

# **NRN Science Foundation Report**



## **Skill Knowledge and Innovation Task Force (SKI) Report 2012-2013**

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## **Preamble**

Following NRN ICC declaration to establish the “NRN Science Foundation” in NRNA Regional meeting held in Sydney in 2012, the SKI task force formed a team comprising of ICC members to develop a ToR and project plan for 2013 with Mr Gokul Pokhrel, former Chair, Nepal Press Institute as the project project coordinator.

## **Operational modalities:**

*(As per NRN Sydney meeting declaration and following discussion with SKI-Chair, Dr. Raju Adhikari and the team on 17.9.2012, the following operational modalities has been proposed)*

1. Clearance and approval of programs and activities listed herein will be facilitated by the NRN-SKI Team on behalf of NRN-ICC, as may be required.
2. SKI Team is responsible for the management of the Fund as earmarked by NRN-ICC decisions, conference resolutions, etc.
3. The project will be managed by a Steering Committee comprised of the following members/advisers under the terms of reference as defined by NRN-ICC/SKI.

Dr. Raju Adhikari	-	Member, Chair (SKI)
Mr. Gokul Pokhrel	-	Coordinator
Dr. Pramod Dhakal	-	Member, Nepal
Dr. Ambika Adhikari	-	Member, USA
Dr. Drona Rasali	-	Member, Canada
Dr. Hem Raj Sharma	-	Member, UK
Mr Rajesh Rana	-	Member, Nepal
Mr Mana Kc	-	Member, RC, Oceania
Dr. Shovakar Dhakal	-	Member, Bangkok
Dr Benu Adhikari	-	Member, Australia

*(Suggestions have been received to co-opt some more members/advisers to make the structure more representative and inter-disciplinary)*

## **Plans, programs and activities: 2012 – 2013**

### **1. Objectives**

#### **(a) General Objective:**

Promote science culture and awakening among the people through appropriate program initiatives in media, education and policy planning.

#### **(b) Specific Objectives:**

- Promote partnership with leading media organisations of Nepal for depth reporting on popular issues of science concern.
- Promote programs in support of science education in schools of disadvantaged areas.

- Organise policy level dialogues among policy makers and scholars for the advancement of science education in Nepal.
- Prepare groundwork for the establishment of NRN Science Foundation in support of the above mentioned objectives on a long term basis.

## **2. Scope and limitations:**

The programs are complementary to national efforts undertaken by several organisations of Nepal and does not infer to compete or substitute any. The listing of activities under the four major program components may appear ambitious but start can be made with smaller activities at affordable costs.

The Steering Committee will be responsible for coordination and streamlining the implementation of the programs. However, each of the activities will be implemented in collaboration with national/local institutions as may be feasible.

### **Flexibility:**

The proposal provides wide flexibility in picking up items from the list of activities and is intended to be implemented in phases. For instance, modest start can be made from part of the seed money of a\$ 28000/- raised from the NRN fraternity in 2012. Based on the results during the project start year, other initiatives can be followed in successive stages. The seed money will be deposited into a separate NRN account in Nepal and will be used as specified in the project document.

## **2. Description of programs and activities**

### **2.1 Media-based Initiative (Commencement date 1-1-2013)**

The project is a collaborative model that promotes partnership with leading media institutions of Nepal for science popularization. The program will offer in-depth science reporting fellowships to competent mid-career journalists/science writers. Feature articles based on specific case studies will be produced and properly graded for acceptance by the medium as may be specified before their dissemination over the popular media channels. The project is cost effective and aims to reach wider segments of people at grass-root level through the use of existing media outlets.

### **2.2 Justification**

Ever since the restoration of parliamentary democracy in Nepal, there has been phenomenal growth of free and independent media. Free media operate side by side with State sector media but maintain superiority in terms of circulation, audience and reach. There are over 2000 newspapers, 230 FM radio stations and about 20 television stations. Most of the 75 districts have more than one radio station. Peoples' access to media messages has increased enormously but the message quality and contents suffer from a

number of inadequacies. Information on health, agriculture, forestry and environment of science value are fed over the State sector media to a limited extent while wider media spectrum is outside their reach. Ignorance about the modern attributes of science on matters affecting the daily lives of the common masses is very high and the rural society is still ridden by misconceptions, dogmas and unfounded beliefs.

*(It was no less glaring that in year 2010, over 400 persons died in 24 hilly districts of Nepal from diarrhea which could have been prevented through simple awareness creation about access to safe drinking water and proper community sanitation.)*

This is where knowledge dissemination about scientifically tested and adopted practices and their application on matters affecting the daily lives of the rural people assumes high relevance. And, the availability of widely accessible media networks can be a very cost effective and affordable resource in the dissemination of facts about basic sciences affecting the lives of the people.

Promoting media partnership in the popularization of science is a new concept being promoted by NRN fraternity in Nepal. Starting with the fellowship program, more collaborative models with media will be explored and implemented in the coming years.

### **2.3. Activities:**

#### **Science Depth Reporting Fellowships to Journalists/science writers 3**

Amount for each fellowship: Rs. 32,000 x 3	Rs.96, 000
(US\$ 1200 approx.)	
Grant to Fellowship recipient:	Rs. 25,000
Editing and product standardization:	Rs. 5,000
Miscellaneous expenses	Rs. 2000
Total for each fellowship:	Rs.32,000

### **2.4 Qualifications for eligibility of award recipients:**

- \* Candidate must be a science graduate from a recognised university; or,
- \* Should have about 5 years of experience as a journalist/columnist in a newspaper organisation or in an electronic media network, or,
- \* Should have work experience as a science teacher in a higher secondary school or a college in Nepal for ten years or above.
- \* Should have produced at least two feature stories about scientific subjects of popular interest in newspapers/journals or in electronic media.

- \* Should have proficiency of writing in Nepali or English language.

**Note:** Priority will be given to women and candidates from disadvantaged communities and ethnic groups.

## **2.5 Probable themes for the Fellowships**

- \* Diversification of Renewable Energy Sources in remote villages;
- \* Deforestation in *Chure* Hills area and its implications on ecology;
- \* The effects of pesticides on human health;
- \* The Prospects of Bio-diesel as alternative to fossil fuel;
- \* The disposal problem of lead batteries from electric vehicles in Kathmandu valley;
- \* The effects of climate change on crop patterns;
- \* Unplanned Urbanization of Kathmandu valley and environmental hazards;
- \* State of Science Education in Higher Secondary Schools: A sample case study;
- \* Solid Waste Management Problem in Kathmandu: Pollution levels of Kathmandu Rivers and threats to habitation;
- \* Arsenic and chemical poisoning of underground water from shallow tube wells in Terai areas.
- \* Air flight safety standards and public security issues.

*(Note to Steering Committee members: there is ample scope of modifying or adding more topics of popular science interest over and above the suggested list. Contributions are welcome. Should the entries be open to single specified topic or the candidates are given option to choose one from among the list? )*

### **2.1.6 Methodology**

Being a new initiative, the program will offer fellowship grants for investigative reporting into the subject areas as prioritized by the sponsors in collaboration with leading media organizations of Nepal. The NRN-S&T Forum duly represented by the NRN secretariat office in Kathmandu will be responsible for procurement of necessary funds from the Science Foundation Fund and fixing the quota of Science Reporting Fellowships on yearly basis.

The NRN-S&T team will notify the NRN secretariat in Kathmandu about the availability of grants for the fellowships and the agency responsible for the grant management. The administering agency can be a newspaper organization, an electronic media channel, or a professional media NGO, depending on the nature of the medium prescribed and selection of subject area.

### **2.1.7 Responsibilities of the grant administering organization**

- \* The grant implementing organization is expected to maintain a fair degree of impartiality to enable selection of competent science writers/journalists for the fellowship award.
- \* Information about the award should be widely circulated over the media or over other available outlets to enable wider participation of eligible candidates. (No separate cover expenses will be provided for advertisements about the fellowships).
- \* Sufficient time should be given (at least one month) for filing applications for the grant.
- \* A three-man selection panel will select the award recipient from among the applicants. The director of NRN secretariat in Kathmandu will be invited as one of the panel members.
- \* The award recipient is required to submit an outline of his/her area of study, methods to be employed, numbers of days to be spent on field study and the expected outcome.
- \* Following the submission of the outline, a contract paper should be drawn defining terms and conditions of the grant and obligations of the grantee.
- \* The fellowship recipient will be given 50% of the grant amount on signing the contract and the rest will be paid on submission of the project report.
- \* The report submitted by the award recipient will have to be properly edited and graded in a manner acceptable by the designated media for publication as a feature article or use over an electronic medium.
- \* About 20 percent of the grant amount will be available to the implementing agency to meet the cost of editing and other incidentals.
- \* The eligible candidate is required to select a field study site and spend about a week for study, investigation and interviews with potential stake-holders/beneficiaries.
- \* The implementing agency should submit a report to NRN Secretariat after the completion of the Fellowship program along with clippings of the articles published or other evidences attesting to the use of the Report.

**3. Support to capacity building of schools in remote areas.**

The program seeks to lobby for support to schools of remote rural areas in expanding the scope of science teaching by helping them have access to science books, learning tools and equipments.

NRN stakeholders will be encouraged to donate computers, scientific equipment and learning tools including books. A list can be developed providing ample choices on the equipment and materials, depending on donor preferences. Depending upon the availability of funds, support can also be extended to setting up science laboratory in a school of remote area (estimated cost for one lab varies from Rs.300, 000 to 400,000 i.e., A\$4000 – 5000) can be initiated in partnership with community schools.

Many schools of remote areas do not prescribe science education simply because the Instruction method is practical based requiring the support of equipments and learning materials.

As a modest starter, NRN S&T hopes to launch a science education support program this year with a call for equipment and learning materials donation. Modest fund will be available for the purchase of some equipment and learning materials to be delivered to deserving schools of remote areas.

In the succeeding phases, the program proposes to address the training of science teachers in remote schools. Depending on the availability of funds, the program will offer stipends to science graduates who are willing to go to rural areas as teachers for a period of six months at a time under contract.

Equally important field of activity during the next phase will be support to improve the human resource potential of science schools. This will include a program to train science teachers in which the NRN scientific pool of professionals can be effectively used.

Activity Support for 2012/13

Amount: Rs. 100,000 (US\$ 1200 approx.)

### **3.1. Awards to Science Students (Commencement date 1-1-2013)**

This year NRN the project will offer young science talents awards to two students studying at higher secondary school level.

Category of awards	2
(a) Science talents award	1
(b) Award to students from marginalized communities	1

**Amount: Rs. 15,000 x 2 = Rs. 30,000(US\$ 400 approx.)**



### **Selection procedure**

- Announcement about the In-school fellowships will be made through the existing network of Nepal government's Board of higher Secondary Education and High School Education Board.
- A three-member panel of educationists will be constituted for the selection of the eligible students. One of the fellowships will be awarded to candidate from women, and marginalized communities.

#### **4. Policy level Seminar on Science Education (October 2013)**

This will be achieved through a series of policy level dialogues and consultative meetings involving NRN educationists, S&T professionals and policy makers of the Government at various levels. Several donor agencies can be approached to supports the proposed consultative forums. The outcome will be policy papers, situation analyses and issue profiles that can have important bearing on forward policy formulations and decision making.

Target for 2012: Consultative meeting on Science Education In Nepal  
Tentative date: Three days before the NRN Conference in Nepal (2013)  
Estimated Cost: Rs. 170,000 (US\$ 2000 approx.)

*(Detailed program will be developed later in consultation with stakeholders in Kathmandu and circulated among the members of the Project Steering Committee)*

#### **5. Science Foundation Initiative (Ongoing)**

Science for the People Project is a participatory movement while Science Foundation is a long term goal providing for sustained development of S&T capacities in the country. The Foundation is conceived as a public endowment trust by mobilizing the resources and contributions from NRN global community.

During the project year, a conceptual framework of the Foundation will be prepared for submission to the NRN-ICC Governing body.

#### **6. Budget**

<b>Total Cost of Activities as listed above:</b>	<b>Rs. 400,000 (US\$ 5,000)</b>
Management overhead About 8% of the total	Rs. 34,000 (US\$ 400)

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<b>Grand total</b>	<b>Rs. 434,000 (USD 5,400)</b>
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### ***Request for contributions/feed-back/suggestions***

*The NPI/NRNA Coordination Committee requests all NRNA organizations, development organizations and S&T professionals to support this new science fellowship as a knowledge dissemination initiative among the hard to reach people. This initiative is complementary to NRN Open University activities and support OUN S&T projects in the future*

- *Cash contributions above \$100 will be credited with commendation certificates to be issued in the annual function organized by NRN Governing Body.*
- *Contributors are also welcome to sponsor a fellowship by offering a cash grant of \$400. The fellowship will be named after the contributor and letters of commendation issued accordingly.*
- *Suggestions are welcome towards the improvement of the draft outline or inclusion of any thematic areas not listed in this announcement.*

### **7. Summary**

The above activities progress reports will be presented to the ICC meeting during the global conference 2013 for review. It is anticipated that the proposed permanent S&T committee will overtake overall responsibilities from SKI Task Force following its approval from the ICC meeting and team structure revised as necessary to meet its future objectives.

## **Annex 1**

### **Members - Bio-sketch**

#### **1. Dr. Raju Adhikari**

Dr. Adhikari is currently working as a Principal Research Scientist at Commonwealth of Scientific and Industrial Research Organization (CSIRO) in Melbourne, Australia. He has over 25 years of research experience in design and synthesis i) bioactive molecules ii) polymers for medical devices and Tissue Engineering application iii) small molecule, organometallic complex and polymers for Organic Light Emitting Diodes application. He has published over 50 papers in high impact peer reviewed journals and 19 patents. He is recipient of CSIRO medal for Research innovation, CMSE SAP awards and runner up of Eureka Prize for commercialization of technology. He is the co-inventor of two platform technologies Elaston™ and NovoSorb™ and is in the scientific world journal international advisory board, Journal of Medical Engineering, Hindawi Publishing Corp.

He had graduated from University of Delhi in 1986 and did his post doctoral research at CSIRO, Australia and at Universitat of Hohenheim, Germany under DAAD program. He had worked as a Chief of the Central Research Laboratory, Nepal Academy of Science and Technology from 1986-1990 and as Vice President, Nepal Chemical Society from 1990-1991. He is currently the Chair of NRN ICC Skill and Knowledge Innovation task Force.

#### **2. Dr. Ambika P. Adhikari**

Dr. Ambika Adhikari is a Program Manager of Research with Arizona State University (ASU), Phoenix, Arizona, USA. He is also a Senior Sustainability Scientist at Global Institute of Sustainability, and Faculty Associate in Urban Planning at ASU. Ambika has over 25 years of professional and academic experience in urban and environmental planning, and in program management internationally, including in Nepal, India, USA, Canada and Mexico.

Ambika was the Nepal Country Representative of the Switzerland based IUCN – International Union for Conservation of Nature. As a Director at DPRA Inc. in Toronto and Washington DC, Ambika managed international urban and environmental programs and projects. Earlier, Ambika was an Associate Professor of Architecture and Planning at Tribhuvan University, Nepal. He was a member of the Government of Nepal's National Water and Energy Commission – the highest policy making body in this sector.

Ambika received Doctorate in Urban Planning from Harvard University, obtained post graduate fellowship from MIT and M. Arch. from University of Hawaii. He has authored one and co-edited four books, and published numerous reports, refereed and other articles.

He regularly writes and lectures on sustainability, urban planning, climate change policy, and international environmental policies and programs and on Nepali Diaspora issues. He has extensive practical experience on incorporating sustainability principles in urban planning and development practices.

### **3. Mr. Gokul Pokhrel, M.A., B.L**

Media consultant and Board member in several social and media organizations of Nepal. He has served previously as General Manager of Rastriya Samachar Samiti, Chief Editor of Gorkhapatra Daily, founder and chairman of Nepal Press Institute, Secretary, Charity International Nepal, Vice-president, and Nepal-Bharat Friendship Society. He also served as Director, Science Popularization Project, and RONAST from 1986-1990. He has received professional training in Journalism and mass communications from Thomson Foundation, Great Britain, Agency France Press, Paris, East-West Centre, Hawaii, USA; Asian Cultural Centre for UNESCO, Tokyo. Mr. Pokhrel is the co-author of Mass Media Laws in Nepal and has contributed several papers on media in Nepal.

### **4. Dr. Drona Rasali**

*Dr. Drona Rasali is an Advisor of Non-Resident Nepali Association International Coordination Council (NRNA-ICC) for 2011-2013. Professionally, he is the current Director, Population Health Surveillance & Epidemiology in the British Columbia Government's Provincial Health Services Authority (PHSA) as well as an Adjunct Professor of Health Studies at University of Regina, Saskatchewan in Canada.*

### **5. Dr Pramod Dhakal**

International Coordination Council Member, NRNA 2009– 2012 (3 years)  
Project Champion, Open University Initiative  
Coordinator, Foreign Coordination Committee, Open University Development Board  
International Coordination Council Member at NRNA  
Demographic info Eng Ottawa, Canada Area | Telecommunications  
Advisor at Canada Foundation for Nepal,  
International Coordination Council Member at NRNA, Executive Director at Canada Foundation for Nepal, Senior Software Engineer at Tropic Networks  
University of Saskatchewan, Indian Institute of Technology, Roorkee

Senior Scientist, EIon Inc and Carleton University  
Executive Director, Canada Foundation for Nepal  
Senior Software Engineer, Senior Engineer Nortel Networks, Lecturer, Tribhuvan University

#### **6. Dr Hem Raj Sharma**

Dr. Hem Raj Sharma is the spokesperson of the Non-resident Nepali Association, International Coordination Council (NRNA, ICC). By profession, he is a lecturer and a principal scientist in the Department of Physics, the University of Liverpool in the United Kingdom. He also serves as a deputy director for postgraduate research in the same department. He is associated with various European research networks on material physics, including as a member of the Think Tank of Young Researchers in complex metallic alloys as catalysts for hydrogen energy. He supervises PhD students and has published about 40 articles in international journals, including invited book chapters. Prior to the appointment in Liverpool, Dr. Sharma worked as a senior government researcher in National Institute for Materials Science (NIMS), Tsukuba, Japan. He obtained his PhD from Germany, Diploma from Italy and MSc from Tribhuvan University, Kathmandu, Nepal. He was awarded the government-sponsored fellowships such as JSPS fellowship in Japan and EPSRC advance research fellowship in the UK and also the gold medal for the best MSc in Tribhuvan University.

#### **7. Dr. Shovakar Dhakal**

"Dr. Shobhakar Dhakal is an Associate Professor with expertise on Energy-Environmental Planning and Policy at the School of Environment, Resources and Development of the Asian Institute of Technology. He is also a guest scholar at International Institute for Applied System Analyses in Austria. He is a senior editor of Carbon Management Journal. Dr. Dhakal is currently one of the Coordinating Lead Authors of the Fifth Assessment Report of the Inter-governmental Panel on Climate Change (IPCC) for the Working Group III. He has worked closely with UN systems, International Energy Agency, World Bank, several global environmental change related scientific programs, and other international institutions in the past."

#### **8. Rajesh Rana**

Rajesh Rana has more than two decades of experience in management in Nepal, especially in networking and distribution. He has worked for public private partnership institutions and INGO. His experience in working for both profit making and non-profit making organizations enables him to integrate commercial and social marketing techniques. At present he is the Executive Director of NRNA Secretariat in Kathmandu, Nepal and also a lecturer on management.

#### **9. Dr Benu Adhikari**

Dr Benu Adhikari did his PhD in Food Engineering from University of Queensland, Australia and postdoctoral work in France. He is an Associate professor, University of Ballarat, Victoria, Australia, He is one of the leading food scientist and have published over 60 papers in high impact peer reviewed journals and is an Associate editor of the Journal of Food Science. Dr Benu is a member of the Academic Team of Open University Initiative (OUI) and Skill Knowledge and Innovation Task Force.

