entrepreneurs:*

As an investor, you could choose to fund the enterprises built around innovations or as an entrepreneur, you could take up innovations from our product portfolio for developing new businesses.

### *Information dissemination:*

You could help us in diffusion of innovation details, conduct events, use online and offline resources to increase awareness of innovations that could change lives all over the country.

### *Building Linkages:*

By virtue of your position, or professional network, you could help us build linkages with agencies, industry clusters, policy makers and activists, who wish to facilitate this movement towards making India a knowledge society.

### *Mentoring Innovators:*

As an industry expert or technical specialist, you could be a mentor and extend professional expertise for technology incubation and value engineering of grassroots innovations.

*Please feel free to write, call, fax or email us. We will get back to you.*

## 7. AUDITORS' REPORT

### **AUDITORS REPORT REGARDING AUDIT OF ACCOUNTS OF NATIONAL INNOVATION FOUNDATION-INDIA FOR THE PERIOD FROM 01-04-2003 TO 31-03-2004**

#### **Registration No. F/7412/Ahmedabad**

1. We have audited the attached Balance Sheet of NATIONAL INNOVATION FOUNDATION as at 31st March, 2004 and the Income and Expenditure Account for the year ended on that date annexed thereto. These financial statements are the responsibility of the Trust's management. Our responsibility is to express an Opinion on these financial statements based on our audit
2. We have conducted our audit in accordance with auditing standards generally

accepted in India. Those standards require that we plan the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statements presentation. We believe that our audit provides a reasonable basis for our opinion

3. The Accounts are maintained regularly and in accordance with the provisions of the Act and the rules
4. Receipts and disbursements are properly and correctly shown in the accounts.
5. The cash balance and vouchers in the custody of the Trustee on the date of the audit are in the agreement with the accounts.
6. Books, Deeds, Accounts, vouchers and other documents and records required by us were produced before us.
7. An inventory, certified by the Trustee of the moveable of the trust has been maintained.
8. The Chief Innovation Officer Dr Sanjeev Saxena appeared before us and furnished the necessary information required by us.
9. No property or funds of the trust were applied for any object or purpose other than the objects or purpose of trust.
10. The amounts outstanding for more than one year are Rs. 54,000/- and Rs. NIL is written off during the year.
11. Repairs or construction work involving expenditure exceeding Rs.5000/- was not undertaken during the year.
12. No money of the public trust has been invested contrary to the provision of Section 35 of the Bombay Public Trust Act, 1950.
13. The trust has no immovable property.
14. No special matter is to be reported.

For S. J. Pathak & Co  
Chartered Accountants

Place: Ahmedabad  
Date: 14-08-2004

S. J. Pathak  
Partner

Auditing Content to be added:

National Innovation Foundation  
**Schedule -1 Other Fixed Assets 2003-2004**

National Innovation Foundation  
**Schedule- 2 Other Advances 2003-2004**

National Innovation Foundation  
**Schedule- 3 Accounting Policies 2003-2004**