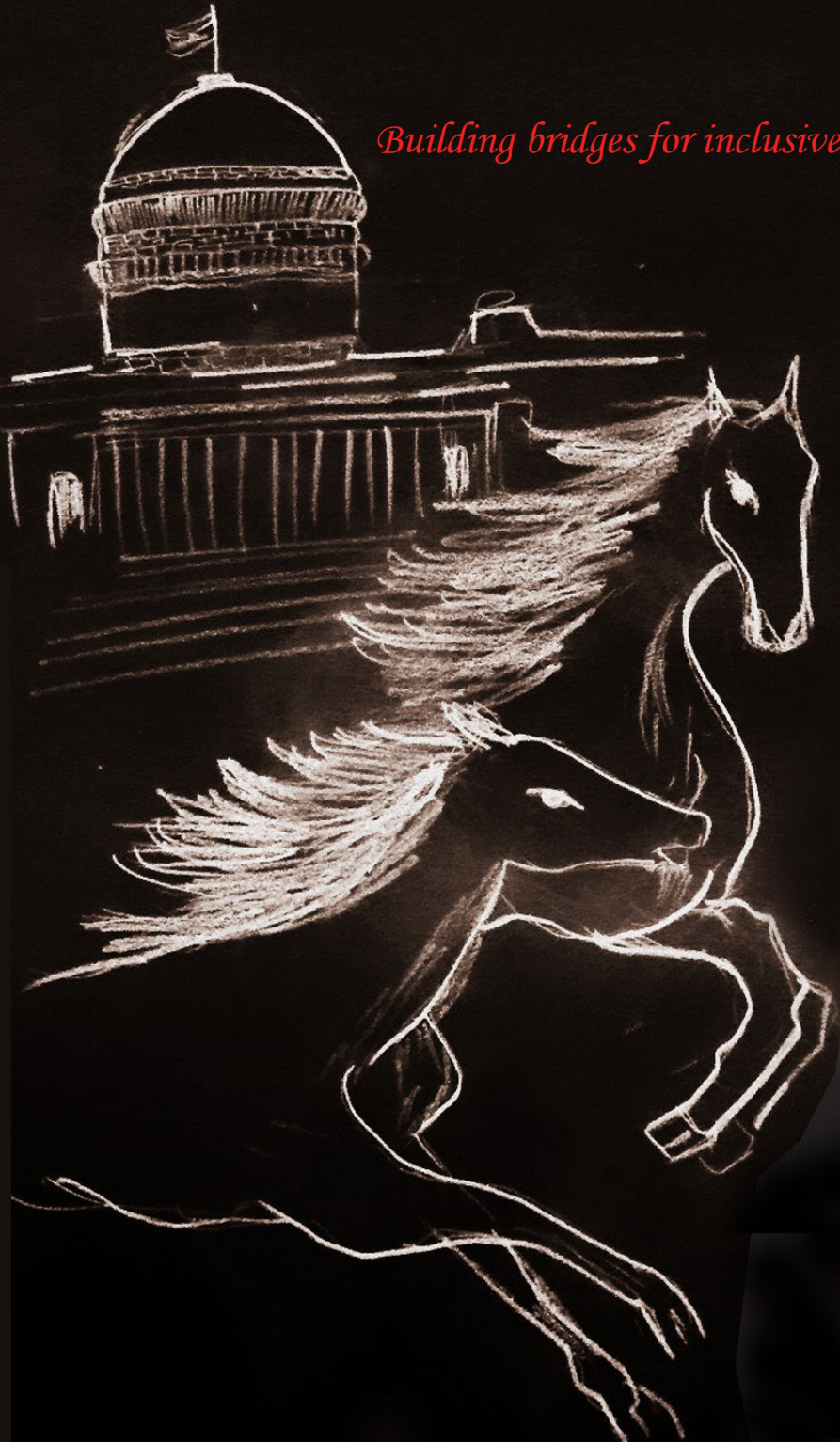


# *Festival of Innovation 2016*


*Building bridges for inclusive innovations*



National Innovation  
Foundation - India



सत्यमेव जयते  
President Secretariat  
Rashtrapati Bhavan  
New Delhi



“As a young MP, Pranab Mukherjee told his sister that he wanted to be born a well-bred horse in the Rashtrapati Bhavan in his next incarnation. "Why become a rashtrapati's horse, you will in this life become a rashtrapati (president)," responded Annapoorna Devi.”

*source: <http://indiatoday.intoday.in/story/pranab-mukherjee-president-wanted-to-be-a-horse-at-rashtrapati-bhavan/1/209629.html>*





## Foreword



**R**ashtrapati Bhavan has taken several initiatives during the last five years to enrich the ecosystem for inclusive innovations in the country. Festival of Innovation (FOIN) is organised every year in March to celebrate the creativity of communities at grassroots level. To forge linkage between formal and informal

sectors, innovations from grassroots are linked with innovations for grassroots. Ecosystem needs several actors to come together to strengthen India's vision to become an economically developed society keeping wellbeing and happiness of all the sections.

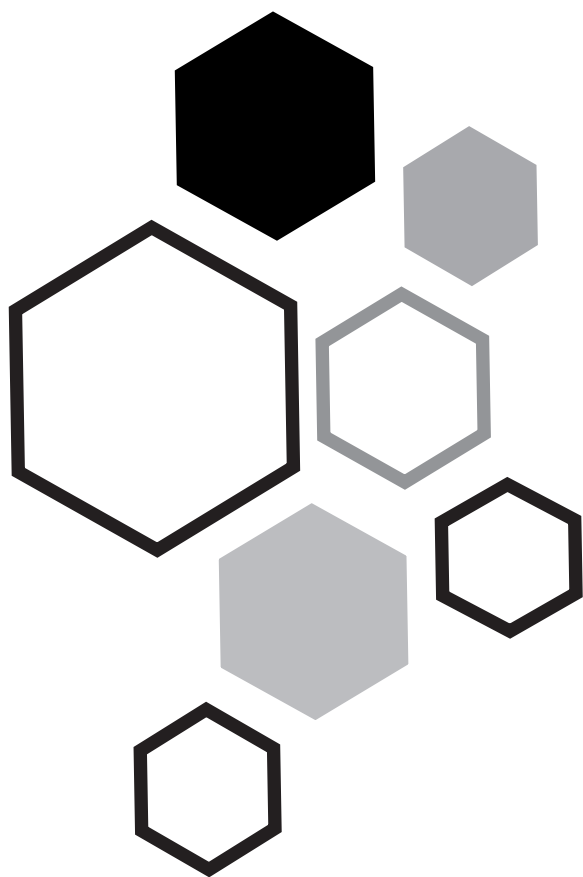
This report of FOIN 2016 brings together glimpses of discourse that took place last year. I am happy that some of the ideas have been followed up. I hope various institutions will support the steps taken by National Innovation Foundation, our partner in organizing FOIN, in making India more inclusive. Distributed enterprises and start-ups based on creative and compassionate ideas at grassroots will make Indian model of development, uniquely inclusive. I am also happy that this

book is being released in FOIN 2017 to inform and influence the discussion this year.

I congratulate the team of Honey Bee Network including NIF, SRISTI and GIAN in collaborating with Rashtrapati Bhavan in bringing important global voices together to appreciate what India has done and what it needs to do in future.

We are grateful to the inspiration provided by the President of India to converge so many initiatives together under the umbrella of Festival of Innovation.

Omita Paul  
Secretary to the President  
Mar 2, 2017



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# FESTIVAL OF INNOVATION

The Festival of Innovation (FOIN) is a unique initiative of the Office of the President of India to recognise, respect and reward grassroots innovations and foster a supportive ecosystem. Hosted in the month of March at The President's House, the FOIN has become a national celebration of creativity and innovation at and for grassroots. Shri Pranab Mukherjee, the President of India has exhorted all segments of the Indian society to converge their efforts to make India inclusive, innovative and responsive to the aspirations of common people. While addressing the Global Roundtable on Inclusive Innovation attended by top innovation leaders of the world and several Nobel laureates during last two years, he has stressed the need for learning and sharing the global experience in designing, developing and delivering empathetic and inclusive innovations for the common good. He believes that while India has to learn a lot of lessons from the countries that rank on the top in the global innovation index, India has also a lot to share in terms of frugal and grassroots innovations. That is one of the ways in which Indian innovation quotient may go up.

It is imperative that India becomes a

growth engine for the world and provides a new model of inclusive development by providing a large number of open technological and other solutions for the developing and developed world. In sync with the policies of the government of India, FOIN will provide a window to the creative and innovative solutions for social development through grassroots innovations, student ideas and other technologies for agriculture, rural development, sanitation, health, women and child development, biotechnology and medical innovation for grassroots.

The Decade of Innovation (2011-20) is characterised by various initiatives taken by the Government of India and the President's House to promote innovation, particularly grassroots innovation, in the country and forge its linkages with higher education system. The National Innovation Foundation (NIF), India has been organising an exhibition of grassroots innovation every year since 2010, in collaboration with the Honey Bee Network institutions, volunteers and the Department of Science and Technology [DST] at the President's House. The purpose is to expose the visitors to the pervasive culture of creativity and innovation in

India. Since 2015, these exhibitions have become a part of the Festival of Innovation. Many central universities and NITs have organised exhibitions of grassroots innovators during the visits of the Hon'ble President there and have already set up National Innovation Clubs in their campuses. Perhaps India is the only country where grassroots innovators are hosted at the President's House to convey a message that the country cares for the creativity of the common people. With the support from NIF, the President's Secretariat has successfully organised three editions of the Innovation Scholars In-Residence Programme, during 2014 - 2016. The fourth edition of the programme will begin on March 4, 2017 involving two week - long stay of 10 innovators at the President's House. These innovators, including school children, grassroots innovators and college students, are mentored during their stay. The policy and institutional linkages are forged to scale up their ideas.

Last year, in 2016, the second edition of FOIN saw a wider participation, both nationally and globally. More than 70 grassroots innovations, including newly-developed crop varieties developed by farmers, were exhibited. Ninety



innovation clubs participated from various universities across the country. The in-residence programme was expanded to include innovation scholars, writers and artists from across the country. Seven innovation scholars, two artists and two writers were hosted for two weeks, as part of the Festival.

To leverage on the uniquely frugal and empathetic model of grassroots innovations developed in India, the President's Office has decided to organise the third Festival of Innovation (FOIN) at the President's House, New Delhi during March 4-10, 2017 with the help of NIF.

National Innovation Foundation-India and other Honey Bee Network institutions including SRISTI and GIAN support all the activities of the FOIN. The FOIN 2016 brought together creative and innovative voices from across the world. Indian contributions were highlighted and at the same time lessons were learnt which could help India in its march towards a socially and economically developed society.

I invite you to respond to various ideas discussed last year. But even more importantly, I am sharing the broad agenda for the Third Festival of Innovation. The purpose is that we make up for what we could not do last year. And try to achieve greater cooperation globally to make Indian inclusive innovations system more robust.

## Agenda for FOIN 2017

### National Grassroots Innovations and Outstanding Traditional Knowledge Awards

In the 9th National Biennial Competition (1st April 2013 to 31st March 2015), 33500 submissions were received from various parts of the country. These were subjected to rigorous Prior Art Search by NIF team to short list the 105 ideas, innovations and outstanding traditional knowledge practices. These were presented before the Research Advisory Committees comprising formal sector experts but also grassroots innovators.

On the first day of the festival, March 4th, 2017, The President of India will give away the awards to grassroots innovators in 9th Biennial Award Function of grassroots innovation and outstanding traditional knowledge and inaugurate the National Exhibition of Grassroots Innovations. On this occasion, NIF will also recognize the successful partnerships between formal and informal sector, outstanding media

coverage for grassroots innovations, social diffusion of innovation, distinguished scouting efforts etc. The in-residence programme of ten days for innovation scholars, artists and writers will start on March 4, 2017 at the President's House. This will give them a chance to demonstrate their technologies to visitors, scientists, policymakers, entrepreneurs etc., at the 3rd FOIN and also interact with grassroots innovators. The President will meet with the fourth batch of innovation scholars during his visit to the exhibition.

### March 4-5, 2017 - Global Round Table on Inclusive innovations

In most democratic societies, social aspirations for improved quality of life have risen enormously. Thanks to the rapid economic progress in the last few decades, such an upswing in community expectation is completely legitimate and understandable. The challenge before policy planners, thinkers, practitioners and civil society members is to meet these expectations in shortest period of time, with minimum transaction costs and highest social satisfaction. Recognizing the role that grassroots innovations play in triggering

a self-reliant, decentralized and distributed inclusive development, the office of the President decided to host the Festival of Innovations at The President of India's house, the Rashtrapati Bhavan. India is perhaps the only country where the head of the state not celebrates the creative and innovative potential of common people but also hosts some of them as Innovation Scholar in Residence at Rashtrapati Bhavan.

The concept of inclusive innovations implies that we should overcome exclusion of certain economically disadvantaged spaces, sectors, skills, and social segments particularly vulnerable to climatic fluctuations such as drought, floods or other calamities. The innovations that address the unmet needs of socially excluded, neglected or under-served sections of society thus become the focus of the global roundtable on inclusive innovations.

There are several ways in which inclusion can take place; we can reduce transaction costs (both ex ante and ex post) for making innovators, investors and entrepreneurs meet and work together as has been tried by the Honey Bee network in India through National Innovation Foundation, GIAN and SRISTI for several decades. Inclusion takes place by providing in situ skill building and incubation support as being tried under Start-up, Stand up India pol-

icy of the government. Many young people particularly from rural areas are not finding proper employment opportunities due to lack of proper education or skill training.

Several weavers have made many innovations in looms and weft system. Handloom, handicrafts, household manufacture are areas in addition to agriculture, fisheries and livestock where a very large number of people get employment. Many societies have large aged population. They have special needs. Innovations that improve their productivity, security, or serve their unmet needs without hurting environment make inclusion of have-nots possible. Certain skills are losing out in the market place such as traditional performing arts, paintings, household food processing, leather work etc. Unless one creates online market place for them and generates global demand for them, these skills are bound to be eroded. Some of them may need re-skilling for digital world while others may need to be linked to schools and other cultural centers where they can teach younger generation. Culture, language and identity of diverse cultures are linked. Integration of such cultures is facilitated through Inclusive innovations and development process. Numerous sub-cultures have survived in India for millennia and we have to find ways for providing enough space for these minority voices.

One or two episodes of droughts or floods may lead to loss of several years of savings of vulnerable communities. Those landless workers who depend mainly upon labour are further affected because of loss of work opportunities at such times. With climate change, such fluctuations in weather are likely to increase. The resilience in innovative solutions is necessary for sustainable and inclusive social outcomes.

Thus inclusion will require innovations which increase resilience and enhance risk absorption capacity of the community through entrepreneurial models. Mudra Bank has made significant effort to alleviate economic stress. But social and cultural stresses also have to be alleviated by institutional and technological innovations.

There are six sessions planned during the roundtable:

## A. Inaugural Session:

Introduction to the inclusive innovation eco-system: the stage will be set for the entire roundtable and the issues will be raised to draw attention of the participants to national and global challenges. While India is seen as a hotbed of grassroots and frugal innovation, similar extremely affordable innovations developed with, and for grassroots are also im-

perative. The FOIN brings together formal and informal sector of science, technology including medical, biotechnologies, public administrators, bankers, finance, innovation club coordinators from over 100 academic institutions and many other to enlarge the inclusive innovation ecosystem for empowering grassroots innovators being scouted and supported by National Innovation Foundation and the Honey Bee Network.

## B. Leveraging Science, Technology and Innovation: Developing an Inclusive Ecosystem

How do we bring unmet social needs of society on the agenda of technologists working on high tech and mass impact solutions?

How do we create a mindset in formal institutions to co-create solution to generate a reciprocal, responsive and respectful relationship between formal and informal sector?

How to make public and private labs accessible to communities to come and discuss their ideas and take them forward alone or together?

Should there be an innovation corps in every country to encourage youth

to search, spread, celebrate innovations and sense the unmet social needs as being attempted in National Innovation Clubs under the guidance of the President.

How to harness children's curiosity and innate ability to think divergent for generating creative and empathetic solutions for society? Can children thus be treated as source of ideas rather than sink of advice?

How to make translational research more buoyant so that technology on the shelf goes to society for transforming livelihoods of masses?

When disadvantaged households invariably diversify their livelihood opportunities, how to persuade scientists to pursue inter-disciplinary and trans-disciplinary research making solutions more accessible and adaptable?

How to link market based instruments, supply chains and online platforms with offline communication and public delivery systems to make affordable, accessible and adaptable technologies also available at the doorstep of the users?

How to make MLM [More from Less for Many] as the new mindset of innovators to ensure maximization of knowledge and minimization of materials and other resources?

## C. Education for inclusive innovation development

How to increase the experiential content based on local innovations, enterprises whether in social or economic sphere incorporated in the curriculum at different levels of education?

When project based learning is being used more and more widely, how to get the problems of disadvantaged community underutilized resources, repurposable wastes and other social challenges become the subject of projects?

Social immersion is increasingly used as a means of triggering samavedana [empathy and compassion], but the concrete results in the form of srijansheelta [creativity] are not so evident. How can new pedagogies be generated to mould the young minds to make them more responsive to social aspirations of the excluded communities and sectors such as small industries, public system like primary health centers or schools?

How to ensure development of futuristic skills for meeting the need of an innovation economy? For a zero waste society, sanitation, recycling and repurposing, transition towards bio and circular economy require

different kinds of skills than may be available in the conventional skill development institutions.

How to scale up multiple stage scale development and augmentation programme using ICTs so that learning by oneself become possible, democratizing access in the process?

How to bridge the gender gaps in certain skill streams which have not been opened historically for equal access for cultural or other institutional reasons?

How to ensure that grassroots innovators can use new materials, new tools and new skills to accelerate their ability to develop viable solutions for contemporary needs?

How to encourage the formal sector to acquire the skills and sensitivity to learn from the informal sector? How to overcome the bias, which leads to characterization of millions of people as unskilled workers? How to create market for existing/traditional skills and in turn modernize them and/or modify the market and develop new interfaces?

## D. Inclusive Innovation, Incubation & Acceleration Models for Innovative Start-ups

While all kinds of start-ups need support for reaching the market and achieving scale, how to accelerate the social enterprises that serve location-specific community needs? The long tail of innovation implies that niche specific innovations are necessary for inclusive development. Incentives for innovations that are unlikely to achieve scale are generally missing in the market place leading to alienation of unserved communities. How to modify the incubation and acceleration system for meeting such needs?

How to ensure that innovative solutions reach even those social segments which may have very limited purchasing power? Can one generate hybrid blended or bundled solutions that combine public and private resources for reaching the unreached?

How to support those market based solutions, which at the current scale cannot meet the requirements of public procurements? Can such demand from public and private systems be used to encourage effective innovations, which on their own may not succeed?

How to supplement incubators and accelerators based in generally academic institutions with distributed in-situ incubation spaces? Can private and civil society sector be also encouraged to create incubation, fabrication and formulation spaces?

How to ensure that public funding nurtures early stage needs of innovation based enterprises, which may not have proof of market yet? Keeping information technology sector apart, such support has not generally been forthcoming from private investors. How to learn from other countries, which may have solved this problem?

How to combine grants, debt and equity at different stages and in different proportions for various socially useful innovations?

## E. Incentives for Innovation in Public Policy and Programmes

How to blend material and non-material incentives targeted at individuals or teams available in short or long term? While it is known that portfolio of incentives have to be linked with organizational culture and purpose, seldom do we mind

imaginative combinations of dif-

ferent kinds of incentives in public policy and programmes.

How to generate incentives not just for innovations but also for their replication, which doesn't happen very easily in public systems?

How to learn from those communities/countries, which have unleashed the power of innovation in public systems and thus revitalized the delivery system?

How to encourage users to incentivize the development and diffusion of innovations in various programmes? Just like reverse innovation in which solutions in emerging economies find markets in developed countries, can incentives by user communities supplement or substitute organizational incentives for innovation? Are there examples where users have recognized the innovative public service delivery?

## F. Social Innovations for large scale change

How to address those needs, which neither market nor state is able to meet satisfactorily in the near term. How to create social spaces where different kinds of fusions, partnerships, joint ventures emerge to fill the gaps in meeting such needs?

How to ensure that targeted subsidies are used to improve viability of startups that provide socially useful services for which clients may not have the capacity to pay? If girls in government schools have to be educated about menstrual hygiene and overcome the tendency to talk about it hushed tones, then educational initiatives measured by specific outcome indicators may need to be subsidized.

How to modulate public policies that encourage social innovations, particularly for excluded segments, spaces and sectors?

How to ensure that social innovations don't stop at only marginal changes? Meeting the challenge of large-scale change may require new strategies and networks. What can we learn from the successful examples in different parts of the world?

## March 5, 2017 - Gandhian Young Technological Innovation (GYTI) Awards

The GYTI Awards will be given to innovative technological student projects in engineering, pharmacy, science, biotechnology and other

applied technologies by Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI). Biotechnology Industrial Research Assistance Council (BI-RAC) will be the partner for biotechnology/medical technology awards. An exhibition of the awarded technologies will also be organised. In collaboration with the UNICEF, a children's creativity workshop will be organised to highlight the role of children as a source of frugal solutions rather than only being a sink of sermons. SRISTI Samman will be given to those making outstanding contribution towards the goals of the Honey Bee Network.

Global Roundtable on inclusive innovation will continue on this day after the GYTI Awards.

## March 6, 2017 – Roundtable on Innovations in Public Service Delivery

Innovations in delivery of public services to make these accessible, extremely affordable and accountable to common people are the hallmark of a responsive democratic polity. The inclusive development requires that the underprivileged sectors,

spaces, and sections of society don't get left behind in our march for development and progress. In fact national happiness index often hinges on such a responsive and empathetic delivery system. India has made many strides beginning with railways tickets delivered to people's houses and then online, Aadhar based unique identity, direct benefit transfer, special 108 service, public accountability act under which a large number of services are provided in a time bound manner etc. Various other services have made the life of different group of citizens easier. Filing tax statement is not a hassle for many. Paying road tax once in a lifetime makes life of vehicle owners very easy. Telecom sector has been transformed. Banks have brought millions of new customers into banking fold. Numerous changes in fact are waiting to happen. Some are being tried in different parts of the country but many of us not aware of the same. It is this gap between occurrence of an experiment or an innovative change in public service delivery and its awareness in other sectors, spaces and different sections of society, which we wish to help in bridging.

Indian space program has brought about a fundamental transformation in our ability to deliver public service in far corners of our country. India has emerged as a leading destination of FDI inflow in 2015 and

among top ten in 2016. India has demonstrated that it could be third largest economy by 2030 and second largest economy by 2050. One step that could make the difference and bridge the gap between haves and have-nots is effective and efficient delivery of public services by private and public sector. E-commerce has broken barriers to widespread market-citizen connect. There are numerous mobile services needed in low population density region to make services accessible, affordable and available to people in such regions. We would like to discuss the lessons from existing Innovations in Public Service Delivery so as to deliberate on future scope and scale of innovations. We will also identify key role that various institutions can play in ensuring an accountable, accessible, affordable and efficient and effective availability of services in India.

In the age of social media expansion, delivering agricultural innovation and skills for developing new location specific innovative solutions is acquiring a new meaning. Linking institutional science and technology with informal innovation system documented extensively over the last three decades by the Honey Bee Network offers a new opportunity for inclusive development. The policy implications will also be drawn to speed up the redesign of public services, triggering new insti-

tutional platforms like Digital India, techpedia.in, INSPIRE-MANAK (Million Minds Augmenting National Aspiration and Knowledge) and NIDHI (National Initiative for Development and Harnessing Innovations). Mobilizing ideas and innovations by children and youth offer a new way of social, institutional, ecological and cultural connect.

Various examples of innovations tried, successful or otherwise in different sectors will be shared so that incentives for more experimentation in delivery of public services through public, private and civil society sector can emerge.

A meeting of grassroots innovators with NITI Aayog (National Institution for Transforming India) is being organized in the afternoon.

## March 7, 2017 – Workshop on Innovative and Creative Children for addressing unmet social needs

In collaboration with the UNICEF, a children's creativity workshop will be organised by SRISTI supported by GIAN and NIF to highlight the role of children in identifying the unmet social needs and also attempting solutions to address them. The Children as researchers is a novel concept developed by the Honey Bee Network to use their spontaneity, empathy and simple minded approach to go to the bottom of a problem without much hesitation or ambiguity. It is too early for them to learn the art of obfuscation. The report provides examples of many innovative solutions developed by children to the problems that our generation had observed but done nothing about. If we can imbue a problem-solving attitude at an early stage, it is possible that future leaders of our society will not have so much inertia as our generation has shown and will be less tolerant of social inequity and injustice.

## March 8, 2017 - Meeting of National Innovation Clubs and interaction with grassroots innovators and entrepreneurs

The innovation clubs at different universities/colleges/institutions/schools, where the President is a visiting scholar, will share their achievements in promoting innovation within their campus and outside. This will be followed by a posters exhibition of outstanding achievements by these clubs and best technology business incubators (TBIs).

This time the representatives of the various institutions of higher learning will be Having group discussion for an hour about lessons they wish to share about searching, spreading and celebrating grassroots innovations. They will also share how did they sense the unmet social needs and tried to solve them.

Later two case studies will be presented, one by NIF and SRISTI team about the way a group of students worked together to fabricate solutions to various persistent problems of tribal communities and urban slum dwellers. Another example will be of the way an idea of a child was converted into a commercializable product.

Second case study will be presented by a faculty team from IIT Kanpur about

how they identified a problem of weekly change of horseshoe of horses carrying load in the carriage as a problem. How did they do material science research to find the right affordable material to extend the life of horseshoe to a month. They trained the local forging and fabricating communities and created a viable small enterprise managed by the community members.

## March 8, 2017 - Meeting of Design Innovation Centres (DIC) and design spokes for design inputs in grassroots and student innovation

A meeting of Design Innovation Centres sponsored by MHRD in different institutions of higher learning will be organized on the 8th to forge close partnership between grassroots innovators and design centres.

DIC supported by MHRD has enabled many institutes/universities to have active courses/activities in the space of design and innovation where students come up with proof of concept and functional prototypes/solutions to societal problems. The next challenge is to take these innovations forward to make them market ready products/solutions such that benefits of these efforts reach people/society. Keeping this in mind the roundtable is focused on journey of

social/grassroots innovations beyond prototype.

A discussion on the journey of social innovations from different institutes/universities which have reached people/society is envisaged as a part of this roundtable.

- Immersion in user environments to address the need; importance of co-creation of solutions involving beneficiaries and other stakeholders.
- Inter-disciplinary nature of social innovations and how to bring technology, design, social sciences and management inputs through partnerships and collaborations.
- Financial and physical resources required for long journey from idea to market.
- Addressing dual challenges of social impact and financial sustainability.
- How to address more such innovation as curricular activity and associated pedagogical challenges.

## March 9, 2017 – Roundtable for In- novations in Med- ical Science and Bio-Technology for grassroots applica- tions

Indian Council of Medical Research (ICMR), BIRAC, Department of Bio-technology (DBT) and NIF will recognise and reward the innovations in medical and biotechnological science having grassroots applications.

In the afternoon, a meeting with senior scientists engaged with sustainable agriculture and Natural Resource Management will be organized to discuss ways of scaling up grassroots rural innovations.

A roundtable on “A Sustainable, Multi-stakeholder Approach from Research to Technology [SMART] - Increasing Healthcare Reach” would involve deliberations of the panel on “Creating Ecosystem for Innovative Medical Technology initiative (IMTI): bringing Multiple Stakeholders together for An Industry- Academia collaboration”. This will help be a step towards using technology to provide healthcare to our rural areas.

## March 9, 2017 – Roundtable on sus- tainable inputs for agriculture

Enhanced agricultural productivity is of paramount importance for ensuring human food security and for sustainable farming ecosystems. Agricultural mechanization, improved seed material and crop protection have played major role in constant production of food and other sustenance. The awareness among farmers and users regarding the use of affordable technologies particularly evolved through value addition in grassroots innovations needs to be increased. The researchers and entrepreneurs are also concerned about a more supportive environment so that more and more innovative technologies could reach the market in time bound manner. In round table, there will be the discussion on blending of grassroots innovations with modern science. The discussion will help in developing the roadmap to design policies related to popularization and use of simple, user and ecofriendly affordable technologies for farmers. The reduction of chemical inputs to move towards organic and sustainable agriculture will also be pursued.



## March 10, 2017 – Roundtable on Fi- nancing of Innovation based Startup and Early Stage Ventures, NIF, NIDHI-DST, AIM, SIDBI and NA- BARD

There has been a very appreciable spurt in the policy support for young startups in different sectors. A large number of e-commerce or agriculture based platforms managed to get venture capital support in the last few years. Some of them have succeeded while many have failed. This is not surprising. What should cause concerns to policy planners and leaders of risk capital community is that much of the finance comes at far late stage in the cycle of enterprises. A large number of technological ideas get aborted before becoming products or services. We have to ask ourselves a question whether the policy and institutional arrangements for financing of innovation based start-ups needs some change or modification.

National Initiative for Developing and Harnessing Innovations (NIDHI) is an umbrella programme conceived and developed by the Department of Science & Technology, Government of India, for nurturing ideas and innovations (knowledge-based and technology-driven) into successful startups. The programme would work in line with

the national priorities and goals and its focus would be to build an innovation driven entrepreneurial ecosystem with an objective of socioeconomic development through wealth and job creation. NIDHI aims to nurture start-ups through scouting, supporting and scaling of innovations. The key stakeholders of NIDHI includes various departments and ministries of the central government, state governments, academic and R & D institutions, mentors, financial institutions, angel investors, venture capitalists and private sectors. NIDHI is developed keeping in line the new national aspirations and on the basis of DST's experience of three decades, in promoting innovative start-ups. Department of Science & Technology, Government of India, has established 110 Technology Business Incubators all over the country. There is a concerted effort by the Government to scale up the incubators both in numbers and in quality of services that they provide. There is a need to bring in a culture of entrepreneurship in the academic and R & D institution to help knowledge to get converted into commercial products and services. For the incubators to scale up it is important to develop a pipeline of good quality ideas and innovations, have a sound management team, provision of good infrastructure and services, qualified and experienced mentors and availability of initial seed capital. India would also like to learn from the global experiences in this regard.

In a country with at least a million technology students passing out every year, unless we invest in at least 10 – 20000 ideas every year, we are unlikely to make a major breakthrough. The current level of financing of innovation based start-ups may be about a couple of thousand

tech based start-ups every year. How do we increase the appetite for innovations in the public and private financing institutions? Simultaneously, how do we encourage technology students to choose a risky path of entrepreneurship with liberal investment in worthy ideas. With almost 200,000 projects pooled by [techpedia.sristi.org](http://techpedia.sristi.org) platform over last decade, our experience shows that there is a major funding gap for promising students ideas. The participants in the Roundtable will explore various ways in which transaction costs for innovators, investors and entrepreneurs can be reduced drastically in the coming years. To what extent can fiscal policy can facilitate high net worth individuals to make personal investments in development and diffusion of small grassroots innovations or students projects. In the last two Roundtables, considerable stress was placed on banking system to use its vast network of economic actors to provide market and financial support to budding startups. The supply chain integration of promising innovation based startups and early stage ventures with the medium and large industry could be a game changer. How to diversify the search for incubation partners beyond academic institutions? While academic institutions provide intellectual leadership and institutional research infrastructure, in the absence of entrepreneurial faculty, they may always spot the talent at early stage. The involvement of innovation awardees in selection of future awardees tried by NIF in grassroots innovation awards and SRISTI in GYTI awards needs to be explored more widely. Some other questions that participants may like to explore are

- a) What kind of incentives can be provided to existing startups/entrepreneurs for helping other budding entrepreneurs
- b) How to create technology pools at each institution and cross institutional platforms so that if original student doesn't want to become entrepreneur, somebody else can take that idea forward. In many case of GYTI awards, we have to be flexible in permitting subsequent batches of students to pursue an innovative idea
- c) How to encourage faculty guides to let students get more credit and opportunity for taking ideas forward, particularly when the faculty concerned may not be interested in becoming entrepreneur
- d) How to invite industry to create open innovation and incubation spaces for mentoring the startups and even technology students in the related domain
- e) Risk averse faculty may not always promote entrepreneurial ventures. How to have diversified models of incubation with particular stress on in-situ incubation framework. By encouraging young people to move to large metropolitan centres, we will denude the rural areas and small towns of the future leadership potential. In the age of internet and cloud, it is not necessary that every entrepreneur necessarily stays in the incubator as stressed in the current policy
- f) Designing distributed and diversified models involving civil society, public and private sector besides academia is the need of the hour. [g] how to incentivize banking system to link their larger successful clients with the startups for mutual advantage, [h] how

to bring new financial intermediaries with much reduced entry and exit cost/load for investing in the new tech-based ventures

- g) How to combine grant, debt and equity model to encourage young people not to be afraid of failure at early stage and
- h) How to encourage failed entrepreneurs to share their learning across domains and regions. The access of technology based startups to existing labs without disturbing the ongoing research may help an emergence of more ventures.

Whether it is grassroots innovations or students-led enterprises or civil society created incubation platforms, we have to develop trust based flexible models of investments not only in ideas but also in institutional platforms. Responding to the need for innovation in evolving fresh financial instruments to support innovation, MVIF (Micro Venture Innovation Fund) was launched by NIF-India and SIDBI in 2003. It built upon the model GIAN had evolved since 1997. It implied providing risk capital to innovators under single signature without any collaterals and guarantee. Consequently, several hundreds of grassroots innovation based ventures demonstrate an ability to take to risk, generate jobs and in some cases reach global markets making G2G model come true (grassroots to Global). GIAN, the first incubator of the country witnessed exponential growth in some ventures. If we replicate this model, then perhaps we are likely to create jobs sooner, have the fundamentals of our economy further strengthened and build a reputation of being the biggest "source" of both open and IP protected extremely affordable

technologies for the rest of the world.

## Summing up:

I hope that this report of FOIN 2016 and agenda for FOIN 2017 will stimulate many creative ideas for collaboration between grassroots innovation movement in India and your institutions or ventures. I have to express my deep gratitude on behalf of the Honey Bee Network and NIF towards the Office of the President of India which has created an unprecedented innovation platform. I wish to thank all the officers who helped last year's FOIN led by Suresh Yadav and This year FOIN steered with the help of Shakil Alam. This could become possible only because of the guidance and constant encouragement from Ms Omita Paul, Secretary to the President of India. If you find FOIN 2017 even more meaningful and purposeful then a lot of credit for that goes to the support by the Office of the President.

I must not fail to thank my colleagues who have helped in putting together the entire FOIN under the leadership of Dr Vipin Kumar, Director and Chief Innovation Officer, National Innovation Foundation-India.

The design and layout of the report has been designed painstakingly by my colleague Anamika R Dey, Chief Innovation Manager and CEO of GIAN with the support of NIF, SRISTI and IIMA team. Unnikrishnan and several other colleagues including Vandana, Tushar and Chetan helped in accessing photos and other material.

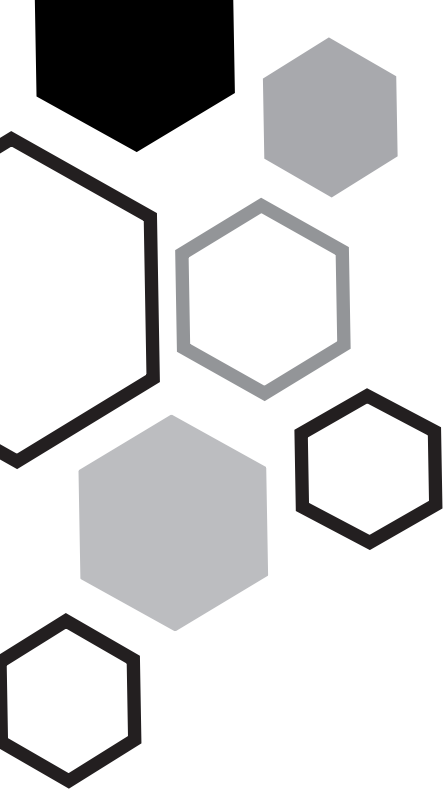
There may be many shortcomings still in the report for which blame should go to me. I thank Dr R A Mashelkar, Chairperson, NIF, Dr Ashutosh Sharma, Secretary, Department of Science and Technology and all other members of NIF boards, Honey Bee Network volunteers, collaborators and team members for making the FOIN such a credible voice of creative people of *country*.

Anil K Gupta  
Founder, Honey Bee Network and  
National Innovation Foundation,



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Day 1: March 12, 2016

# G RASSROOTS INNOVATION EXHIBITION



The celebration of grassroots innovations at Rashtrapati Bhavan empowers creative communities in a manner that was never tried before in the history of the country. The second week-long (March 12-19) Festival of Innovation (FOIN) was inaugurated on March 12, 2016 by the Hon'ble President of India, Shri Pranab Mukherjee, at Rashtrapati Bhavan.

The festival brought the nation's attention towards the untapped potential of knowledge-rich, economically poor people. India is perhaps the only country where the

head of the state hosts such a festival at his house. The President's secretariat was assisted by the National Innovation Foundation (NIF), an autonomous institution under the Department of Science and Technology (DST), government of India, Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI) and the Honey Bee Network.

The President inaugurated the exhibition of grassroots innovations and was accompanied by Dr Harsh

Vardhan, union minister for science & technology and earth sciences; Dr Najma A Heptulla, union minister for minority affairs; Prof Ashutosh Sharma, secretary, DST; Dr R A Mashelkar,

“Unless young minds are sensitised to the need for finding creative solutions to top-ranging socio-economic problems of our country, the goal of inclusive development will remain elusive.”

- President Pranab Mukherjee.



**The celebration begins:**

**The Hon'ble President of India inaugurating the Festival**





chairperson, NIF and Prof Anil K Gupta, executive vice-chairperson, NIF.

Mrs Omita Paul, secretary to the President, welcomed the guests and highlighted that the programme was expanded this year to include innovation scholars, writers and artists in-residence from across the country.

FOIN saw a wider participation this year, both nationally and globally. A total of 65 grassroots innovators exhibited their innovations, which also included newly-developed crop varieties by farmers. More than 85 innovation clubs participated from various universities across the country. Seven innovation scholars, two artists and two writers were hosted by the President at Rashtrapati Bhavan for two weeks, as part of FOIN 2016.

Dr Mashelkar remarked that 1.3 billion people of India represent 1.3 billion minds and we should undertake efforts to tap good ideas from the grassroots. He added that no other country has championed the cause of innovation like India, where its President has opened his residence to innovation scholars, artists and writers in-residence. He remarked, “Minds work best when open, akin to a parachute.”

Following the inauguration, the President interacted with the innovators and saw their innovations. The festival had

global roundtable conferences and sessions, spread over a period of six days, and a meeting of national innovation clubs to deliberate on the progress and future plans of innovation projects in India.

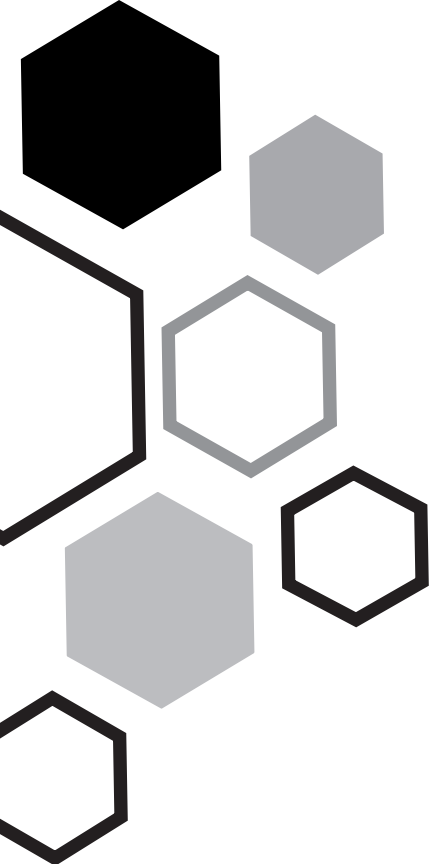
Nobel Laureate Shri Kailash Satyarthi and other distinguished thinkers, policymakers, academicians and entrepreneurs, national and international, attended the conference.

Mrs. Paul narrated the genesis of FOIN and said, “In 2013, the President met the vice-chancellors of various central universities. During the meeting, he shared the need for triggering an innovation movement in India. This idea was followed up with the directors of Indian Institutes of Technology (IITs), National Institutes of Technology (NITs) and other central & state universities. This also led to a detailed discussion with Dr R A Mashelkar and Prof Anil K Gupta. The discussion laid foundation for a seven-day event that would include discussions and debate to generate new ideas and tap the potential at grassroots.”



Mallesham was conferred Padmashri in 2017





# ROUNDTABLES



Global Roundtables on

(1) Inclusive Innovations;

(2) Leveraging Science, Technology and Innovation: Developing an Inclusive Ecosystem; and

(3) Education for Inclusive Innovation Development

&

Rapporteurs' Summarisation on Global Roundtable on Inclusive Innovation to the Hon'ble President

**G**rowth by itself is not sufficient to ensure that the benefits reach all sections of the society. But, without growth there will not be enough resources available to invest in inclusive innovation for dissemination through social or commercial markets. Many countries have overcome the constraints coming in the way of achieving a sustainable and balanced economic development. They have alleviated poverty and expanded opportunities for the disadvantaged citizens. India is evolving a new blend of entitlement and entrepreneurial choices in public policy. Frugality in consumption and lifestyles, sustainability in production, distribution within circular economy framework and harnessing the entrepreneurial aspirations of the youth

have become a few major pivots for future development.

The global roundtables were organised to learn from the experience of those countries, which have achieved outstanding success in mobilising innovative solutions for various social challenges through educational, technological, institutional and cultural creativity. Indian experience, in addressing similar challenges, was also shared. Perhaps, there is no universal solution to these challenges, but learning from the strategies used by different countries, a universal, open, reciprocal and responsive innovation platform can definitely be developed.

The global roundtable on inclusive

innovation tried to create such a platform. Distinguished thinkers, policymakers, academicians and entrepreneurs were invited to the roundtable. Key lessons were shared in presence of the President in the evening.

Innovations become inclusive by overcoming asymmetries and imbalances at spatial, sectoral, temporal, skill and social levels. Innovations that augment the underutilised resources, skills, cultural institutions, educational platforms and bypassed opportunities in disadvantaged regions help in bringing out a more balanced development. Every niche in the long tail of innovation needs to be addressed. Every genuine social need, left unmet, might sow the seeds of discord, cause alienation and in some

Some of the questions pursued at the roundtables were:

- a) What are the key lessons that one can learn from the experience of countries, which have done so well in achieving development through innovative policies and institutions in science & technology (S&T) and other sectors?
- b) Are there strategies which have not yet succeeded in overcoming the challenges but are trying to fill the gap or address the challenges and thus need to be looked at critically?
- c) What lessons can be learnt from emerging economies and less-developed countries which may have achieved success in fulfilling social aspirations in certain priority sectors if not the entire spectrum of economic policies?
- d) Are there innovative models of collaboration between the public, private and social enterprises, to serve a particular target group or address a particular persistent problem?
- e) How policies can address the issues plaguing innovation?

It was noted that inclusive innovations are relevant across countries no matter what their level of economic development is. A total of 10 roundtables, including a meeting of the national innovation clubs, were held as part of FOIN 2016.



cases, might even disrupt the social order and peace. Extremely affordable, frugal, circular and thus sustainable innovations for inclusive development are imperative for future peace and order in the world.

India, being a youthful society, has to rapidly unfold the entrepreneurial potential of our society. The global roundtable discussions, held on March 12, focused on three perspectives: (a) Inclusive innovation; (b) Leveraging science, technology and innovation in developing an inclusive ecosystem; and (c) Education for inclusive innovation development. The three sessions were chaired by Shri Suresh Yadav, OSD to the President; Dr Girish Sahni, director-general, CSIR and secretary, DSIR, India; and Dr Trilochan Mohapatra, director-general, ICAR, India.

The participants were from Cuba,

South Africa, France, Israel, Denmark, USA, UK, Hong Kong, China, Canada, UAE, Kenya, Berkeley and India. They represented at the highest level, a variety of organisations such as universities, non-governmental organisations (NGOs), national and state government departments, research institutes and UNICEF. (See the list of participants in the appendix).

## GLOBAL ROUNDTABLE ON INCLUSIVE INNOVATION

Inclusive innovation is an alternative model of innovation that addresses the needs of those excluded from the

fruits of mainstream innovation. The marginalised groups include women, youth, the disabled, ethnic minorities, informal-sector entrepreneurs and those with low levels of income, all part of the very large informal sector of developing economies. Inclusive innovations are not only research and development (R&D)-based innovations, but also innovations based on community practices, and social & business innovations. The concept is relevant to all economies, but inclusive innovation for development is imperative globally. The economic and social divide between the formal and informal sectors of developing economies has remained quite large in many developing countries despite various innovations in the past. The roundtable participants discussed the need for inclusive innovations and accelerated growth. Three key steps to boost innovation were identified:

speed, scale and sustainability. The requirement of policy changes to address the issues plaguing innovation was also sensed.

Grassroots are at the pyramid of innovation and, for a very long time, we have been only looking at the tip of this pyramid. The budget for start-ups, incubation and innovation has risen by 600 per cent in Budget 2016 which shows how the government, too, feels the need for innovation.

Prof Ashutosh Sharma remarked that we need to enable a leap from science to translational science and from translational science to technology and finally, from invention & science to technology in order to fuel the innovation movement in India.

Shri Amitabh Kant, CEO, NITI Aayog said India's key challenge is to rapidly grow. "Growing at about 7.5 per cent, there is an oasis of growth in the midst of a barren landscape. To meet this challenge, India needs two key things:

(a) Drive manufacturing sector so that we can create large-scale jobs; and (b) In the next four decades, India must recycle waste and offer low-cost public transportation."

And this, said Kant, is not possible until we innovate. He added that mobile telephony and biometry are key to innovation in India. Also, there are many start-ups but the challenge now is to spread them to Tier-II and III cities.

Prof Anil K Gupta remarked how *srijansheelta* (creativity) roots from *samvedana* (compassion) and concluded the session by providing an overview of the remaining roundtables

"We need to give a huge push by putting the entire ecosystem together, including the venture capitalists and angel investors. All Indians must become job creators and not job seekers." ~ Shri Amitabh Kant, CEO, NITI Aayog



and the topics of discussion they would

"In India, the head of state is driving the movement of innovation. To see such commitment I want to first thank Honourable President's office for starting this movement, which crosses the shores of the country." ~ Dr R A Mashelkar, chairperson, NIF





cover.

## GLOBAL ROUNDTABLE ON LEVERAGING SCIENCE TECHNOLOGY AND INNOVATION

Developing an Inclusive  
Ecosystem

Innovation should be inclusive  
of starting with basic research  
from laboratory, completing the  
innovation chain and going to the

field. But, a sustained financial resource is critical. Mentoring and nurturing of young minds at every stage is important. In Cuba, the role of India in creating opportunities is recognised.

The idea of social inclusion, equity and social equality has been considered as important. An initiative by Cuban teachers, known as 'Yes I Can' literary programme, a method for educating the adult, was mentioned. To date, this method has been used in 29 nations,

enabling over six million people to develop basic literacy. In South Africa, there is a need for appropriate policy instruments. There is a need for equality in both access and availability. The approach should be systems-based. Not just setting up of projects, but also the courage to monitor what we have put in place is needed. Any system that is introduced needs to be monitored and examined at regular intervals to see if it is having a positive progressive impact or not. Hence, impact assessment is vital. Institutional



mechanisms and structuring is critical while setting up innovations.

Government and business, on a whole, cannot achieve completion of innovation. The private sector also has a role to play. They can be providers too.

Dr Yoslan Nur, programme specialist, division of science policy and capacity building, UNESCO, France said innovation is not only for competition but also for cooperation. He highlighted how UNESCO facilitates and promotes innovations in three axes:

- (1) Creating inter-religion innovation ecosystem among innovation creators, government, industry, academia and social sector;
- (2) Encouraging knowledge-based small & medium enterprises (SMEs) through capacity-building activities at international level, providing assistance to innovators and setting up incubators for them, piloting projects; and
- (3) Supporting grassroots innovations for social inclusion.

He added that UNESCO needs India's help in this.

Also suggested during the interaction was the fact that interaction between research firms and universities is the key to innovation. Shaping and reshaping of these interactions will also shape the movement of innovation. The government should search institutes and universities of higher education and formulate national innovation strategies at system level immediately. Denmark, for instance, has a national innovation fund which propels innovation projects in 20 strategic research areas. Apart from this, the need for more analytical apparatus to look at different dimensions of innovation cannot be undermined.

Shri Anindya Chatterjee, regional director, Asia International Development Research Centre (IDRC), India observed that science and technology can overcome national boundaries. He suggested that firms in one country should be connected with international universities to drive innovation globally.

Mr Amit Phadnis of Cisco Systems, India said digitisation creates a lot of opportunities across society. When digitisation reaches the grassroots level, every consumer is given an opportunity to become a developer or a businessman and this improves people's life. He added that opportunities like healthcare and education should reach the





grassroots through digitisation and that is what Cisco is presently looking at. Digitisation as a mechanism will prove to be an equaliser in the society where consumers would then become providers and the sink could become the source.

A crucial suggestion that was put forward during the discussion

“The youth should be focussed upon, both in schools and colleges, and the ones out of institutions too.” ~ Dr Nonhlanhla Mkhize, chief director, S&T for social impact, DST, South Africa

was that innovators should be mentored and should go through a boot camp or something on similar lines so that they can be made aware of their intellectual property rights (IPR), market challenges and possible solutions to tackle them. They should be taught how to write technical papers and be supported with material. This would improve quality in their innovations as well as work. There is a need for bringing together the people who are perfect in their field and have them work on projects positively. A collaborative approach would be more useful not only for grassroots but all sorts of innovation. This would help bring them from crude to refined phases.

Another important suggestion was that school education should teach and rate students on parameters of thoughts and ideas, and not just on marks in tests. This would cultivate the sense of innovation in them.

Meenakshi Sharma, scientist, ICMR, New Delhi observed that



“We should take up some directed missions, at least in the healthcare area. An important issue that needs to be addressed is the area of diagnostics. Early diagnosis of disease and involvement & training of women is utmost important.”

~ Dr Manju Sharma, former secretary, Department of Biotechnology



“We challenge everything and everybody. India and UNESCO should cooperate to collaborate and have the best of both the systems.” ~ Dr Yoslan Nur, programme specialist, division of science policy and capacity building, UNESCO, France

modern medical technology is being taken to rural population by various programmes. Developing critical manpower fellowship programmes for women scientists is important. She added that ICMR will make all the efforts and invest its resources in achieving sustainable results.

“When digitisation reaches the grassroots level, every consumer is given an opportunity to become a developer or a businessman and hence this improves people’s life.”

~ Mr Amit Phadnis, president, engineering & India site leader





India aspires to raise its innovation quotient for which it should count on youth, entrepreneurs, start-ups and small and medium enterprises (SMEs). Awards at FOIN could provide linkages to international programmes and scale up robust ideas to help society at large. All the participants supported the need for more programmes on the lines of BRICS Young Scientist Forum (BRICS-YSF), talent hunt, BRICS Multilateral Cooperation Agreement on innovation and pan-BRICS innovation core. They discussed how science and technology could aid inclusive innovation across sectors. That we must focus on youth, both in schools and colleges, and the ones out of institutions too, was felt important.

“Developing critical manpower fellowship programmes for women scientists is important and ICMR will make all efforts and invest its resources in achieving sustainable results.” ~ Meenakshi Sharma, scientist, ICMR, New Delhi



## GLOBAL ROUNDTABLE ON EDUCATION FOR INCLUSIVE INNOVATION DEVELOPMENT

The participants discussed the role of education in shaping up inclusive innovation ecosystem. It was noted that very few innovation policies are close to education development and hence, a need to have citizen-driven innovations along with the tech-driven ones, to bring about change, was sensed.

Daniel Couture, chief information officer, UNICEF, the co-chair and keynote speaker for the session, praised the efforts of SRISTI, an NGO founded by Prof Anil K Gupta, for doing a lot of work in scouting and documenting innovations. With new innovations and technology, every field is beneficial in its adoption. Information and communication technology (ICT) has enabled Right to Free and Compulsory Education Act to be implemented well. He mentioned a programme -- By Youth, For Youth (BYFY) -- which gives access to free incubator, provides funding, equipment and learning opportunities through mentorship. These kind of programmes are breeding grounds for many success stories and hence need to be replicated. The delegate from UK Higher Education observed, for the past 10-15 years, the university has been focusing on



“Innovation is an attitude and approach that needs to be built right from the beginning of education. For innovation to be sustainable, the suggestions have to come from the people’s side else the innovation reduces to a business model.” ~ Sharad Shapra, director, UNICEF Global Innovation Center

helping students inculcate skills needed for postgraduate opportunities that help students gain not just knowledge, but also fly high. She added how in UK they have many opportunities for students to learn beyond boundaries by making connections between education entrepreneurship and innovation ecosystem, which could provide solutions.

Lamenting over the fact that very few innovation policies are close to the education development, the delegate from Hong Kong said: “We need to ask ourselves a question on how well

are our innovation policies framed. We need to have citizen-driven innovations along with the tech-driven ones to bring change.” She suggested a 4-D model of innovation that needs to include: (a) Citizens, (b) Technology, (c) Public & private players, and (d) Innovators.

During the roundtable it was suggested that innovation is a means to an end but we need to see if the end is accomplished positively too. We should teach our kids to accomplish the solutions they suggest. Until the innovators realise that they are





accomplishers too, the vision won't actually materialise. We should give them permission and tools and show them ways to accomplish. Half the world is under 25 years of age and we need to tap that "half of the world" for making innovation achievable.

A crucial point raised during the talks was that problems exist within our education system. The nature of delivery in access of basic education in rural communities and basic necessities suffers from high levels of corruption. Knowledge is useless until it flows and we must make efforts right from the school to tap the correct innovation potential of India.

Prof P V Madhusudhan Rao, faculty at IIT Delhi, laid out examples from his institute. He said a lot of innovation happened not just from one side, but

also from the users' side. They have a course that enables students to sit and work with end-users. To reach and work for the bottom million of the

population is the crux of the course, which accommodates 40 students per semester. He asserted on the need to replicate such a course in other universities.

The participants felt it is important to talk about legal education and reforms in the context of innovation ecosystem. There is a need for structured laws on innovation, IPR and competitions policies. The innovators should be given legal training to eliminate any kind of policy misuse.

The discussants observed that thousands of products are supported by government programmes and yet turn out to be a failure in terms of reaching the market for common people. There are loopholes in procurement policies. Also, there is lack of confidence from the financiers that





the innovations will do well in the market. These are some roadblocks that need to be eliminated.

The most important takeaway from the session was that we must teach our kids to not just suggest solutions to problems but also accomplish what they suggest. The participants emphasised that innovation is an attitude and approach that needs to be built right from the beginning of education.

## **RAPPORTEURS’ SUMMARISATION ON GLOBAL ROUNDTABLE ON INCLUSIVE INNOVATION TO THE HON’BLE PRESIDENT**

Following the three roundtables, a summary was presented to the Hon’ble President Shri Pranab Mukherjee. Dr R A Mashelkar remarked, “There is large diversity in people across the table but science and technology to the innovators’ aid found the common connect.”

Prof Anil K Gupta and Dr Jayant Sathaye, founder of the International Energy Studies Group at the Lawrence Berkeley National Laboratory and visiting professor at University of California, provided a summary of the global roundtables. The suggestions put forward were as below:

- (a) We should not only listen to the voices of children but also give them a sense of accomplishment.
- (b) We should harness the creative potential right from school, upwards.
- (c) It is not enough to just reward innovations. Unless the ideas are implemented, rewards cannot sustain the movement.
- (d) Many developed and developing countries must learn from grassroots innovations.



(e) Innovation culture is essentially a change of attitudes.

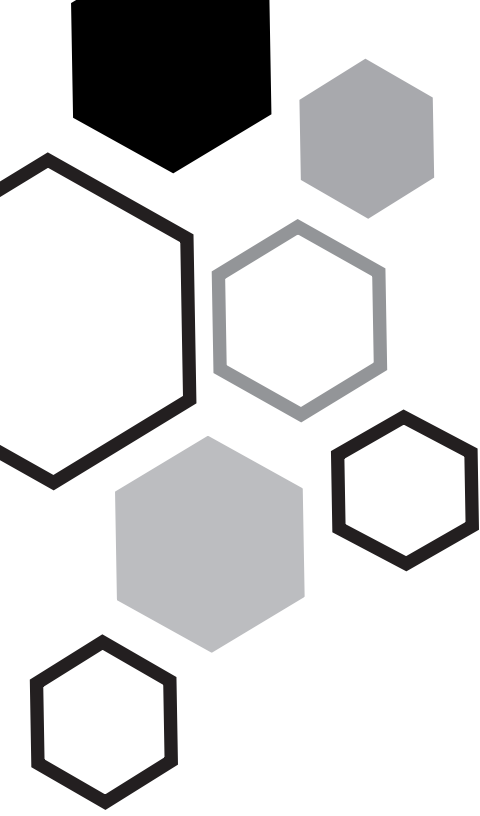
Science and technology can be leveraged upon to put innovations from grassroots on the global map. To reinforce his point, Professor Sathaye mentioned that while it took 30 years for three billion people to be connected to the internet, it will take only three more years to bring another three billion online.

The President acknowledged the suggestions and said that a culture of innovation and entrepreneurship needs to be institutionalised as part of our socio-economic ecosystem. “Policymakers in India are confronted with the challenge of boosting economic growth while at the same time making it socially inclusive. Innovation is a driver of income growth. We, therefore, need to focus on inclusive innovation projects which are initiatives that directly serve the welfare of lower income and excluded groups.” Highlighting the importance of the entrepreneurs’ role in the economic development of the country, he added that successful entrepreneurs innovate, bring new products and concepts to the market, improve market efficiency, build wealth, create jobs and enhance economic growth.



“UNESCO commands India’s innovation measures and suggests it take the lead and show other nations the way forward. Partnering with BRICS and ASEAN can go a long way in tapping the right potential.”

~ Dr Jayant Sathaye,  
founder, International  
Energy Studies Group  
at the Lawrence  
Berkeley National  
Laboratory and visiting  
professor at University  
of California



Day 2: March 13, 2016

FOIN

# MAINSTREAMING YOUTH

Rashtrapati Bhavan, New Delhi March 13, 2016



Gandhian Young Technological Innovation (GYTI) Award 2016 ceremony, followed by Global Roundtable on Inclusive Innovation, Incubation & Acceleration Models for Innovative Start-ups

Global Roundtables on (1) Innovation and Skill Development; (2) Incentives for Innovation in Public Policy & Programmes; and (3) Social Innovations for Large-Scale Change; and (4) Break-away Session: Group Discussion and Recommendations by four break-away groups of Roundtables

Cultural programme (Kathak performance by Aditi Mangaldas and her troupe)



## GANDHIAN YOUNG TECHNOLOGICAL INNOVATION (GYTI) AWARD

The GYTI Awards, organised by SRISTI with support from Biotechnology Industry Research Assistance Council (BIRAC), were held on March 13 at the Rashtrapati Bhavan. The award is an initiative to foster youth-driven innovations across India. These awards celebrate the spirit of Mahatma Gandhi and the spirit of student innovation in the fields of engineering, science

and other applied technologies. The panellists were Prof Ashutosh Sharma; Prof K VijayRaghavan, secretary, Department of Biotechnology (DBT); Dr Renu Swarup, chairperson, BIRAC; Dr R A Mashelkar; Prof Anil K Gupta; Dr Vipin Kumar; Mr Ramesh Patel, secretary, SRISTI and Mr Nirmal Sahay, chief coordinator, SRISTI.

SRISTI had received more than 2,363 entries from 50 technology domains of 272 universities of 26 states. Of these, 43 teams were given awards and appreciation at the ceremony. 15 students were awarded with ₹ 15 lakh each by the DBT while 100 students were awarded ₹ 100,000 each for their ideas.

Professor Gupta welcomed the students and their parents. He said, **“The ecosystems that we have created of innovation across the country must traverse all the way to children at the grassroots.”** He appealed to the winners to join hands with grassroots innovators and see where value can be added to their innovations. **“It is very important for us that these awards don’t become the end, but the beginning for students to become entrepreneurs.** This is an important occasion because there is a hope that all students present here will eventually join hands with grassroots



innovators and that there will be a fusion of young tech-friendly minds with grassroots ideas, currently displayed at the exhibition. These innovators will be the stars of our society in the times to come,” he remarked.

Dr Nirmal Sahay announced the awards, following which Dr R A Mashelkar addressed the attendees. He called the awardees “blooming flowers of innovation gardens”.

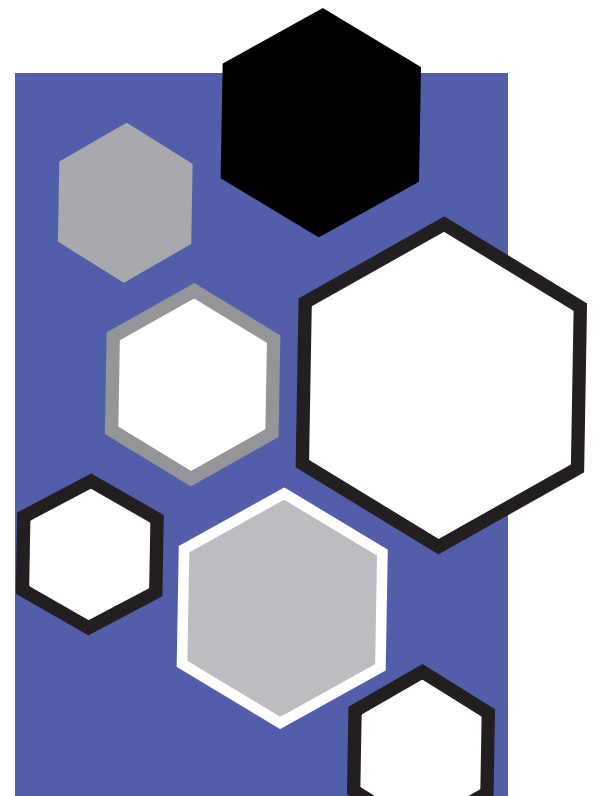
Prof Ashutosh Sharma congratulated the awardees and said: “Invention and innovation must go together. Invention converts resources into knowledge. It is not complex as innovation, which is the reverse -- it takes knowledge and converts it into something that is

resourceful to the society.” He added that process and the tools of attaining what we do are very important and on many occasions the process is its own reward.

Dr Renu Swarup added that BIRAC has been nurturing innovations for the last couple of years, but this experiment with SRISTI has been the most rewarding.

The dignitaries then unveiled the GYTI 2016 handbook, a compilation of all the awarded innovations. While proposing the vote of thanks, Professor Gupta asked the awardees if they can pool all the thesis — 190,000 projects from 600 institutions that SRISTI has — so that young minds of the country

can be mapped to ensure that the originality quotient of India goes up tremendously.





## GLOBAL ROUNDTABLE ON INCLUSIVE INNOVATION INCUBATION & ACCELERATION MODELS FOR INNOVATIVE START-UPS.

Following the award ceremony, global roundtables continued, which discussed solutions for developing inclusive innovation, incubation & acceleration models for innovative start-ups. The participants discussed about the lack of scalable models for start-ups and

innovations in India. Three levels were identified for scaling up of innovation projects – (a) Curation, (b) Mentorship, and (c) Brokers/agents. These three stakeholders should come together and create an innovation bazaar, said Shri K VijayRaghavan.

The delegate from Finland said, focus on networking is very important and we can leverage knowledge across the globe in achieving it. It will help improve the innovation quotient. She suggested that universities should incentivise teachers to inculcate innovation. Similarly, universities themselves should be given incentives to include innovation in their curriculum. Creating mobility programmes to allow movement of innovators is important. Also, international incubator partnership programmes were cited as effective measures to facilitate innovation.

Internet-based services to innovators' aid is the area of prime focus, including Smart Cities, said Dr Phil Beecher, chairman, Wi-SUN Alliance, USA. His suggestions included providing access to big data repository as this would accelerate start-ups. A collaboration between industry, universities and start-ups, he added, will give a major boost to innovation projects.

Other solutions like models be changed from formal channels to including social media and NGOs as it would help increase penetration were suggested. Mixing grants with loans for innovators and including business school professors to incubate more and more start-ups was also seen as a viable solution.

The focus should shift from having





ideas to turning them into products. As one person doesn't know everyone, we should be open about issues and create a network to develop solutions. A system should be enabled to keep on augmenting these networks. One of the challenges with innovation is scaling up. The models should be changed from formal channels to include social media and NGOs which would help increase the penetration.

Vishal Gondal, founder & CEO, GOQii said: "Start-ups and innovation is missing the Indian link.

We tend to look at West for problems and their solutions. Focus should shift to Indian problems and creating solutions to address them." He suggested we should focus on co-creation, by

spending time in government hospitals or departments and understanding the lacunae.

Mr H R Dave, deputy managing director, NABARD said his organisation has been supporting innovation by making a fund through which they mix grants with loans for innovators. This has brought an effective change. He said there are two major efforts in reforms presently: Startup India, Stand Up India and these should be leveraged upon completely.

"We are going to provide resource centres at district levels so that there is no limitation for innovators in terms of resources," he added. NABARD has started engaging farmers and their kids to improve the acceptability of the innovation models. It has also started

working with the NGOs to involve more farmers and their families to become a part of such initiatives.

One of the discussants suggested that business school professors should be compelled to incubate start-ups and if need be, invest in those companies. Corporations should try to create exit barriers by providing large money for salaried role than entrepreneurial role. The model of Hindustan Times, where they invest in ideas and take it to product stage, was quoted as an example.

Element of trust is also diminishing within enterprises to promote and share innovation. There is nothing like hi-tech or low-tech models.

The delegate from China said the quality and performance of the whole

process of innovation is important and suggested we should focus on developing Indo-China partnership and focus on quality and efficiencies. The representative from Microsoft Ventures, India mentioned that Microsoft has helped 8,000 start-ups in India. They have a deep engagement with 120 start-ups through partnership models. He said, for start-up and innovation, revenue and business model is broken at their firm and that becomes a challenge in thriving the ecosystem. By helping Atal Innovation Mission, a government's initiative, to scale up, they are building a start-up ecosystem in India.

Schools and colleges should focus on individual excellence. In real world, success comes through working in teams whereas the present education model in India creates fear of failure among students. Concept of major and minor in West should be adopted in India too. Ideally, angel investors and venture capitalists (VCs) should be involved in coaching/incubating innovations instead of depending on academicians. There is no system in our innovation policies where teams can work towards achieving success. Also, we need an educational system that can measure people for their practical output. The change should be brought about right from the school education system. Incubator systems need to be put in all institutions and not just IITs and IIMs.



## GLOBAL ROUNDTABLE ON INNOVATION AND SKILL DEVELOPMENT

Unless we don't skill people, we won't be able to take innovation forward. With this vision, the participants discussed various skill development mechanisms. The role of institutions such as Industrial Training Institutes (ITIs) was considered as key to promote innovation. The need to leverage on demographic dividend

Mr Uriel Richman from Interdisciplinary Center (IDC), Herzliya, Israel highlighted the role of innovation in integrating benefits within the society. He said an entrepreneur is the one who does things differently, with a conviction, and takes a stand that may not be accepted by all. Challenges of the 21st century are global and need more concerted approach in sharing information. "Technology advancement



was also sensed. Apart from this, openness to interdisciplinary streams, diversity in hiring people and creating flat organisations (an organisational structure with few or no levels of middle management between staff and executives) were identified as key to setting up successful entrepreneurship ecosystem. A participant remarked how our focus should be on transforming mice (small and micro enterprises) to gazelle (medium-sized and agile).

can make a difference in the area of manufacturing and information. These tools can be used to develop models to skill and educate society for being innovative,” he added.

Mr R S Sodhi, managing director, GCMMF Ltd (Amul), India explained the Amul model: C2C – Cow-to-Consumer – and what steps have been taken across the value chain. He said there were challenges around creating milk powder from buffalo milk but innovations were used to solve these. They developed sustainable models by empowering nodal centres. “Amul invests in skill development for farmers and their kids in businesses related to animal husbandry. Skill development for women was also initiated by Amul in

the area of animal husbandry,” added Mr Sodhi.

Federico Zaragoza, vice chancellor, International Workforce development, Alamo College, USA informed that their college follows competency-based models in the academic curriculum as well as in the student evaluation mechanisms. Colleges provide customised training programs, based on industry needs. But, he suggested this training time should be reduced from 9 months to 12 weeks and the programme should be more focussed and organised.

Prof G D Yadav, vice chancellor, Institute of Chemical Technology, India said his institute has provided over 500 first-generation entrepreneurs, including Fortune 500 companies and many Padma awardees. He suggested the following steps that could boost the innovation potential of India:



- (a) The government must make it mandatory to have an Innovation Director on each company's Board. It should create talent scholarships or MT (Management Trainee) posts which can tap the correct potential.
- (b) Focussing on industry-engaged projects with emphasis on six-month industry internship
- (c) Creating different criteria of evaluation and recruitment for students who spend 80 per cent of their time on innovation
- (d) Providing tax incentives to faculty and students working on innovation models
- (e) Student should focus on live problems and practical issues
- (f) Videographing classes and allowing students to study at their own pace
- (g) Providing sabbaticals for faculty that focus on research. This can be started with IITs and other premium institutes.

(h) The Ministry of Science & Technology should be renamed as Ministry of Science, Technology & Innovation.

- (i) Students' attention span limitations must be taken into consideration while formulating curriculum mechanisms.
- (j) The practical classes should be based on running new experiments rather than repeating the old ones.

Prof Yadav also remarked that the government's job is not to create job but to create job creators.

The current target of the government is to impart skills to all Indians by 2022. This will be the largest target ever to be achieved by humankind. National Skill Development Corporation (NSDC) allocates resources to innovative ideas that can disrupt the current ways of

innovation systems. Leveraging innovation to creating skill trainers is one of the key focus areas for NSDC. Content generation on internet or simulation-based courses can provide tools to maximise the penetration of the skill development initiative. Awaiting the creation of physical infrastructure around schools, classes, etc. will lead to missing the growth opportunity. Mr Jayant Krishna, chief executive officer, NSDC stressed on the need to leverage demographic dividend. People at the bottom of the pyramid should be able to afford education. And, more important is to leverage innovation in the light of skill development.

The delegate from United Arab Emirates (UAE) said there are 22 different governments in the Arab region, which create barriers to information sharing. This may be good for the governments,



but for people, it minimises their opportunity to grow. They have an Arab Science and Technology Foundation (ASTF) model, which is recognised only when the idea is implementable. By using this model, entrepreneurs are incentivised to move from the idea to product stage. He added that we are in a time where we have to fire fight the situation in order to have socio-economic development, create jobs and innovate. Government officials follow norms because of fear of losing jobs. Hence, we need to pump in some entrepreneurial spirit in our departments.

In bio dynamics, genomics provides huge potential for India to create the KPO business. Large set of skills are required to interpret this data and create business around the field. It was discussed that we should never forget the market that we have in India. If we combine great ideas and skills that we have at institutions with the market potential, we can bloom like never before.

## **GLOBAL ROUNDTABLE ON INCENTIVES FOR INNOVATION IN PUBLIC POLICY AND PROGRAMMES**

The global roundtable saw participants discussing on how incentives boost innovation in public policy and programmes and why they need to be replicated.

Prof Ashish Nanda, director, IIM Ahmedabad, before opening the session for discussion, said public policies and programmes are tremendously important. When effective, they have enormous social importance and implication. He listed three aspects of public policy that are key to innovation: (a) Social impact and welfare; (b) Occurrence in environment of natural monopoly; and (c) Public policy delivery is often process-driven.

He also cited three aspects of innovation:

- (a) Competition, which creates an incentive to do your best;
- (b) Radical innovation has disruptive element to innovation — it creates a lot of radical innovation but also destroys existing structures; and
- (c) Innovation usually occurs with individuals who are willing to take risks.

Professor Nanda, however, shared that combining these two areas is challenging and the following mechanism can be followed: (a) Incentivising at micro level; and (b) Creating metrics for assessing the success of the delivery system in the public policy areas.

Visibility is a wonderful reward as recognising innovation is important. One should emphasise not only on innovation creation but also on its diffusion. Mr Stephan Bock of UNICEF Global Innovation Center, Uganda discussed about the solution on how to incentivise people to innovate. He said UNICEF has identified two key areas to incentivise innovation in public policy delivery: (a) Listen to what people have to say and acknowledge; and (b) Listen to what the government has to say and diffusing that information. When the government listens, people become empowered and the government also benefits. He added that UNICEF has created open-source mobile solutions that can be deployed in remote areas to collect and share information. Apart from this, UNICEF has focussed on encouraging innovation in children and building a global network of innovation.

The reason for lack of innovation in public policy is due to lack of incentives. In private sector, innovation is fundamental to their survival. In public policy, benefits of the actions are not associated with the entity which creates these policies. Being the natural monopoly, there is no incentive for government agencies. A mandate (to incentivise innovation) will not work. Incentivising is the only option. However, it's important to define innovation in public policy and create holistic approach to nurture innovations. Globally, of all the patents filed, 63 per cent have Indians in the team. Hence, it is not about people, but about creating a system and a culture of innovation.

There are big challenges as far as innovation in public policy programmes is concerned. One, the existing systems are designed for outcomes that are not clear. Hence, there is a need for a set of alternate guidelines that will support innovation. For this, we will have to keep time, energy and resources aside and support innovative ideas for experimentation in public policy.

There is a common view that identification is an elitist approach. Identifying children before the age of five years has created success stories in streams such as arts, dance, etc. However, this model creates differentiation at an early age and is thus not been encouraged. There are books to nurture challenged kids but not innovative kids, rather they are treated as nuisance.

Innovation is non-linear while the government thinks linearly. Hence, we should work on building more trust in the system. We should move from basic to high-end research in areas of science. Changing the incentive model for faculty from papers published



to number of practical problems solved was suggested. There is a global collaboration among seven countries to fund and encourage innovations. This collaboration is based on the public money but it does allow for start-ups to fail and yet not be penalised. There should be more of such funds.

Dr Rajendra Jagdale, member secretary, Maharashtra State Innovation Council told that their council struggled to operate as it was owned by the government. So, an autonomous body was created to resolve the issue. Policy decision to implement six per cent of the budget on information technology (IT) was taken. Latest policy guidelines also mandate to put some percentage of the budget for the innovation. He emphasised that innovation policy should be created across schools, colleges, research and development (R&D) facilities and mechanisms to implement and to measure the outcome of these policies should be formulated.

The delegate from Finland raised an important question: Why should we put public money in innovation activities? Economic research has showed that spending public money for structural changes have paid dividends in the long run. Finland government has identified three key initiatives that involve innovation in public policy: (a) Mobility as a service, (b) Energy storage, and (c) Daily healthcare. Finland also allocates some portion of funding on future technologies and provides soft loans to entrepreneurs.

Shri Venu Rajamony, press secretary to the President of India remarked, “If we



bring global experience that can be replicated across the country, there will be a lot of cross learning and those experiences could then be used to learn how to innovate.” On how public policy can nurture innovation, he said in cases where there is significant market failure, public policy can cover what the private players won’t. Also, he suggested that we should experiment with small ideas. “Instead of talking in terms of failures, the focus should be on what learning has been achieved through that failure. We need to move from ‘sunk cost’ mindset to ‘learning from failure mindset,” he said. He added that the focus of the Finance-Plus model, started by the ministry of finance, was to provide financial muscle, leverage the global network and then bring global expertise to implement ideas and create innovative products.

Other discussants added their inputs too. A noteworthy suggestion was that the teachers should not confine

themselves to the classrooms but should also implement projects outside classrooms.

Global Roundtable on Social Innovations for Large-Scale Change  
Shri Kailash Satyarthi, the Nobel Laureate, while addressing the roundtable, applauded and appreciated the initiative taken by the President of India to democratise knowledge by using museums in the majestic Rashtrapati Bhavan. He remarked: “India has been the land of innovation for ages and that’s why it has developed the society in such a way that allows people to live in harmony, while appreciating its diversity. Over centuries, our minds have become seasoned to think within the box. It is important to



start with the question mark and not with a full stop.” He quoted examples of solving problems through innovation on a large scale. By citing these, he laid out a few learnings before the gathering. He quoted his life’s experiences.

“One day I rescued a group of 50 children in Allahabad. There was one 10-12 year-old child, sitting in corner, traumatised. He had stopped crying since the day he was beaten up by his master for crying. I took him back to his village to see his mother. His father had passed away by then but the child was unaware. When the mother saw her son there was no reaction. It was over eight years that Idrez (the child) had been away and so he couldn’t recognise his mother too. Upon enquiring, I was told that the lady had also lost her vision due to excessive weeping for many years after Idrez’s abduction. But, when the lady touched her son, she instantly started weeping again. That memory lasted with me for many months and years to follow.”

“On one of train journeys, I saw two

persons carrying around 50 children in a group. I saw those shaking hands with police officials and realised that these children were being trafficked. Unfortunately, I could not help the children as I could see that police was aware of the deal. My frustration led to the idea of creating products that are labelled as “child labour-free goods”. This started the movement of first-ever global initiative, led by consumers to label “child-free goods”. It took several years to make this happen and the first such label was launched in 1995. The pre and post surveys, over a span of 10 years,

showed that the number of children involved in goods production in India and Bangladesh had reduced from one million to 200,000. This social innovation to involve consumer passion and create consumer movement helped in significant reduction of child labour.

In 1998, a global march against child labour was initiated which involved 103 countries and 71 presidents & prime ministers. The demand was to stop child slavery and trafficking. This march mobilised 50 million people across the globe. When the movement reached Geneva, not a single country opposed the law and 600 children were welcomed in United Nations building in Geneva.”

On how to convert any social innovation into large scale movement, he listed the following points: (a) Affordability is critical; (b) Need to see adaptability across nations and culture; (c) Think if the innovation is economically viable or not; (d) Need to think if the innovation is sustainable or not; (e) Being clear about the goal





and having high goals; (f) Having deepest and strongest convictions; and (g) Being compassionate about innovations. He also proposed a 3D model for social innovation – Dream for big, dream for better; Discover inner strength, new ideas, things outside the box and opportunities around us; and Do and act now attitude.

Hurdles in social innovations were identified during the course of roundtable discussions. These are: (a) Concentration of power; (b) Silos approach of working; (c) Not catching up on technology advancement; (d) Exclusion of citizens in decision-making; and (e) Asymmetry of information between the government and the citizen. It was suggested that rather than looking for solutions, we should increase the number of problem-solving people. A new kind of public-private partnership (PPP) needs to be put in place to engage and involve people, thinkers and public officials in the process of developing innovations. It was proposed that rather than looking for solutions, we should increase the number of problem-solving people. A few examples were cited – Creation of traffic management system in Bengaluru, where people themselves created a monitoring system; Creation of bus with specialised labelling of “Big 10” done by the people; Creation of street using private money and the ownership of maintaining the street was with the resident and community-managed lakes.

Chandrashekhhar Ghosh, founder and



CMD, Bandhan Bank said providing microfinance to meet the needs of common people has helped in social upliftment. Similarly, providing funds for allowing kids to join private schools has also allowed to scale up the aspirations of the underprivileged. He also remarked that this activity of microlending to underprivileged was at a much smaller scale previously. In order to create a social change, scaling up is essential. A similar idea led to setting up of Bandhan Bank, he said. Within six months, 900,000 accounts were created as also a social infrastructure for financial inclusion. He concluded by laying a three-point success mantra: P – Passion, H – Hard work and D – Dedication.

**Break-away Session: Group Discussion and Recommendations by 4 break-away groups of Roundtables**

A break-away session was held during which the roundtable participants were divided into four smaller groups, which discussed on four key areas simultaneously -- incubation and acceleration models for innovative start-ups; innovation and skill development;

incentives for innovation in public policy & programmes; and social innovations for large-scale change. Following were the recommendations of the respective groups.

**Group 1: Incubation and Acceleration Models for Innovative Start-ups**  
The group presented the following recommendations.

- Market place for innovators and incubators, entrepreneurs need market orientation.
- Social innovation needs to be replicated as it creates shared value. Commerce scalability and social innovations are two ways at which we need to look at innovations.
- Integration with social sector delivery system needs to be looked at so that social innovations are shared with the social sector.

Extend research, academic institutions will play major role — Several research institutes have capability but, they remain largely academic. More research institutions need to come up where innovators are welcomed and where they can be offered a one-stop contact point.

## Group 2: Innovation and Skill Development

The group presented short, medium and long-term recommendations.

Short term:

- Inculcate innovation through auxiliary co-curricular activities to develop soft skills for entrepreneurship at an early level in academic life and also its facilitation at later stages.

Medium term:

- Create ecosystems
- More incubators on various

innovation building and creative knowledge-learning platforms

- Visibility of innovations should be promoted through recognition and awards.

- In order to promote a culture of innovation, people's voice needs to be incorporated.

- A minds-on cum hands-on approach

- Holistic public policy covering each innovation chain

Group 3: Incentives for Innovation in

- Need to bring real-time solutions
- Might start with implementing policy at the regional/state level
- Critical to capture innovation at school level
- Mechanism to execute the policy
- Each stakeholder should benefit
- Local bodies should foster innovation
- Problematic interventions:
- Existing systems (government funding) are defined by fixed delivery output and doesn't always cater to what innovators are looking for.



themes

- Focus on local needs and resources

- Think big

Long term:

- Connect knowledge to entrepreneurs within incubators to encourage skill development in specific areas

- Create knowledge of IPR

- Worldwide integrated

Public Policy & Programmes

Lessons:

• Should include an entire chain of innovation

• Should be all-inclusive

• Cross-learning experience sharing should be built in public policy

• Public policy should ascribe failure as a learning experience

- Devise programmes for risk-taking enterprises where failure can be acknowledged as learning.
- Balance between solution science and discovery science.
- Provide horizontal spread by allocating certain percentage of the Budget
- Design new funding mechanisms
- Undertake new experiments
- Define risk-taking projects

- Scout, identify and nurture child innovators
- A relook at the funding models for tech incubators
- Group 4: Social Innovations for Large-Scale Change

The group listed their learnings.

- Frugality of innovation at low cost
- Replication of ideas
- Involving multiple stakeholders
- Bottom-up approach
- Necessity for living laboratory to involve end users and partners
- Users need to be paramount



- Community mobilisation
- Good value system
- Samvedana (compassion)
- Accountability
- Targeting organised and semi-organised sector
- Sensitivity regarding appropriate regulations
- Open collaboration and systematics engagement with state systems





At the end of the presentation, Smt Omita Paul shared her observations with the participants. She said: “Social innovation is born out of a necessity. To find novel ways to deliver affordable services to a large population is a must. Education, knowledge, spirit of entrepreneurship all need to be inculcated right from the beginning in the younger generation. We are the largest functioning democracy in the world. With 1.28 billion minds, even if a few of these start going different ways, where would we be? We are also a country of 122 languages, 1,600 dialects, several religions, yet we live in peaceful co-existence. That does show that streak of commonality of aspirations, which we must inculcate in our younger generation.”

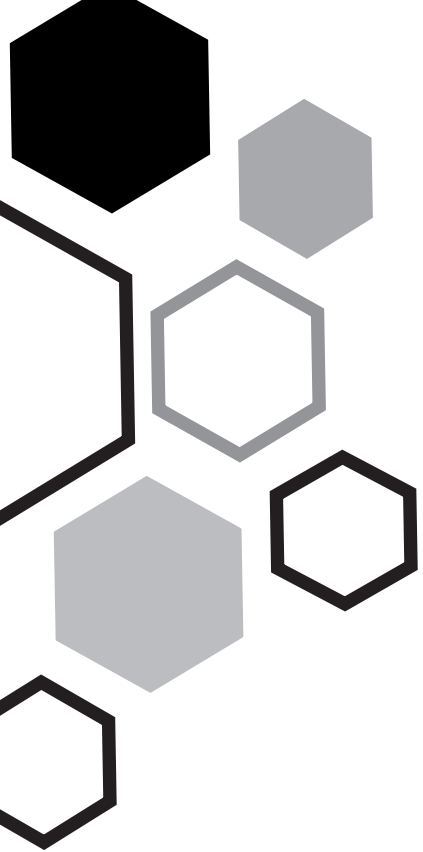
Smt Paul added that in this digital age, when we have access to instant

implementation, action and reaction, we need to work really fast. “The speed, scale and sustainability acquires a new meaning in a country, which has such demography and structure. 85 incubators in less than two years show that we are on the right track,” she said, while urging everyone to make use of these incubators.

Dr Vipin Kumar proposed a vote of thanks and the session concluded. The participants were invited to witness a beautiful kathak performance by Ahmedabad-based dancer Aditi Mangaldas and her troupe. The 45-minutes-long scintillating performance was followed by a dinner hosted by Smt Paul.







FOIN  
Day 3: March 14, 2016

# ROUNDTABLES, WORKSHOPS, AWARDS



Global Roundtables on Public Service Delivery: (1) Macro-level initiatives for innovations; and (2) Grassroots action for inclusion

Workshop of innovative and creative children

Presentation Ceremony of Visitor's Awards 2016





## GLOBAL ROUNDTABLE ON PUBLIC SERVICE DELIVERY – MACRO-LEVEL INITIATIVES FOR INNOVATIONS

Global roundtables on public service delivery – macro-level initiatives for innovations and grassroots action for inclusion were held on March 14. The discussions centred on innovations in public service delivery and the roles of several players involved in the process.

Dr R A Mashelkar said that we have many schemes like UIDAI, DBT for subsidies, Skill India, etc. Aadhar and mobile technology-based schemes, along with the above-mentioned ones, have been a gamechanger. He remarked that the role of several players, apart from the innovators, needs to be understood in public service delivery mechanisms. Incentives for innovators, integration of resources and mandate for its implementation need to be laid down. He quoted examples from Rajasthan and Chennai where innovations in medical field have become great examples of good public service delivery mechanisms. “What is applicable for start-ups is built on talent and economic thrust. It is a similar concept in public service delivery. And, we must take full advantage of

technology,” he said.

Innovation is simply a ‘change for better’ in any form. One concept is the Indian version of innovation. We also need to learn from the Western version, which shows how to generate idealism and passion. Also, big policy decisions are necessary. A question that arises is: Is our democracy advanced enough to be innovative? An experiment was conducted by a professor at IIM Bangalore -- 28 IAS officers were undergoing training. They were told to list key drivers of success. 23 of 28 had written innovation as the last. These were agents of change, yet they did not think of innovation as necessary. When empowered by the government, all IAS and civil servants can bring in effective changes in innovation.

Another questions raised was: Why are innovations not being replicated? It was mentioned that institutions like Indian Institute of Public Administration (IIPA) must undertake steps to eliminate redundant training programmes in their curriculum. Also, we must redesign the curriculum and include programs of innovation in our education system and move from endless discussion to decisive action. Indira Aawas Yojana should be replicated across the country and world. We must find a way of finding out all innovative practises and then scale them up.

The crux of this roundtable was how to meet the needs of those who deserve services, but cannot desire. Four dimensions to dimensions in public service delivery were identified: (a) Accessibility to resources and

technology; (b) Assurances, both vertical and horizontal; (c) Ability, skills transformation; and (d) Attitude. Many public service personnel, including a sarpanch and district collectors from different parts of India, introduced the participants to the innovations undertaken in their respective states and shared their success stories.

what we exist for and what we practise. A balance of internal stakeholders, alumni, outsiders from industry must be ensured.

Innovation in isolation tends to die out. Hence, the requirement is to create an ecosystem in multiple places and make them self-sustained. The participants identified a need for inclusive action for making public services available to all. In this context, it is interesting to note

It is much more difficult to deliver ecosystem services. Enthusiasm from the government is missing in creating an environment for outsiders to enjoy the public delivery system. The continuity in support from the government is essential. It is difficult to deliver public systems when the ecosystem is not conducive. An institutional framework should be brought in place. We need to have a



Mr Deepak Gupta, chairman, UPSC presented an introduction to the session and said we need to reconsider certain things and do them differently. The quality of higher education will also define innovation and creativity. Universities prior to 1956 were flexible enough to accommodate innovations. Our experience has been that stricter regulations do not ensure quality. Sometimes, we need to make a distinction between

that public services are available and the government spends a huge amount of money on them. Yet, these services do not reach common people. So, the challenge identified by the participants was how to undertake inclusive action for making public services available to the people. Secondly, linguistic barriers, regional barriers, barriers of caste, creed etc. hinder the delivery of public services. Some groups get better services than others. So, the second area is to focus on the design and investment pattern of the scheme. Third area of focus is organisational design and infrastructure.

public service delivery department in government under the Department of Personnel Training (DoPT). One officer in each ministry should be appointed as nodal innovation officer. Incentivising the innovations by way of reward was another suggestion. Best reward is the PM's award of excellence but we need to give it even the grassroots level and not just the apex level.

Innovation is a dynamic concept in time, space and areas. A network of innovators needs to be created.

District collectors are the best officers to tap innovation in districts. We need public service delivery in innovation as this facet of innovation. Making an e-platform for innovation in public service delivery so that everybody knows is essential. State government should be given requisite funds as there are a lot of innovations at the rural level. A community-driven development should happen and community's views

Mission Team, Punjab talked about the initiatives of Punjab government. Punjab government came up with a Right to Service Act where people can take suo moto actions if public service delivery is delayed. Online monitoring via MIS is essential. Each officer was earlier spending 20-30 minutes time for validation, but by

service centres. There is only one-and-a-half to two kilometre of distance between centres. Private operators have been engaged to deliver these services. They are also trained in etiquettes, timely delivery and other aspects of service providing. In 30 minutes, a citizen has to be sent back from the centre with his/her service else the operators pay a penalty.”



need to be taken into account. PPPs are needed in several areas. Involving private sector at the grassroots level through corporate social responsibility (CSR) efforts will also get the best out of them.

Various delegates briefed the participants about innovation in their areas of public service delivery and how these have benefitted the people around. They also came up with suggestions on the similar lines.

1. Mr Manpreet Multani, senior consultant, State E-Governance

involving innovations, they have been able to reduce the time to only five minutes now.

2. Mr Rajnish Malhotra, head, State E-Governance Mission Team, Punjab said: “In Punjab, we want to deliver public service with dignity. 500 centres have been started in rural and urban areas where all services related to all departments will be delivered to people in a dignified manner. They have working ACs, proper token management, and counters, help staff, etc. We have conceptualised unified

3. Mr Ranjan Banerjee, dean, SP Jain Institute of Management & Research introduced the scheme called Abyudhyat under which volunteers mentor children in slums. It is a structured mentoring programme, formally started with B-school students. “At our business school, all our students mentor municipal school students Standard 7-12, structured programme, enhances education for some children outside. We have done a lot of work with NGOs, my suggestion is to simply allow crowdsourcing, co-creation and partnership. There

is not enough partnership across institutes, if you create something like an open innovation forum so the best individuals can put their opinions forward,” he said.

4. Mr Rajendra Pratap Gupta, chairman, HIMSS Asia Pacific India put forward a few limitations behind innovation: (a) Bureaucrats are not innovative; (b) Officers for innovation in rural areas; (c) All employees must be told to devote five per cent of their time to innovation; (d) Cultural shift required; and (e) Innovation needs a free working environment.

5. Prof Saroj Kumar Nayak, professor and HOD (basic sciences), IIT Bhubaneswar said in our education system, we don't give complete freedom. There has to be clarity in what is to be done and what is not to be done. The gap between the demand and the desire needs to be filled.

6. Mr Vikas Kharadkar, admin, T Nagar Stadium, Bhopal turned the focus of the roundtable on the situation of sports. He said: “Sports is not given as much priority as it should be given in India. But, our state government has given priority and has allotted a budget of Rs 218 crore. We have brought technology to our stadium, tapping talent in villages. There are examples of how an electrician's daughter won an award in Germany. We have officers in remote areas who are trying their best to ensure more and more people join sports. We have equipments that monitor stress.”

7. Mr Vipin Tyagi, executive



director, Centre for Development of Telematics suggested connectivity solutions for innovation: (a) Internet-based services for all; (b) Wi-fi terminals at different places; (c) Cost of equipment should be very low; and (d) Non-availability of power should not be a problem.

8. Mr Ramesh Krishnamurthy, CBT suggested a few mantras to success: (a) Keep it simple but at the same time improve; (b) Build an end to end solution; (c) Build institutions; and (d) Keep giving interim results. He added that education is needed on taxation so that when u grow from a salaried person to a middle management person and move towards retirement, it is a natural process. But, the primary challenge, said Mr Krishnamurthy, are: (a) How to identify the taxpayer; and (b) Leveraging financial sectors such as banks.

9. Mr Sharad Kumar, joint commissioner, Traffic suggested: (a) We should build mobile apps to track any movement; (b) have more initiatives/ trials on cameras for critical junctions in Delhi.

## **GLOBAL ROUNDTABLE ON PUBLIC SERVICE DELIVERY– Grassroots Action for Inclusion**

Mr Venu Rajamony, press secretary to the President, chaired the roundtable and set the context for discussions. He said the unfinished agenda was

addressing the problem of governance. “If you look at any sector with significant reforms or any state, region, district – leadership has been major factor towards it.” This session focused on the stories of successful leaders who were able to bring effective positive change in their areas.

1. Shri Jitesh Khosla, former chief secretary, government of Assam said there is a need for inclusive action for making public services available to all. The government has taken a very ambitious agenda for making public services accessible to all. Laying out a framework for delivery of public services at grassroots level calls for attention now. Public services are available and the government spends huge amount of money, but do people with inadequate income have access? With question of access is the question of incentive to access. Why should a person go out to access the services? While doing so we must be mindful that there would be barriers to access these services. Challenge before us is the inclusive action for making public service available to people.

Secondly, linguistic barriers, regional barriers, caste, creed etc. hinder the delivery of public services. Some groups get better services than others. So the second area is to focus on the design and investment pattern of the scheme. Third area to focus is organisational design. When large organisations go out to deliver public services, there are procedures to be followed, which may not allow innovation. What design is optimum for the best delivery –

corporate, market, etc. design for inclusive strategy should be mindful to the barriers and end outcome. There is a requirement for innovative structure. The government organisations tend to be bureaucratic. Mobilise public through proper information and access so that public feels that they need the services and demand it.

2. Dr Madhukar Gupta, additional secretary, department of public enterprises, ministry of heavy industries and public enterprises said: “If we want to have inclusive delivery system, what should we not do? Never think of creating a new law/ department/ procedure. We have conditioned ourselves to create new law/department/procedure for every new problem. Second, we should not be ambiguous. We must be very precise in what we communicate.” He added that those in the business of public services should never use the following words: However, Moreover and Nevertheless. Third, we need to create an infrastructure. Everyone leaves his/ her house with positive intentions during the day. If they are not successful in delivering anything positive does not mean that they did not want to do it. It is because the right environment was not provided to them by supervisors, etc. Every person leaves the home with a positive frame of mind. So, try to see things from the other person’s perspective.

3. Dr Shahid Iqbal Choudhury highlighted the electoral participation

issue. He said he constituted teams at village and panchayat levels. Highest participation was at 83 per cent. They came up with a simplified procedure for voter enrolment. He also proposed that we should utilise the services of these teams in development work – MGNREGA, SSA, and Mid-Day Meal. Community level leadership and peacetime efforts helped increase electoral involvement. Simplifying the procedures laws is another important measure.

4. Vikrant Pandey, the collector of Bharuch, said there is a regional disparity in the region as it has both tribal and non-tribal population segregated geographically. Yet they achieved financial inclusion covering 100 per cent population of 33,000 families. 100 per cent toilet construction in district was achieved. A toilet-tracking system was used to ensure that toilets were actually constructed. For open defecation, the panchayat was fined ₹ 10 per day. These kind of norms have brought in effective output. They focused on poorest, unheard voices of the society and it was an emotional-driven strategy. They focussed on orphans, the disabled and the elderly. They are involving community participation for effective implementation of government schemes. Service promised to be delivered should be equal to service actually delivered.

5. Ravi Bhagat, district collector of Ludhiana, informed that they have launched a mobile app (iOS and Android) – Day 2, which sets an automatic reminder for vaccinations



and gives one the location of hospital. For people not having the app, data is collected when the pregnant women visit the hospital and SMSs are sent one year from the delivery. Information about Patwari is also available. Girls, during menstruation cycle, do not go to school or go back home for getting the sanitary napkins. So, they installed a unit of low-cost sanitary napkins producing machine, which has brought in a huge difference.

6. Ms Anandita Mishra said they have joined hands with an NGO called Patiala Foundation to help people in the unorganised sector. They have also created an app iSEVA which provides information about basic service providers like rickshaw-wallahs, fruit vendors, etc. Social security system of these people was non-existent. Hence, DRL loans are being extended to them

at four per cent. The disconnect between service providers and the clientele is now being bridged by the use of these

mediums. Most of the expenditure was done by the NGO while some money was pooled from own pockets. A few CSR funds too supported iSEVA.

7. Ms Bhargavi Dave, district development officer (DDO), Ahmedabad informed how she used innovation in health, education and ICDS services. They signed memorandum of understanding (MoU) with 50 schools to talk on Google Hangouts and make Skype calls. They also came up with a Story Café where anybody from village can teach stories to kids; 2,000 students have participated in this. They also signed MoUs with playhouses and nurseries and had exchange programmes with them. A scheme called Double Income, Single Child was started which helped develop emotional connect with other children.





Rice, fruits, and vegetables are being distributed from the temples to change the social mindset. People deposit paid tokens while fruits worth the amount are distributed to kids. Another scheme called Garbh Sanskar has 5,000 women associated with it. They also have a MoU with another district to share the best practices and facilitate cross learning.

8. Mr Nagarajan, DDO, Sabarkantha said it is a high-priority district from health aspects. So, they started with mobile inspection system to track implementation of schemes. Funds were released only after mobile inspection was positive. They vertically integrated barriers to access due to inability of mobile towers in rural areas. They also identified a village with the idea of making whole district Wi-fi. Without any private player's

participation, the Wi-fi access was developed. Village sarpanch invested ₹ 100,000 in the system and it is based on a revenue sharing model.

An e-learning model for sharing knowledge among teachers was also developed in the district. For the health sector, there was a lack of data on vaccination. So, female workers were given mobile tablets and e-devices to record data as they survey. In 300 anganwadis, these tablets were introduced as 90 per cent of these women were using such a device for the first time.

9. Ms Bhakti Sharma, sarpanch, Barkhedhi Abdullah, Tehsil Huzur, Bhopal said that minimum government, maximum governance is easier said than done. Government should launch

a toll free number which works as integrator for all the schemes for all over India. All the schemes should be presented in a layman's manner to the citizens so that there is transparency and a better understanding of the same. Public NGO participation should be increased in public service delivery. Books should be open for scrutiny by the public. She added that all services are provided at doorstep and 100-per cent financial inclusion has been achieved in her panchayat.

10. Dr Vipin Kumar highlighted the activities of NIF. He said we provide services to people at their doorstep — everything from documentation, scouting and dissemination is done by people from NIF, by visiting the innovators instead of calling them to us. We look at complete value chain – scouting, IPR and disseminating information socially. Scouting with the help of Honey Bee Network volunteers, we have a database of over 225,000 idea/solutions. So, NIF has the biggest database of grassroots innovations in the world today. Presently, for value addition and product development, we are working frugally at very low costs. NIF is converting ideas into products because of which many innovators have turned into entrepreneurs.

“Around 30 innovators are now clocking turnover in crores. During process, we learned that early-stage help enables them to reach the masses. Innovators keep thinking about upgrading technology so we have given it to companies for quality control and to meet expectations of people. We have



a MVIF fund which provides financial support to innovators for taking their products to the market. We are launching a scheme for promoting creativity and entrepreneurship among ITI and college students too,” added Dr Kumar.

11. Dr Purnima Chauhan said we should connect the dots and leverage on the strengths. She talked about Telestock, an app which has helped save 106 patients in the past year-and-a-half. “We have a very limited number of neurospecialists in Himachal Pradesh (two in Dharamsala and two in Shimla). With no extra cost, manpower or logistics, we have enabled 17 hospitals with three facilities and one mobile app. In case of an emergency, an alert goes to patient’s emergency contact along with the details of hospital where they should reach at the earliest. Single dose of medicine, which acts as an inhibitor has been made available free of cost. The doctors are available 24\*7 on WhatsApp and mobiles,” she briefed.

12. Mr Ajay Sahai, director-

general & CEO, Federation of Indian Export Organisation, said the biggest bottleneck was the lack of trade and tariff information at one place. Indian trade portal with all information at one place made it reality. It helps in most effective costing at one place. Pick up the product description and you get all benefits and tariffs on that product is available to you. And, it has tremendous results.

13. Shri Madhukar Naik Dheeravath, secretary, Maulana Azad Education Foundation put forward the following suggestions in the field of education: (a) Scholarship to children; (b) Simplified procedures for all schemes/scholarships/funds; and (d) Online forms.

14. Nikita Dhawan, IIS probationer, said digital device is creating a language barrier. We should give communities a voice in a language they understand. Community radio will be helpful in this regard.

15. Devesh Chandra Srivastava, executive director, ONGC said that policemen should be made partners in the government’s initiatives. Even in violence-affected areas of Northeast and Jammu & Kashmir, the policemen are involved in social building. This should be replicated in other states too.

16. Dr Raveendran Sankaran, deputy director (tactics and senior courses), SVNPA worked on two to three different problems. There was a drought-like situation for the past two to three years, pest attack also occurred with drought. They involved national-level research organisations to give advisory to farmers after which the crop losses due to pest has been nullified for the past two years.

Prof Vishal Gupta, faculty at IIMA, proposed a vote of thanks at the end of the roundtable and remarked how this is only the beginning to think about public system delivery. Following the discussions, the participants were invited to the exhibition where they





showcased posters highlighting the innovative measures undertaken by them in their areas of service and their impact.

## CHILDREN CREATIVITY WORKSHOP

The roundtables were followed by a workshop of innovative and creative children wherein the selected privileged and underprivileged children sought solutions to societal problems in slums around Delhi through their creative ideas. The workshop was held at the exhibition venue, thus exposing these

children to innovations by other children, technology students and people at the grassroots. The children were given an exposure to different solutions for real-life problems tried by innovators and were encouraged to imbibe the empathetic values in developing innovative ideas to solve basic problems faced by people living in slums. The overall objective of the programme was to develop an operational framework for empowering children to not only articulate their problems but, to also find solutions, both individually and collectively.

The workshop aimed at tapping the dormant creative potential of children

who probably did not have the courage to articulate their ideas. Held over two days, the first day involved brainstorming, visiting the displays at FOIN exhibition and meeting grassroots innovators, followed by their visits to the slums.

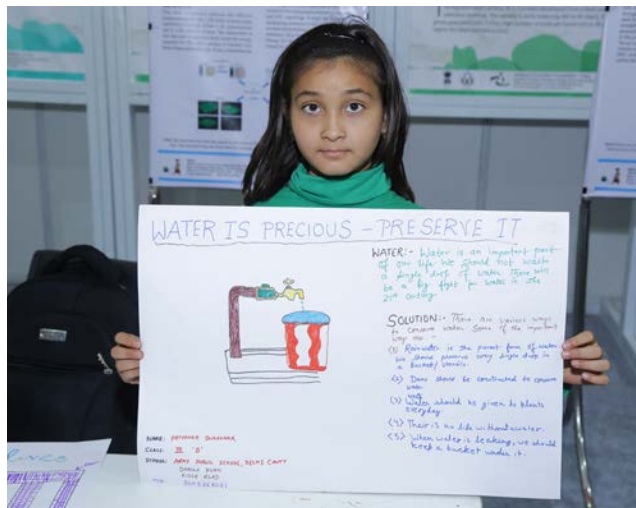
On the second day of the workshop, the children worked in groups, sketching the problems and presenting their ideas to solve them. These children came up with multiple solutions to various problems.

The inverted model of innovation implies that children ideate/innovate; fabricators design and companies/agencies diffuse commercially or

socially. Involvement of children in solving their challenges will help us understand micro and macro strategies, which can mobilise the creative potential of children around the world. This may help in overcoming persistent social inertia in developing countries. The children addressed the following: a) the challenges they face; b) challenges that the society around them faces; and c) other problems that inhibit the unfolding of their potential.

Pedagogy:

- a) Purpose: Discussion about the purpose of the workshop
- b) Process: Brainstorming about some of the solutions in one domain and how these can trigger new solutions in other domains
- c) Perception: Once their curiosity was triggered, their visit to the exhibition was organised to enrich their repertoire and also reinforce their confidence
- d) Pursuit of innovation: After briefing about the fieldwork, children



were divided into three groups comprising privileged and underprivileged children

e) Practice: Each group visited one slum area of Delhi — Nizamuddin basti, Jamia and Kusumpur Pahari — to interact with the local communities, children and others, to observe and study their day-to-day problems.

f) Presentation of solutions: Each group sketched the problems they saw and presented ideas to solve them. The children came up with multiple solutions to various problems.

Group 1: Nizamuddin basti

1. Feroz  
Problem: Garbage was not collected by garbage vans for long duration, resulting in overflowing dustbins. Also, most of the times, residents did not realise that the garbage van has arrived.  
Solution: Garbage van with a unique horn so that residents know when it has arrived for timely collection of garbage everyday.  
Problem: Conventional photo albums and photo stands can hold or display limited number of photographs.  
Solution: A revolving photo



stand built on a pipe so that many photographs can be accommodated and all of them get their turn of display.

2. Sania  
Problem: Water shortage  
Solution: A water tank that collects rainwater and is connected to many taps.

Problem: Theft  
Solution: Installing a switch in the cupboard to ring an alarm when someone tries to open it forcibly or without a key.

3. Aman Khan

Problem: Water accumulation on the streets during heavy rains  
Solution: When water gets collected due to rain, a switch ensures that the gutter cap opens automatically.

4. Mohammad Bezaar  
Problem: Road accidents, especially involving pedestrians trying to cross the road

Solution: Iron rods can be installed under the roads. When someone wants



to cross the road, they can press a button so that the iron rods come up and halt the traffic for pedestrians to easily cross the road. Upon reaching they can press another button that would take the bars down and facilitate movement of vehicles.

Group 2: Jamia

1. Dora James

Problem: Walking on road for blind people is difficult.

Solution: We should make glasses for

blind people which could guide them about approaching hurdles. A stick that could sense the movement of cars so that the user can move accordingly.

2. Samara Akhtar Khan

Problem: Mosquitoes

Solution: Buttons in the bed, which on being pressed will pull up a net or guard that would kill or stop mosquitoes from entering.

3. Ahmed Raza

Problem: Hand pumps being used to draw water

Solution: Pedalled water pump

Problem: Accumulated waste

Solution: Segregation of dry and wet waste

Problem: A lot of smoke is inhaled during cooking which causes discomfort

Solution: A face mask and glasses to help prevent smoke from entering the nose

4. Sagar

Problem: Many people try to ignore the red light and break traffic rules.

Solution: A unique horn can be connected to the red light. The horn will start buzzing when someone tries to jump the signal. This will help the traffic police catch the offender

5. Pinky

Problem: Water shortage and a lot of quarrel during fetching of water as there is only one line for it.

Solution: Connecting 20-25 taps to one big tank through a pipe, which gets connected to the tanker whenever it arrives.

6. Simran

Problem: Blind people cannot use existing mobile phones.

Solution: A mobile for the blind with just three buttons. One button for dialling while the other two buttons each for connecting and disconnecting a call.

Problem: The visually challenged often find it difficult to climb stairs or make way in a crowd.

Solution: A stick with a button that says "hatt jao" so that people can make way. Also, while climbing stairs the stick alerts if there is a step ahead.

7. Intezar Khan

Problem: A lot of people forget where they have kept their spectacles.

Solution: A spectacle with an alarm to



help users find it.

Problem: Water shortage and long queue for water tankers

Solution: A water tanker that connects to one main pipe, which is connected to many pipes by providing cuts across its length.

Group 3: Kusumpur Pahadi

1. Mohammad Saqib  
Problem: Water wastage while filling water from the water tank. The trees and plants were drying up due to water shortage.

Solution: Water that is wasted due to leakage in the water tank or while fetching water can be passed through a filter and reused for watering plants and

trees in the park.

2. Roshni  
Problem: Water shortage  
Solution: Water that is used for bathing can later be passed through a filter and reused.

3. Rohit  
Problem: Two-wheeler and car drivers break traffic rules.  
Solution: Iron rods, which come up as



soon as the light turns red that will help prevent people from breaking traffic rules.

4. One child who had visited a house in this slum area helped the family arrange their furniture in a manner that created more space in the house. The family lived in a one room house, with their kitchen, bed and bathroom, all in the same room. The

student also suggested a bag that can fit three heavy cans for carrying drinking water.

5. Parvati Bharadwaj  
Problem: Water shortage  
Solution: A device that collects water that is accumulated during rains

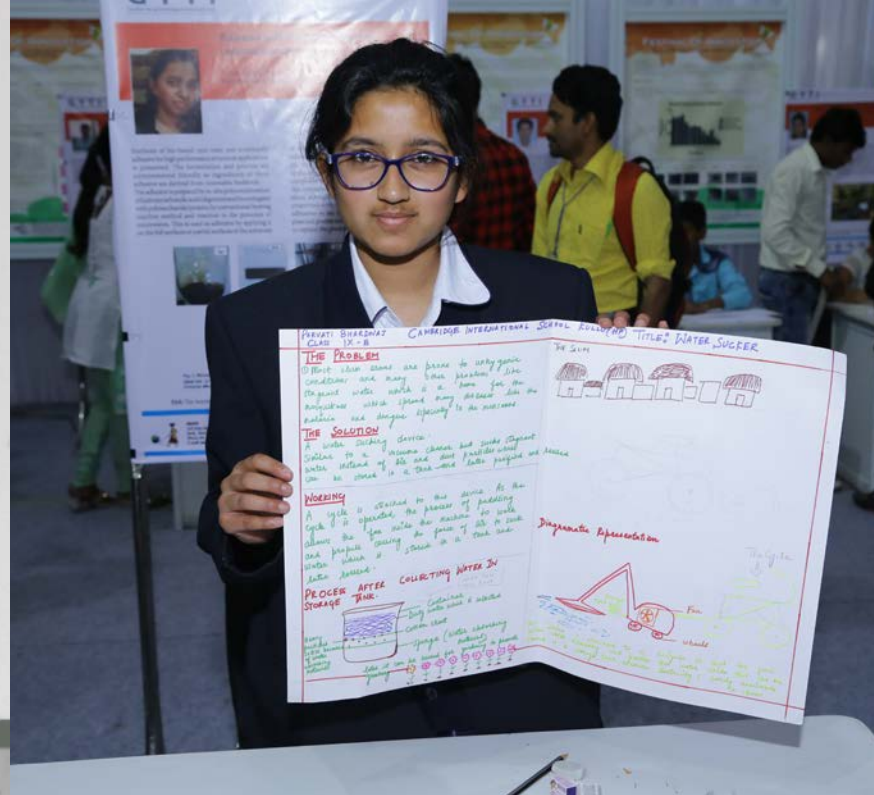
6. A student from Pune  
Problem: Talking on the phone while

riding a two-wheeler

Solution: A sensor that ensures that the ignition does not start until a mobile phone is placed on the sensor.

7. Vaishnavi Talavde  
Problem: As construction labourers have to commute to different places in a day for work, their children often do not go to school.

Solution: It will be the builders'



responsibility to send children of the labourers to school.

8. Chhaya Thakor

Problem: Child gets trapped in bathroom or gets left behind in the classroom after class.

Solution: An alarm will alert parents and school authorities if a child gets left behind in class or gets locked inside bathroom.

9. Mrigesh Thakur

Problem: Mosquitoes, flies and other insects inside the house

Solution: Apply ghee and sesame oil on a piece of paper and keep it with some sweet food to attract flies and mosquitoes. Once the mosquito sits on the paper, it will stick to it and the paper could then be thrown.

Problem: People who are visually challenged face difficulty in navigating from one place to another.

Solution: A navigation jacket which when worn will help the user travel well.

During the course of workshop, many children came up with different ideas of solving small yet critical problems. Some of them are listed below:

(a) Places that are accident-prone should have purple traffic lights so that people driving towards that area are cautioned.

(b) Drains problem: Water from the drains could be collected at one end and connected with a purifier. The tank will purify water and drain it into a barren land nearby which would in turn make the soil fertile and good for cultivation.

(c) If there is a shortage of water supply in homes and it's raining outside, we can put up a tank on our terraces and collect water in it. A pipe connected with that tank could supply water in homes.

Dr R A Mashelkar congratulated the students for sharing their excellent ideas. Prof Anil K Gupta told children, "90 per cent of the ideas are killed by us

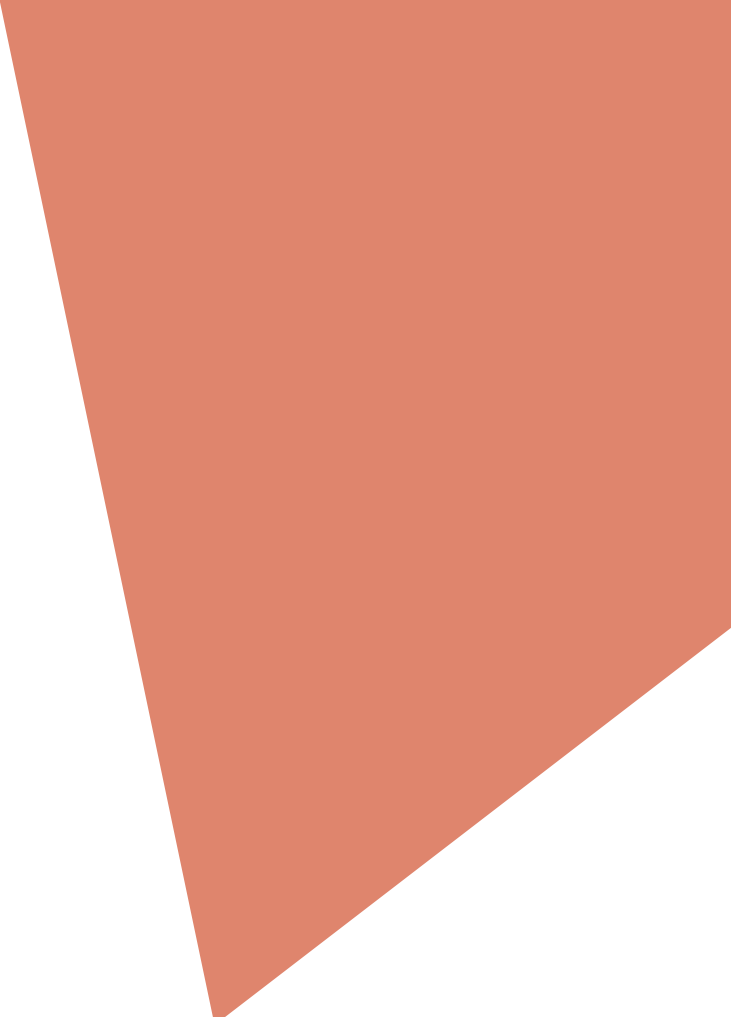

and the remaining 10 per cent by others. So, every day before going to bed, think about what new have you learnt. If you did not learn anything one day, then the day is wasted. We should learn to praise others' ideas too. We have to try and become like a honey bee."

With this, the workshop came to an end.

Presentation Ceremony of Visitor's Awards, 2016

In the evening, Visitor's Awards 2016 were given away by the Hon'ble President Shri Pranab Mukherjee. The awards felicitated Vice Chancellor of Tezpur University Prof Mihir Kanti Chaudhuri. Tezpur University was selected to be the best university while two awards were bagged by Jawaharlal Nehru University (JNU). The Visitor's Award for Innovation 2016 went to Prof Rakesh Bhatnagar for development of a genetically-engineered vaccine and a therapeutic antibody against anthrax while the Visitor's Award for





Research 2016 went to the molecular parasitology group for their pioneering work in the area, especially anti-malaria, leishmaniasis and amoebiasis. Smt Smriti Zubin Irani, the Union minister for human resource development, vice chancellors of various universities and other dignitaries attended the ceremony.



# NATIONAL INNOVATION CLUBS



Meeting of the National Innovation Clubs

## MEETING OF THE NATIONAL INNOVATION CLUBS

A meeting of national innovation clubs was called on March 15 at Rashtrapati Bhavan in which representatives of six clubs shared their experiences -- IIT Kanpur, Central University of Jammu, IIT Madras, IIT Tiruchirapalli, Jamia Milia Islamia and IIT Delhi. Presentations were made by technology entrepreneurs Shri Sharad Sharma, co-founder and CEO, Brand Sigma and Shri Vishal Gondal, CEO and founder, GOQii.

Shri Sharad Sharma said if there is democratisation of building blocks, hundreds of experiments to solve problems can become successful whereas Shri Vishal Gondal remarked that there is need to apply common sense to technology. Speaking on the occasion, Smt Omita Paul said creativity, innovation, entrepreneurship and start-ups are subsets of the same kind of mindset and must be promoted. She narrated how various innovative measures undertaken at the Rashtrapati Bhavan have had a huge impact on the lives of people in the President's Estate.

A session on inspiring innovations was organised the same day, with participation of academicians, technology business incubators as well as senior officers from India and abroad. A poster presentation on outstanding achievements by national innovation clubs and outstanding Technology Business Incubators (TBIs)



was held.

### SESSION 1

Prof Anil K Gupta said: “All of us are aware of the goals, but we need to understand exclusion before we move on to inclusive innovation. These are: (a) Spatial exclusion: Some regions are not reached by market forces; (b) Sectoral exclusion: We have not been able to make any impact; (c) Seasonal exclusion; (d) Social exclusion; and (e) Skill exclusion. To track innovations, we need to search, spread and celebrate them, and sense

the unmet needs.”

Professor Gupta added that every student of the country recognises what innovation is. And, this conference is a sangam (confluence) of bright minds from the universities.

Innovation at the grassroots is all about networking. People do not know about the existing opportunities and hence, we need networking to make them aware.

“We have been brainstorming on an



idea of setting up India Innovation Corps, something which can strengthen the movement of innovation akin to the manner in which NCC trains students for defence services. We want all of us to be strong partners in this movement of innovation,” said Prof Ashutosh Sharma. He listed other fronts the DST is working on: (a) Setting up a comprehensive website of all start-ups in the country; talking to Confederation of Indian Industry (CII) and Federation of Indian Chambers of Commerce and Industry (FICCI) to handhold the start-ups; and (b) Making a comprehensive catalogue of all the technologies that have come out of science streams over

the years, their cost, pros and cons, etc. Professor Sharma proposed a few ideas to boost innovation: (a) Cultivating irreverence for established ideas given in textbooks and encourage questioning; (b) Cultivating synthesis of concepts rather than analysis; (c) Training people to find innovation in their daily lives; and (d) Removing fear of failure from the minds of our innovators, including their parents, teachers and the society at large.

Innovation club representatives During this session, six entries were selected to give a presentation in the meeting. Rest were showcased in the exhibition.

1. Prof Sameer Khandekar, faculty, IIT Kanpur informed that there is a Small Industries Development Bank of India (SIDBI) centre at IIT-K which has incubated 62 start-ups and given grants of ₹ 20 crore so far. He added that they are open to alumni and people from outside and that the key words at their centre are innovation, incubation and IPR protection. He added that they run equity-based models at the centre which have been successful. He urged that we give innovators the access to entire IT infrastructure and give residential spaces to new companies inside the campus. This would go a long way in boosting innovation.

IIT-K has a repository of 300-plus patents, apart from a Hindi-based platform for social networking: Shabdnagri. It is a mid-level incubator with 30 companies on board at present. Also, they have a Tinkering Laboratory, which is student-centric; several

companies have come out of ideas, which were nurtured in this laboratory. A PRISM programme for government has also been crucial in achieving success.

The challenges faced by the centre are: (a) Changing the mindset; (b) Upstream mentoring – downstream mentoring; (c) Scaling up: local to remote; (d) Financial self-sustenance: beyond metros; and (e) The incubation team.

2. Dr Pankaj Mehta, faculty, Central University of Jammu, introduced the Innovation, Incubation and Entrepreneurial Council (IIEC), a not-for profit organisation at the university to the participants. IIEC is divided into two parts: (a) Idea execution and incubation centre; and (b) University Business Incubation Centre (UBIC). Dr Mehta cited example of successful innovations of the centre: Smart dusters (built on green technology). He added that the Council provides technical guidance and commercial support to the identified innovators. He informed that the campus is completely bio-mapped (with 13 survey grids, tracked trees, shrubs and herbs), all due to efforts of the UBIC and IIEC.

3. Sai Kanth Dacha, student, IIT Madras informed the participants about the Centre for Innovation (CFI) at their institute. It was set up in 2008 to foster innovations and technology. It is a student-run facility with 13 clubs as its functioning organs. They carry out training sessions, work on projects throughout the year in one of these clubs, and take part in national and



international competitions. To cite an example of one of the successful innovations, Dacha said they designed a payload for aircraft, which got a boost of \$60,000 from Lockheed Martin.

Workshops, advanced sessions, lectures, projects on assistive technologies, Team Sahay (working with NGOs to find technical solutions to help the disabled) and industrial consultancy are some of the objectives of the Council. Nirman, a pre-incubation programme helps in taking a prototype to production stage and making business models around it, gives students seed funding, mentors and supports with guidance (presently looking at 25 start-up teams right now). There is also a club called Vistaar which helps in setting up a CFI of their own at other universities.

4. Rajat Sanklecha, student, gave examples of innovations built at their

innovation centre: (a) 3-D printer – Bolt Mini; costs five times less than the market place; (b) Unmanned aerial vehicle (UAV) for surveillance of large campuses, rural areas, etc. and (c) Biogas reactor that uses up the remaining food at college hostels. Sankalecha informed they also have an internet of things (IoT) lab innovation centre (set up in 1981), funded and mentored by the institute’s alumni. A Student Centre for Innovation in engineering and Technology (SCIEnT) also functions on the similar lines.

5. Prof Mini Shaji Thomas, honorary director, Jamia Millia Islamia informed that a Centre for Innovation and Entrepreneurship (CIE) was inaugurated in Jamia in October 2014, with the following divisions: (a) Innovation and tech management: awareness programmes and sessions, innovation exhibitions, competitions, innovation clubs; (b) Incubation and entrepreneurship development: incubating start-ups, starting a business incubator soon; (c) Capacity building and publication division: workshops for specific needs, participation in international competitions; and (d) Industry and alumni interface division: alumni entrepreneurship network created, industry interface and MoUs.

CIE has been conducting workshops for faculty, holding innovation exhibitions and competitions. Some of the activities/prototypes developed are: Gusto, a wind turbine for low wind velocities; and HUMANOID, a bot. A new start-up is Crazy Bruno, a food venture that delivers food at night from 7 pm to 5 am. CIE started circulating a

newsletter in October 2015. It is a spoke of the Design Innovation Centre of the University of Delhi under ministry of human resource development. It also collaborates with micro, small and medium enterprises (MSMEs), holds IPR workshops and files patents for the innovations.

6. Prof P V Madhusudhan Rao, faculty, IIT Delhi said we need to create opportunities for students to engage in innovation clubs with the curricula. The solutions proposed by him were: (a) Involving all stakeholders of innovation; (b) Providing mentorship and resources; (c) Create frameworks for bi-directional interaction/collaboration; (d) “Catch them young”: Two courses and a new summer internship in the first year; (e) Creating multiple opportunities in the second year, five credits for design and innovation; and (f) Projects in multidisciplinary teams, five courses for students to join hands with students of other specialisations.

He also observed that it takes a long period to set up an industry from the college labs. 24\*7 prototyping facilities, having digital and physical infrastructure, options to continue beyond graduation for their innovation projects with fellowship assistance, facility for students to take a semester or year off for work on their start-ups, thematic innovation labs, and specific student and faculty groups working towards assistive technology were among a few of his suggestions. Presentation by technology entrepreneurs

Two entrepreneurs gave presentations

on their entrepreneurial journeys and innovation in their firms.

1. Mr Sharad Sharma, co-founder and CEO, BrandSigma said we need both an inside-out and an outside-in perspective on innovations. “We Indians are blessed with very good native innovation abilities. But, how to flourish them remains the big question. Building blocks are usually the physical ones – e.g. in Ola and Uber, if you take away the Global Positioning System, smartphones and Google maps, there will be no service,” he said.

He said there is an easy availability of building laws now. In the past six months, three successful VCs have chosen to become entrepreneurs again. If there is democratisation of building blocks, hundreds of experiments to solve problems become successful.

Traditionally, he added, our businesses have been about dhandha. There is a different source of innovation in very few places in the world; Bengaluru in India has a panga mindset. Mostly, the panga start-ups fail internationally but, India has an edge in taking pangas and so, we need to leverage on that. Last piece of the puzzle is challenge grants. The government cannot be a market-maker for innovators in India. The notion of challenge grants is the only one-of-its-kind solution.

2. Mr Vishal Gondal, founder and CEO, GOQii first set the context by giving a brief history of his firm. “In 1998, I set up India’s first gaming company. In 2012, India Games was sold to Disney. But, the innovator in me



was urging me to do something new. India is a country of a thousands and millions of problems and millions of opportunities. The problem is not of the infrastructure, but of incentives, which is quite apparent in the fact that a pizza gets delivered in 30 minutes but an ambulance does not,” he said

We spend a lot of time on the technology instead of looking at the solution. Hence, there is a need to apply common sense to the technology. He informed that a visit to a government hospital compelled him to take up a new initiative in the health sector. He narrated how the story of the genesis of his health sector initiative.

“I realised that the whole health and wellness sector in the country is becoming a challenge. With the highest

mortality rate, India is at a dangerous position. The real solution to diseases was not really going and moving towards meditation but towards a healthier lifestyle. There were many yoga gurus but they were restricted to operate in one particular segment. So, we had a crazy idea of a Wellness Network,” he said.

The network was a disruptive subscription-based model where one can download any app, connect hardware to it and get to choose between various coaches. “Now, we have 1,000 coaches from 58 cities and towns of India. So, while Fitbit and others were trying to sell a piece of hardware, we provided the real solution,” he added.

It is not just about exporting models from India but looking at the pitch



points. Mr Gondal laid down the path ahead for GOQii: (a) Lifestyle coaching; (b) Medical care; and (c) Health insurance. He suggested it is not about just looking and importing models from abroad, but also solving the pain points of the models. He also introduced people to GOQii Karma, an innovation where every person gets one karma point for walking and those points are mapped with charity. By citing this example he reinforced the point that innovation cannot happen in isolation.

Following the presentations, Smt Omita Paul congratulated the innovation clubs and their representatives for the innovations they have successfully implemented and/or are working on. She expressed happiness over the fact that CUJ and Jamia Milia Islamia are newcomers and yet have achieved so much in a short span of time. Smt Paul cited examples of innovation in the Rashtrapati Bhavan. One of them

being recycling of water in the lawns. Other innovative programmes of the Rashtrapati Bhavan were mentioned: (a) Skanska: Provide food to destitute and malnourished children; (b) Samagam: For elderly people, yoga, singing and dance training programmes; and (c) Sparsh: For specially-abled children. A latest initiative, AYUSH Wellness Centre, too found a mention. Smt Paul said little things from existing technologies can make a big difference if used correctly.

A session with academicians, technology business incubators, senior officers from India and abroad

This session was moderated by Shri H K Mittal, head, National Science & Technology Entrepreneurship Development Board (NSTEDB). He started by introducing about a programme in which NSTEDB has joined hands with ministry of human

resource and development to create three levels: (a) Start-up centre: annual support of ₹ 50 lakh, (b) Colleges will have to earmark and help set up 10 start-ups, and (c) A plan to establish seven research labs in the coming years. “200 incubators exist in industry of which about 100 of them are funded by us,” he said. Enhancement in the seed funds, support to start-ups; grant of ₹ 2 crore being given till now, is now being planned to raise to ₹ 10 crore.

There was a presentation by Prof Uriel Reichman. “We are a small university of 7,000 students. And we are programming on entrepreneurship for 50 years. We have 50 active initiatives,” he said. Cooperation between expertise in different area and creating models to implement ideas is required. Means of reducing the costs, providing reasonable health system for all needs to be found. Collaboration of academics and expertise should happen.

“Looking at the Indian issues, the solution for those issues are large-scale production in many cases. Industry is putting innovative technology and that has to be taken into entrepreneurship. In Israel, we have many ideas but many of these do not produce large-scale enterprises. We come up with many ideas but have to sell them to nations like America and lose out on them because we are unable to put them to manufacturing. The basic need is of independent thought, going out and facing the challenges. We should educate students to face challenges and come up with solution that are creative. There is a need of educating in



bringing an idea to the market,” he said.

To educate leadership in entrepreneurs we have to tell them to face the challenges of 21st century: (a) Sustainability; (b) To do business with biomedicine; (c) Revolution of communication and IT; and (d) Change the way we look at the world. The challenges of the global world are yet to be met by technology.

Mr Marc Prensky, founder, The Global Future Education Foundation and Institute, USA said, “The innovation we do is to encourage start-ups in which the failure rate is 90 per cent. We are encouraging competitions. Most people in these competitions fail, only one or two win. If you make a system like this, of course people will be afraid of failure.

Hence, we need to make a system where everyone succeeds.”

The kids should be taught to identify problems in the kindergarten and we should make a database of even the smallest ideas. These problems can be taken and teams be made across nation to work on these. “I think real-world accomplishment needs to start early. So, we need not teach students entrepreneurship in college because this way, they would have started innovating 12 years ago. Starting very early will lead to the kind of improvements we need.”

Mr Prensky shared a small story. In the US, it turns out in a place near Atlanta, the police came to a family’s house and

it was a mistake. They realised from the beginning that they had been called by mistake. But, they decided that even though they knew, they still put everybody in the family through the system of security. The kids in the family and others felt harassed. These kids had taken some programming in school and created an app that lets you rate your local police encounters. The most interesting thing, he said, was that several people started commenting on this app online. Some of them appreciated the idea but, some even suggested ways to improve the app. This became a platform for innovation. This is how, he suggested we need to leverage on social media. Prof John Webb, research professor (India engagement), Centre



for Transformative Innovation, Australia said the world is being simplified. The core belief collaboration, particularly international, is beneficial. The engineering school is now working more closely with business school. The PhD program is jointly offered with IIT Madras. The main discourse on campus is social entrepreneurship and social impact. This has transformed the learning process.

He added: “In Australia, we have a reputation of doing good research but we have not translated them into products. Universities are picking up their challenge and really taking advantage of that mood. They are trying to configure themselves within their learning community. We are trying to put together a set of ideas, thoughts

and beliefs with social responsibility and build an ethical dimension to try and get students to reflect. The focus is to make a difference to students’ lives.”

Prof S K Saha, head of the department of mechanical engineering and coordinator, Rural Technology Action Group (RuTAG), IIT Delhi briefed the participants on the activities and achievements of RuTAG. The key points were: (a) It started with NIF’s support during 2001-2004; (b) Worked with carpet industry in Bhadoi; PhD thesis and book published on this carpet industry problem; (c) Papers on the rural issues published for awareness and faculty motivation; (d) Women empowerment by technologies for manufacturing of beads; (e) They provide need-based support to the villagers; (f) On-going projects -- furnace for bangles, pot, sheep shearing

devices, ground water level measuring devices and AYUSH wellness clinics. He suggested it should be researchers’ social responsibility to keep five per cent of their time for research on social issues.

Dr Virendra Kumar, head & IREDA Chair Professor, Centre for Rural Development and Technology, IIT Delhi said Centre for Rural Development is in existence for last 35 years. “We were wondering how institutions can help the rural population. So, we invited 340-350 NGOs, voluntary organisations, professors, students and ministers in Unnat Bharat Abhiyan to see how we can orient people to work for rural India. To involve professional institutions of the country in the development of self-sufficient and sustainable village clusters in tune with the notion of Gram Swaraj proposed by Mahatma Gandhi. The minister for rural development came as chief guest and made it a national initiative. It started in 2014.”

Three TBIs presented their achievements before the participants. Ms Deepanwita Chattopadhyay, chairperson-ICICI Knowledge Partner, started by briefing the participants about their journey of the past 15-16 years. They have incubated several start-ups and provide challenge grants to them. TB was a major problem in the health sector then. They took several steps to mitigate TB. Another challenge was nutrition. They took up agriculture for nutrition. She also said that they have over 200 companies for scouting, spreading, identifying and celebrating grant challenges and that makes the



difference.

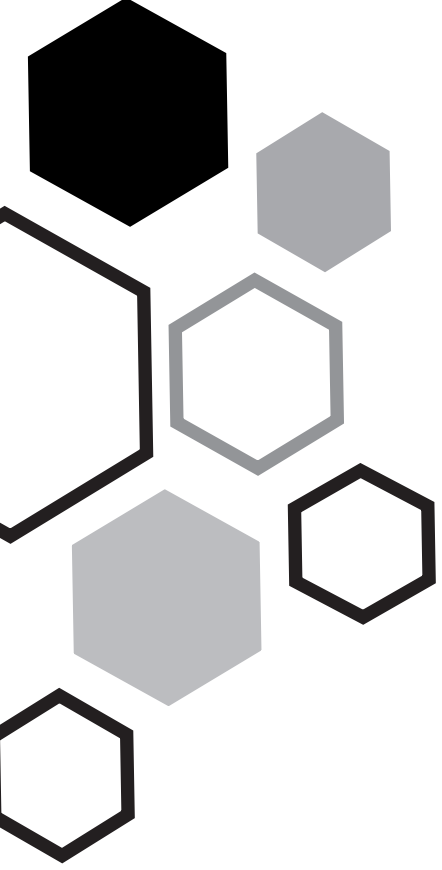
Ms Gita Chengappa, NIT Trichy said the first start-up was incubated by the department 30 years ago. She said the pillars for business incubators are: (a) Intellectual Infrastructure - education, training, social will; (b) Physical infrastructure - connectivity to new markets; (c) Cultural infrastructure - allows people to try out ideas and fail; and (d) Financial infrastructure. In a large country like India, many times these pillars are not available. Innovation and entrepreneurship keep the flag going. "We look at incubating start-ups in technology space. We are active in disseminating this model in India and global space. We are multi-stakeholders and self-sufficient. Post the year 2000, we consciously have brought in global organisations. Post 2010, we have been consciously focussing on clean and green technology. We were also felicitated by Railways to convert a coal fired engine to oil fired one in Nilgiris. 213 technologies have been commercialised. 19 patents. Every rupee spent on incubation is returned to society at the rate of ₹ 4 per annum (conservative estimates) in terms of taxes, employment opportunities are also created," she added.

Poster presentation on outstanding achievements by National Innovation Clubs and outstanding TBIs  
Following the meeting, posters were presented by various TBIs on their outstanding achievements.

"I think real-world accomplishment needs to start early. So, we need not teach students entrepreneurship in college because this way, they would have started innovating 12 years ago. Starting very early will lead to the kind of improvements we need."

- Mr Marc Prensky, founder,  
The Global Future Education  
Foundation and Institute, USA







Roundtable on the innovations in medical science and bio-technology, followed by interaction of scientists with grassroots innovators

## ROUNDTABLE ON THE INNOVATIONS IN MEDICAL SCIENCE AND BIO- TECHNOLOGY, FOLLOWED BY INTERACTION OF SCIENTISTS WITH GRASSROOTS INNOVATORS

**O**n March 16, a roundtable conference on the innovations in medical science and biotechnology was held, followed by interaction of the scientists with grassroots innovators. This roundtable saw one of the finest minds of the country coming together and brainstorming over how innovations in medical science and technology could be scaled up and be made more effective. The participants highlighted each of their organisations' innovations in the field of healthcare and biotechnology during the course of discussion.

The roundtable was attended by Shri Shripad Yesso Naik, minister of state for health and family welfare; Shri Niranjan Kumar, director, President's Secretariat; Dr Soumya Swaminiathan,



secretary, department of health research and DG, ICMR; Prof K VijayRaghavan; Prof Ashutosh Sharma; Shri Ajit M Sharan, secretary, AYUSH; Dr V K Subburaj, secretary, department of pharmaceuticals; Shri P K Mishra, additional secretary, health and family welfare; Prof I Manna, director, IIT Kanpur; Prof Anil K Gupta and Dr Vipin Kumar.

A need for looking at affordable costs for normal households was reiterated by most of the participants. A question was raised on how to link grassroots with other departments in universities. Prototyping through the process of testing, retesting, validation and partnering with industry was cited as necessary. A number of institutions have been able to come up with low-cost devices which have brought down costs for various tests. These institutions are supported by ICMR. But, remarked a

discussant, it is painful to say that we haven't reached the point where the ministry of health can use them for public healthcare. We need a robust system and a body. As far as the DHR and ICMR are concerned, we are fully committed in this area and also doing translational research needed for taking these products forward. He called for industry support to achieve this penetration. Also, too much dependence on imported medical devices and equipment needs to be brought down, remarked another discussant.

Low-cost medical technologies that can be manufactured locally were identified as the need of the hour. On one hand, we need to provide the best of healthcare to people in rural India; on the other, we have to look at the economic viability of the technology. Hence, better policy planning is



required.

One of the challenges in India today is to provide universal affordable healthcare. Over the years, the cost of healthcare has been rapidly increasing. And medical costs for various pathological and other tests has been the driving force. Hence, we need to look at affordable costs for normal household. Experts and admin working in this area hold the key positions in

bringing more and more innovation in biotechnology. We have examples of AYUSH Wellness centres which have brought all five branches of medicine under the same roof.

How do we link grassroots with other departments in universities? It is one thing to make a prototype and demonstrate its utility and another to take that prototype through the process of testing, retesting, validation and

partnering with industry. We need to find industrial partners who can produce affordable machines for public healthcare sector.

Two key areas that need immediate action are: (a) Standard treatment guidelines; and (b) A portal where medical innovations are listed.

Shri Shripad Yesso Naik said just as the burden of disease is shared by all,



it is everyone's right to enjoy mental and physical health. The focus is how to identify the health needs, promote the good practises and implement them. Transition of diseases, from communicable to non-communicable is increasing the demand for affordable healthcare services.

Our young innovators have come out with economical, eco-friendly technologies. This shows empathy in our youngsters. 69.1 million people are

diabetic in India. India is the diabetic capital in the world. Innovation by scientists at IISc use cost-effective and robust way to treat it. BARC have taken a lead by showing way to the country in clean technologies. The current budget is committed to improve the healthcare and innovation technologies in medical field. The number of start-ups suggests how they can also bring effective change in this field.

Dr K VijayRaghavan said quality

research foundations are vital to know where our success is applied. We take a utilitarian view of funding. The purpose of grants is to provide foundation support to the innovators. Rather than looking at individuals or a country, we should look at research as a collective. India has expertise in defining new technologies in biology and that has attracted the world towards it. Indian healthcare has delivered vaccines, drugs and treatment in a manner that has made it centric. We have



today an extraordinary set of people. Coordination and working together to solve problems beyond our specialised areas of interests is vital. Unless we proactively do that, we will not have an innovation ecosystem.

Shri Ajith M Sharan said most medicines are based on herbal plants now. Therefore, we should work on improving the cultivation of these endangered species. Innovations in medical science have revolutionised the healthcare sector in the world. They have reduced the suffrage and improved the lifestyle of people. For example, earlier anaesthesia was given to full body but, these days, we may give it to just one part where the surgery might be needed. This has been

achieved through innovation. Likewise, antibiotics, insulin, x-ray, endoscopy and laparoscopy have revolutionised healthcare. One can reach any part of the inner human body now and perform surgeries. Today, innovation drugs are used to treat one third of the formal diseases. This proves how innovation has propelled the growth of healthcare sector.

India suffers from low birth weight children. 28 million of those born every year are underweight. This happens because Indian girls and women suffer from anaemia. About 70-80 per cent women are anaemic, according to a study. The same statistics existed 35 years ago which means the number hasn't come down.

As far as equipment are concerned, cancer is a big problem. Over 1.2 million new cancer cases surface every year, of which 50 per cent lose the battle. 70 million are suffering from rare disorders. Not all of them have existing treatments in India. This is an area where we lag.

Most of the innovations in one corner of the country are not disseminated to other parts. It is not very often that we celebrate them. Unless we won't share the innovation with the people, they lie unused. Two things are vital to healthcare sector: Contribute to public healthcare; Contribute to reduction in expenditure. Innovations do not happen by specific desire and overnight. Normal systems might not deliver. We have to think out of box otherwise it will not be possible to reach the kind of population we intend to reach.

There are ideas but the biggest challenge is how to select which idea would benefit us. The moment thinking and innovations become a part of the institutional mechanism, it succeeds. We should look at research at medical colleges. What has happened has not been harnessed and therefore, we need an integrated support. Frontline health workers understand delivery system very well and hence they should be included in the process.

Prof I Manna said 33 per cent of our curricula is basic science. There are three entities: science, engineering, technology which are often treated as

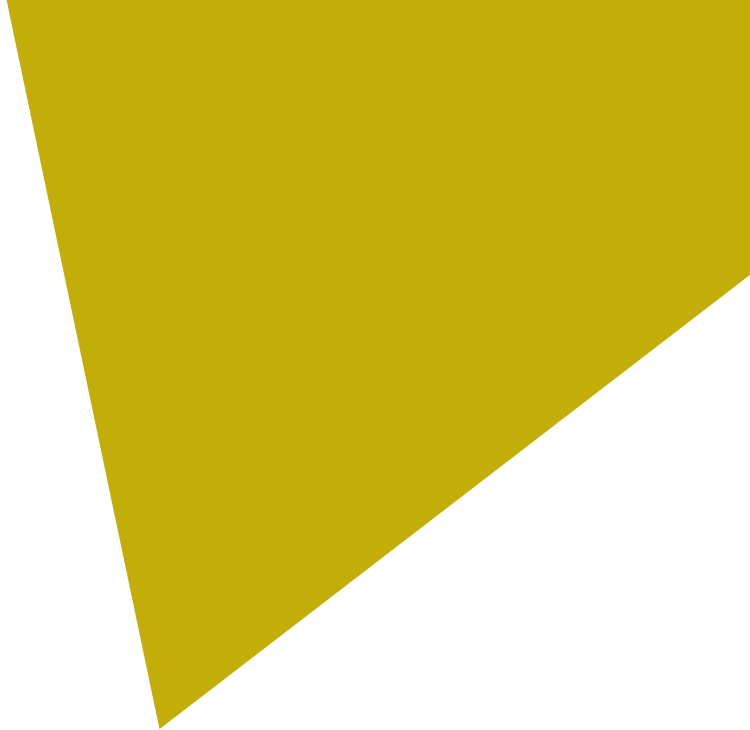


independent. We should move from ‘why’ to ‘how’ and ‘what sells’ model. To translate the knowledge acquired into viable technology is important.

Dr Vipin Kumar said: “We are the custodian of the largest non-codified database of innovative technologies: 80,000. We have found that many times the protocols are not there for herbal practises. We have adopted the approach of learning from failures. Many a times, we try to develop solutions but they become expensive when implemented. Some remain in shell. This happens because there is a mindset difference between the industry and the practitioners and this needs to be changed.”









Interaction with the leaders of banking and financial sectors on the consultation and policy dialogue about financing innovations, followed by Presentation on key recommendations emanating from the Roundtable discussions to the Hon'ble President

## INTERACTION WITH THE LEADERS OF BANKING AND FINANCIAL SECTORS

On March 17, an interaction with the leaders of banking and financial sectors on the consultation and policy dialogue about financing innovations was held. The roundtable was moderated by Dr Kshatrapati Shivaji, chairman & managing director, SIDBI. Two sessions were held to discuss the financial aspects involved in the process of innovation across multiple sectors.

The first session discussed financing options for funding innovations. The panel speakers were Shri K K Jalan, secretary, ministry of MSME; Shri Ashwani Kumar, chairperson, IBA; Shri A P Hota, MD & CEO, NPCI; Shri Sharad Sharma, co-founder, ISPIRIT; Ms Vishakha Mulye, ED, ICICI Bank; and Shri Vijay Shekhar Sharma, founder, PayTM.

The discussion focused mainly on four areas: (a) Grassroots innovations; (b) How incubation systems could be strengthened further; (c) Angel funding; and (d) Financing from other than angel and early seed-focused funding. It focused mainly on four areas: (a) Grassroots innovations; (b) How incubation systems could be strengthened further; (c) Angel funding; and (d) Financing from other than angel



and early seed-focused funding. Shri K K Jalan listed three suggestions for the financing options. First, traditional funding does not work for financing micro and small sector. Second, we should keep at least one per cent aside to fund low-cost innovations. Third, a lot of innovations by the organisations in government should get commercialised. It was also suggested that a separate account be made in organisations to finance only innovations.

Coca Cola's example was cited. It started as a syrup (medical product) before it was sold to the company that turned it into an aerated drink. For starting the company, the founder sought a fund of one

dollar, which was provided to him. This highlights the importance of financing an innovation.

There is no doubt that banks have to enter the innovation areas and finance them. Some innovations may not be successful and the casualty will be very high. Hence, we need to have a separate account. Why don't we put products on website and invite people who can help finance innovations? Second area in financing innovation is towards commercialising it. Shri Jalan added that the percentage of non-performing assets (NPAs) in rural areas is comparatively high. And, regarding banks financing micro ventures on the basis of rating, they will consider it.



Commercialisation of innovations is not achieved at the desired rate. Three reasons for this problem were identified: (a) Insufficient financing in the informal sector; (b) Interest rate inversion; and (c) The recent noise on entrepreneurship, masking a fundamental problem that entrepreneurship index has gone up while the innovation index has slumped. Big companies that get lowest interest rates have the highest NPAs. In this phase of copy-paste entrepreneurship (borrowing ideas from the West and scaling them up), when it goes bust, it may affect the real innovation that is happening in India.

It was also discussed that financing is important but regulation is also a significant part. Opening doors to CSR to finance innovations was also suggested.

We are going digital in every field now. There are only four million people in India who can invest ₹ 300,000 per year. Our system is not designed to penetrate beyond four million households. People with lower income do not trust the banking system and mutual funds, and instead invest in gold and chit funds. Technology of three kinds can be useful: (a) Aadhar; (b) E-sign; and (c) Unified payment interface. National Payments Corporation has come out with a plan as to how all forms of payments can be electronically unified over a period of time. Cash handling is usually anonymous, but if transactions happen electronically, they get captured.

Innovation financing is different. NABARD has started a fund and have funded more than 674 ideas and innovations. Success rate is high in terms of product innovation but we don't have sufficient infrastructure to guide start-ups. Even bankers may not have an idea. When products come up, some place is needed for testing. Such domains have to be set up and only then, innovation financing would happen properly.

Other observations by the discussants were: (a) Today, we are seeing more innovations being funded by start-ups; (b) Financing systems we have today were put in place during industrial era. We have moved on to the information

age now and these systems have become obsolete; (c) If one wants to finance, one cannot avoid the risk, so he/she needs to find ways of managing risk; (d) it has become necessary that commercial banks start funding; (e) We have to ensure that board-driven policies of banking firms are put in place; (f) Incubation centres at various universities should be opened; and (g) These nurseries (incubation centres) have to be attached along with the bankers. It is necessary that all banks can have a cell at the head office to draw outlines and start with these centres.

The second session discussed how the system can be strengthened. The panel speakers were Dr Bindu Dey, secretary, Technology Development Board; Shri T M Bhasin, vigilance commissioner; Dr Saurabh Srivastava, founder, Indian Angel Network; Shri B V Phani, director of incubator at IIT Kanpur; and Shri A K Kapur, deputy MD, SIDBI. It was suggested that a National Innovation Promotion Board should be set up which could govern and lay policies for innovation in India. This was followed by a presentation to the President. The session was attended by Shri Jayant Sinha, minister of state for finance, Shri Kalraj Mishra, minister, MSMEs, Shri Suresh Prabhu, minister of railways and Shri Nitin Jairam Gadkari, minister of road transport and shipping, among others, who discussed the role of government as a facilitator, the need to set up innovation centres in various places, the need to start thinking differently so that we can get new ideas in place and the need to generate employment, respectively.



Shri Saurabh Srivastava, founder, Indian Angel Network said this is a good time as we have a lot of challenges in India but also opportunities for innovation and entrepreneurship. The major challenges, he said, are healthcare, education, poverty. We need institutions like NIF, Nasscom, IBCA, angel networks to play different roles. We need to create more of them and create connectivity between them. There have been a lot of activities at policymaking and implementation level. We all are in the ecosystem where collective efforts have been made. Our first priority is that no innocent should be taken in so that when we ideate, innovate and implement, there is no fear.

Shri B V Phani said it is an individual that matters, ecosystem is only a supporting mechanism. From identifying innovation to patenting,

funding and implementing, any system will be as efficient as its weakest link and hence, we need to identify and strengthen our weak links. Right from the school, we are never allowed to think. From the entrepreneurs' perspective, if they convert any of their innovations into commercial products, they should be incentivized. If we are asking banks to fund at the innovation level, the evaluation and success rate will be much higher.

Shri A K Kapur said they are trying to engage with VCs, PE firms and angel investors in dedicated SME markets. Apart from path-breaking things, the educational system needs to be addressed. With regard to education, a bit more on connecting with the platforms needs to be launched.

Mr Sanjeev Bikhchandani, founder of Naukri.com said: "Most young

companies don't get finance easily mainly because bank's mandate is not to take risk. A good idea would be to persuade the government that banks can put a small amount of capital in venture capital funds."

The suggestions put forward by the discussants were: (a) Mentoring of innovations has to be changed at different levels; (b) Recommendation to the government that lending to innovations should be made statutory, especially to agriculture, SMEs; (c) Whether RBI can come out with guideline diluting terms and conditions; (d) If a new institution can be built to specifically handle financing of innovation to which Professor Gupta replied that creating institutions is easy but making the existing one work is more difficult; (e) Can we make a recommendation to the government to make funding to innovation a statutory requirement?; (f) To give comfort to the banker and whether RBI can come out with necessary guidelines in this regard; (g) Domestic capital is very little. So it is a good idea to pool capital (a certain minimum amount); and (i) CII, FICCI should support innovations.

Presentation on key recommendation emanating from the roundtable discussions to the president  
The presentation saw the participation of the Hon'ble President Shri Pranab Mukherjee; Dr Kshatrapati Shivaji; Dr R A Mashelkar, Smt Snehlata Shrivastava, special secretary, department of financial services, Shri Jayant Sinha, Shri Kalraj Mishra, Shri Suresh Prabhu, and Shri Nitin Jairam Gadkari.  
The key recommendations emanating



from the days' sessions were presented to the President by Dr Kshatrapati Shivaji.

- (a) Financing of innovations: One per cent should be kept aside, with additional weights under priority-sector lending.
- (b) MVIF should be replicated through appropriate linkage with Atal Innovation Mission.
- (c) CSR component can be considered for funding incubators other than those set up by academic institutions.
- (d) Micro enterprises and special rating models using digital data should be used.
- (e) There should be tax incentives on the lines of Spring, a Singapore model, for innovators.
- (f) Need to allow contribution to AIFs from government's NPS plan to augment supply of long-term patient

capital

- (g) Venture debt and structured debt for financing innovations should be discussed.
- (h) Risk mitigants for venture debt need to be laid.
- (i) There is a need to bring Aadhaar for tracking all financial transaction.
- (j) An Innovation Promotion Board should be set up at both state and national level.
- (k) A web-based platform should be made which would connect all stakeholders in the ecosystem.
- (l) On lines of NASSCOM 10,000 start-ups, we should set up incubation centres in different sectors and try to achieve a set target during regular intervals of time.

Smt Snehalata said DFS has been contributing through venture financing through SIDBI, especially in the MSME

space. Some of the recent initiatives of SIDBI are SMILE Fund (₹ 10,000 crore fund), a soft loan fund for SME, and India Aspirations Fund (₹ 2,000 crore) which can be leveraged through debt also and has a multiplier effect. Subsequently, Start-up India and Stand Up had been launched. Over 200 million people have opened bank accounts under Prime Minister's Jan Dhan Yojana. JAM initiative brought new dimension to financial inclusion space.

Shri Jayant Sinha said there is no shortage of money. And, tremendous innovation is happening across sectors. What we really lack are scarce resources: entrepreneurs, high-quality and high-integrity business persons. 95 per cent of the problem is building large-scale business that would return money. That is where we have to spend more time deliberating. The role of government is to be a facilitator and make policies. It is high-quality entrepreneurs who will solve India's problems.

Shri Kalraj Mishra said MSME cannot function without innovation. Innovation is its base. Youngsters have great ideas and we must felicitate these young minds. Setting up innovations centres at various places, INSPIRE scheme for students at schools are a few measures which go a long way in encouraging innovative minds.

Shri Suresh Prabhu said: "The biggest challenge that the world is facing today is that we are trying to fight modern problems with outdated tools. We need to start thinking differently so that we can get new ideas in place. We think in

a regimental manner which is the first hurdle in innovation.” He proposed the following sectors for getting ideas from innovators: (a) Could we think of waterless, odourless toilets? (b) Cleanliness; and (c) Safety.

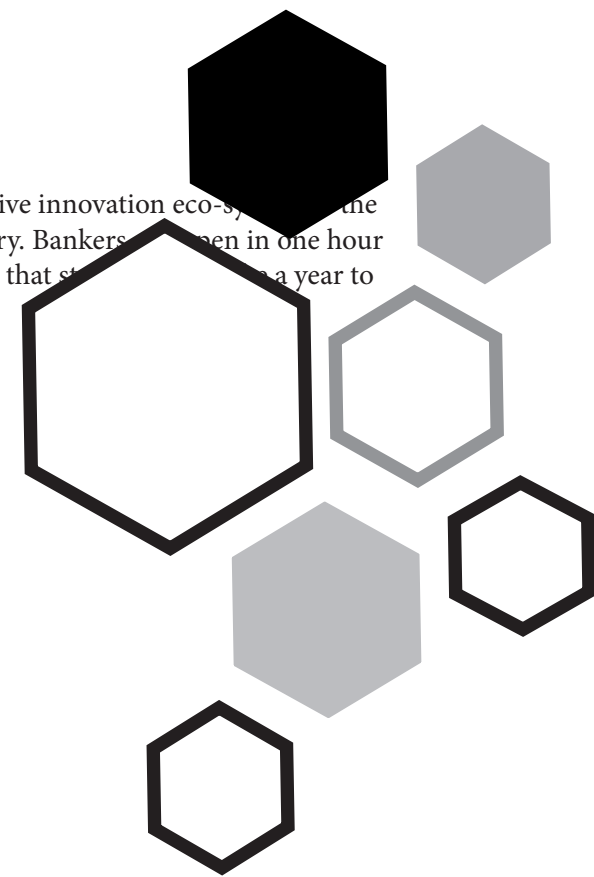
Shri Nitin Jairam Gadkari said employment generation is of utmost importance today. He talked about innovations in conversions of waste into wealth and conversion of knowledge into health. He cited an example of the Tirupati temple from where the collected hair is exported to foreign countries where amino acids are produced from them.

The Hon’ble President of India Shri Pranab Mukherjee acknowledged the role of NABARD in India’s development process. He congratulated both NABARD and SIDBI and said: “Through credit support, institution development and other activities, NABARD has been promoting sustainable and equitable agriculture, and rural prosperity. SIDBI has etched a very crucial role for itself in India’s industrial economy. As the principal

financial institution for the promotion, financing and development of the MSME sector, it has been contributing to production, jobs and exports in no small measure. These two entities have a key part to play in an innovation-filled India.”

He added that there has to be a hybrid model rather than a one-stop solution for financing of innovations. New-age financing options like angel investors, venture capitalists, crowd funding, seed finance, and ‘innovation on technology’ funds can meet the special requirements of innovation projects at formative stages. He launched an online platform, SIDBI-STARTUP-MITRA that will indeed act as a one-stop solution to meet the financing and other needs of early stage and start-up enterprises. This portal will be a marketplace of all types of requirements of stakeholders and a national ecosystem for Indian start-ups. The president complimented the Department of Financial Services and SIDBI for conceptualising this innovative finance programme. The integration of start-ups with investors, angel funds, mentor funds, and other service providers will help create an

inclusive innovation eco-system for the country. Bankers can open in one hour a cage that starts in a year to open.



“The biggest challenge that the world is facing today is that we are trying to fight modern problems with outdated tools. We need to start thinking differently so that we can get new ideas in place. We think in a regimental manner which is the first hurdle in innovation.”

- Shri Suresh Prabhu.







# ENGAGING WITH THE COMMUNITIES



Exhibition of outstanding innovations related to Swachh Bharat and a workshop with farmer innovators and community workshop coordinators of NIF, facilitated by Prof Neil Gershenfeld, director, CBA, MIT, USA

Exhibition of outstanding innovations related to Swachh Bharat and a workshop with farmer innovators and community workshop coordinators of NIF, facilitated by Prof Neil Gershenfeld, director, CBA, MIT, USA

On March 18, an exhibition of outstanding innovations related to Swachh Bharat and a workshop on enhancing excellence in fabrication at grassroots level with farmer innovators and community workshop coordinators of NIF, facilitated by Prof Neil Gershenfeld, director, CBA, MIT, USA was held. Prof Neil Gershenfeld, Prof Anil K Gupta, Prof Gajendra Singh (former DDG-Engineering, ICAR), Prof Amit Sheth (IIT Gandhinagar), principals and instructors from ITIs, people from Fab Labs and grassroots innovators attended the workshop.

NIF has established community workshops in different rural areas of the country at the premises of seasoned innovators so that other grassroots innovators of the region can have access to fabrication facilities and also learn from the experiences of such innovators. 37 such workshops



have been established in 19 states across the country. Many a times some ideas which need trial and error cannot be developed due to lack of dimensional drawings that are required for communication with the fabricators. Also, the innovators do not get it fabricated due to fear of copying by others; the community workshop would facilitate conversion of ideas into reality. The type of facilities provided to innovators vary according to their skills, experience and availability of



the community workshops to sensitise the local innovators. Another suggestions was that science & technology, R&D and technical institutions should mentor the grassroots innovators.

The problems being faced by the community workshop coordinators were also discussed and solutions were devised for addressing their concern. A major hurdle was that all of them (the community workshop innovators) are always ready to extend support to the other innovators but local people do not approach. Hence, a possible solution that found

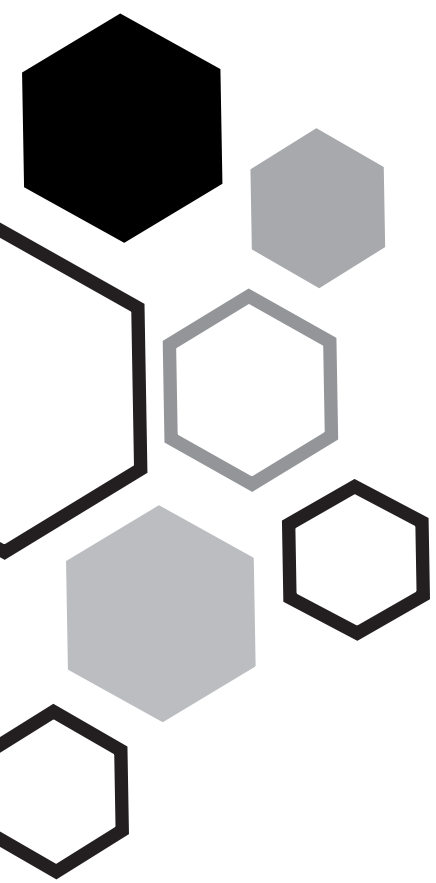
coherence was that the local newspapers should carry articles about the community workshops, which would sensitise people in the vicinity.

Also, it was felt that we need to create a process, which would ensure that we move towards zero waste. A possible solution could be to get a portal registered where all the community workshops would fill in the amount and type of waste they have. From here, other workshops, which could and might recycle any of the waste, would get in touch and use the waste. This would ensure zero waste system. To achieve this we could incorporate lean manufacturing concepts.

facilities than what he/she already has.

Prof Neil explained the need for digital fabrication and shared his experiences about Fab Labs across the world, citing some interesting examples. He emphasised on the use of modern materials for reducing the weight and cost of the products. He emphasised that we should organise regional workshops at





**FESTIVAL OF INNOVATION, 2016  
HACKATHON FOR SOCIAL INNOVATIONS**

Rashtrapati Bhavan Cultural Centre  
President's Estate, New Delhi



Hackathon for social innovations



Hackathon for social innovations

The Second Festival of Innovation 2016 at Rashtrapati Bhavan concluded on March 19 with a 12-hour coding competition to develop web and mobile applications in hackathon style (non-stop rapid development). The topics on which applications were developed were a) Teachers taking attendance after every class, b) Examination authentication for students, c) Monitoring entry into public monuments, and d) Monitoring of public toilets.

The President felicitated the winners of the competition in

each category in the presence of Shri Mohandas Pai, chairman of Manipal Global Education and Shri Karl Mehta of Code for India, among other dignitaries.

Speaking on the occasion, the President said: “A country like India may have reached a certain level of technological advancement. It may have promoted the development of a scientific bent of mind and temperament amongst its citizens, especially the young ones. However, unless young minds are sensitised to the need for finding creative solutions to top-ranging socio-economic problems of our

country, the goal of inclusive development will remain elusive. Unless the young creative minds are driven by commitment, devotion, empathy and sensitivity, a just social order envisaged in our Constitution will remain evasive. If we are able to leverage ingenuity to address social needs, it will result in social innovations beneficial to the society.”

The President expressed hope that the hackathon will inspire young talented individuals to contribute to social change. He said hackathon aimed at creating a digital system that will take forward the mission of large-





scale change through social innovations. The agenda and the themes of FOIN have attempted to build inter-linkages among various stakeholders essential for an inclusive society based on inclusive innovations and technologies.

The innovation exhibition continued till the evening of March 19. With Hackathon, the festival came to an end.

“India is a country of a thousands and millions of problems and millions of opportunities. The problem is not of the infrastructure, but of incentives, which is quite apparent in the fact that a pizza gets delivered in 30 minutes but an ambulance does not.” - Mr Vishal Gondal, founder and CEO, GOQii



Honey Bee Network