



S&T Newsletter



A Quarterly of the
Centre for Science and Technology of the Non-Aligned
and Other Developing Countries (NAM S&T Centre)

VOL. 20, No. 2
JULY-SEPTEMBER 2010

FROM THE DIRECTOR'S DESK

Heartiest Greetings!!

The Centre has recently launched yet another Fellowship Scheme, this time in the fields of Food Science & Technology jointly with the internationally renowned Central Food Technological Research Institute (CFTRI), Mysore, India. The Fellowship is for six months' duration with attractive financial assistance to the selected candidates. Those interested may follow the link http://www.namstct.org/NAM-CSIR_CFTRI-Fellowship.htm on our website.

The last quarter witnessed the organisation of two scientific events by us. The International Advanced Training Course on 'Intellectual Property Rights (IPR) for NAM and Other Developing Countries' held in New Delhi / Manesar, India in July 2010 in association with Technology Information, Forecasting and Assessment Council (TIFAC), Government of India was attended by 49 trainee participants from 28 countries and evoked huge interest among developing countries all across the globe. We have been urged by many countries to repeat this programme. The International Workshop on 'Application of Science & Technology for Occupational Villages Development' held in Hanoi, Vietnam in August 2010 jointly with the Centre for Regional Research and Development (CRD) and the International Cooperation Department of the Ministry of Science & Technology (MOST) of Vietnam also went off extremely well with participation of 77 professionals from 15 countries. At the end of each of these two events, a set of resolutions / recommendations was adopted for submission to policy makers and use by the concerned professionals and practitioners.

The collaborative project on 'Rainwater Harvesting and Groundwater Recharge in Developing Countries: HRD and Technology Transfer' supported by the Group of 77 countries (G-77) is in its last phase after successful organisation of the workshop at Pune, India and the training course at Bengaluru, India. A state-of-the-art report with 22 papers from various countries has been compiled and a draft report for submission to UNDP India and G-77 is under finalisation.

Several scientific activities on a variety of topics are lined up by the Centre in the coming period and we invite you and your colleagues to take part in the knowledge sharing and dissemination.

Happy Reading!


(Arun P. Kulshreshtha)

Centre Organised

International Advanced Training Course on Intellectual Property Rights (IPR) for NAM and Other Developing Countries Manesar / New Delhi, India, 12-17 July 2010

IPR has virtually touched all the spheres of human lives, including social, cultural, economic and technical arenas and is fast becoming a tool for the national development in the context of internationalisation of trade and commerce and emerging knowledge world. Developing countries have many challenges to overcome while evolving their own IP systems in order to satisfy their public policy needs and developmental goals. These countries have responded to the new order in different ways and have tried to handle global IPR issues with a sense of commonality especially in



Inauguration of the Training Course on IPR
Chief Guest Dr. T. Ramasami, Secretary DST (India) and Vice-President, NAM S&T Centre (2nd from L) with Dr. Rajiv Sharma, Adviser, DST; Prof. Arun P. Kulshreshtha, Director, NAM S&T Centre and Mr. R Saha, Director, PFC-TIFAC (L-R)

(Contd. on page 2 col. 1)

International Workshop on Application of Science & Technology for Occupational Villages Development Hanoi, Vietnam, 2-5 August 2010

The majority of the population in the world in the developing countries lives in villages. However, the national economic and social policies are often urban centric and do not necessarily help in alleviating the problems of rural poverty. The rural household incomes are strongly dependent on the vagaries of agriculture, but these may be complemented by diversifying and creating additional on- and off-farm incomes. In this regard, rural micro-enterprises play a significant role and their development yields increased production and generation of employment in the villages.

Developing countries have a favourable culture and tradition for rural enterprise development, marketing and



Inauguration of Hanoi Workshop: Group Photo

(Contd. on page 4 col. 2)



(Contd. from Page 1 - IPR Training Course, Manesar)



Group Photo of IPR Training Course at Heritage Village, Manesar

the matters related to protection of genetic resources and traditional knowledge. There is a sense of urgency in developing IP systems in each country to derive maximum advantage from the IPR system to address efficient utilisation of innovations and creativity.

Considering the increasing significance of IPR related issues and assessing the need of direct participation of scientific community of the developing globe in legal management of science, the Centre for Science and Technology of the Non-aligned and Other Developing Countries (NAM S&T Centre) in association with the Patent Facilitating Centre (PFC) of the Technology Information, Forecasting and Assessment Council (TIFAC), Government of India organized a six days 'International Advanced Training Course on Intellectual Property Rights (IPR) for NAM and Other Developing Countries' during 12-17 July 2010 in New Delhi / Manesar, India. The theme of the training course was 'Development of IPR Systems for National Growth' and its objective was to create awareness among scientific community about the legal framework of scientific inventions and practices in developing countries. The programme was supported by the Department of Science and Technology (DST), Ministry of Science and Technology, Government of India.

In the Inaugural Session of the training course, Prof. Arun P. Kulshreshtha, Director, NAM S&T Centre welcomed the delegates and presented the genesis of the training course and a brief description of the NAM S&T Centre aimed at the promotion of South-South cooperation, which was followed by an introduction to the training course by Mr. R. Saha, Director, PFC-TIFAC. Dr. Rajiv Sharma, Adviser, DST presented a summary of the bilateral, multilateral and regional cooperation activities of the Government of India in the fields of Science & Technology. Complimenting the NAM S&T Centre and PFC-TIFAC the Chief Guest, Dr. T. Ramasami, Secretary to the Government of India, Department of Science & Technology and Vice-President, NAM S&T Centre expressed satisfaction that such a large number of similarly placed developing countries were attending this event for sharing experience on knowledge management, and assured all possible support from his Department towards holding similar events in the future to benefit the society. The representatives of the Diplomatic Missions of several countries, including Cuba, Ethiopia, Ghana, Peru, Russian Federation and Zambia in India marked their valuable presence in the Inaugural Function.

The training course was attended by 49 trainee participants from 28 countries, including Botswana, Brazil, Cambodia, Colombia, Egypt, Ghana, India, Indonesia, Iran, Iraq, Jamaica, Kenya, Malawi, Malaysia, Mexico, Myanmar, Nepal, Nigeria, Pakistan, Panama, Peru, South Africa, Sri Lanka, Sudan, Tanzania, Turkey, Uganda and

Zambia, of which 18 delegates were from the host country India and the remaining 31 represented other developing countries. There were 11 resource persons / trainers from India, who delivered 17 lectures on various themes related to IPR.

The overseas trainee participants were from Botswana [Mr. Botshelo Maedza, Acting Principal Civil Engineer, Botswana Technology Centre (BOTEK), Gaborone and Mr. Letsomo la Tshipa, Ass. Performing Arts Officer (AAW Copyright), Department of Arts and Culture, Ministry of Youth, Sports and Culture, Gaborone]; Brazil [Dr. Marylin Peixoto da Silva Nogueira, Director, ICT Policies and Sectoral Programmes, Ministry of Science and Technology, Brasilia]; Cambodia [Mr. Chhean Piseth, Chief Officer, Department of Industrial Property, Ministry of Industry, Mines and Energy, Phnom Penh]; Colombia [Ms. Maria Consuelo Velásquez, Intellectual Property Advisor, Administrative Department of Science, Technology and Innovation, Colombian Institute for the Development of Science & Technology (COLCIENCIAS), Bogotá]; Egypt [Ms. Handra Mohamed Mohamed Nagy, Access To Knowledge Project Officer, Alexandria]; Ghana [Ms. Nana Ama Akyiaa Prempeh, Principal State Attorney, Registrar General's Department, Ministry of Justice, Kumasi]; Indonesia [Dr. Anny Sulawatty, Head of Legal and Public Relation Affair, Ministry of Research and Technology, Jakarta]; Iran [Dr. M. Reza Bakhtiari, Director and Head of Intellectual Property Office, Iranian Research Organization for Science and Technology (IROST), Tehran]; Iraq [Miss Teriza Jasim Ridha, Director of IPO, Central Organization for Standardization and Quality Control (COSQC), Baghdad]; Jamaica [Mrs. Yvette Sutherland-Reid, Senior



Dignitaries at the Inauguration of IPR Training Course



(Contd. from Page 2 - IPR Training Course, Manesar)



(NAST), Kathmandu]; Nigeria [Dr. Martins Ochubiojo Emeje, Research Fellow and IP & Technology Transfer Coordinator, Biophysical Drug Delivery Unit, National Institute for Pharmaceutical Research & Development (NIPRD), Abuja]; Pakistan [Ms. Syeda Rumla Naqvi, Industrial Liaison Officer, Pakistan Council of Scientific and Industrial Research (PCSIR) Labs, Karachi]; Panama [Dr. Catherina Caballero-George, Staff Scientist, Unit of Molecular Pharmacology and Pharmacognosy, Institute for Scientific Research and High Technology Services (INDICASAT), Clayton]; Peru [Mr. Carlos A. Irigoyen, Deputy Chief of Mission, Embassy of Peru in New Delhi]; South Africa [Mrs. Sheila Mavis Nyatlo, Deputy Director, Department of Science and Technology, Pretoria]; Sri Lanka [Mr. Merengnege Antony Mervyn Fernando, Senior Mechanical Engineer, National Engineering Research and Development Centre (NERDC), Ekala, Ja Ela]; Sudan [Mr. Ghazafi Abdalla Mohamed Ali, Counsellor, Sudanese Ministry of Foreign Affairs, Khartoum]; Tanzania [Ms. Judith Francis Kadege, Research Officer (IP Law), Tanzania Commission for Science and Technology, Dar-Es-Salaam]; Turkey [Dr. Burcu Dikmen, Chief Researcher, Scientific and Technical Research Council of Turkey (TÜBİTAK) and Ms. Özge Eşan, Attorney at Law, Patent and Trademark Attorney, Legal Department/IPR Office, TÜBİTAK, Ankara]; Uganda [Mr. Stephen Rwagweri, Executive Director, Engubu Za Tooro, Fort Portal and Mr. Frederick Okumu, Network Officer, Uganda Industrial Research Institute (UIRI), Kampala]; and Zambia [Mr. Lloyd Samson Thole, Assistant Registrar (IP), Patents and Companies Registration Office, Lusaka].

The Indian trainee participants were Ms. Debanjana Dey, Technical Assistant, National Institute of Science, Technology and Development Studies (NISTADS), New Delhi; Ms. Anshul Fuloria, Ms. Aruna, Ms. Dipti, Dr. Deepika Singh, Mrs Deepika Chaturvedi, Mrs. Geeta, Ms. Shikha Tejswi, Ms Shashank, Ms. Shivani Shrivastava, Dr Rollie Verma, Ms Raunak Dubey, Mrs Neeti Sahu and Ms Divya Pandey from PFC-TIFAC; and Mr. Gaurav Gaur, Ms. Chitra Prasad, Ms. Priyanka Rana and Ms. Isha Parmar, Research Assistants from NAM S&T Centre.

During the Training course, lectures were delivered by eminent Indian experts and professional Mr. R. Saha, Director, PFC-TIFAC, New Delhi [on 'Basics of IPR Management', 'International Treaties', 'IPR Audit', 'IPR in International R&D Collaborations', 'IPR Policy Development in Institutions', 'TRIPS and Emerging Issues, and 'Valuation of IPR']; Mr. A. K. Garg, Director,

Legal Officer / Attorney-at-law, Ministry of Industry, Investment & Commerce, Kingston]; Kenya [Mr. Kioko Nzuki Mwanja, Principal Research Officer, Directorate of Research Management and Development (DRMD), Ministry of Higher Education, Science and Technology, Nairobi]; Malawi [Mr. Kudonda Fexter Nseula, Technology Transfer Officer (Development) and Mr. Petros Orton Shiyombo Musukwa, Technology Transfer Officer (Dissemination), National Commission for Science and Technology (NCST), Lilongwe]; Malaysia [Mr. Ahmad Fareed bin Abdul Rahman, Assistant Secretary, Ministry of Science, Technology and Innovation, Putrajaya]; Mexico [Ms. Ana Paula Ramírez Ramírez, International Affairs Coordinator, Tequila Regulatory Council, Jalisco]; Myanmar [Dr. Phyto Mon Win, Assistant Director, Intellectual Property Section, Ministry of Science and Technology, Nay Pyi Taw]; Nepal [Dr. Chiranjivi Regmi, Chief, Faculty of Technology, Nepal Academy of Science & Technology



Indian Resource Persons



(Contd. from Page 3 - IPR Training Course, Manesar)

(Contd. from Page 1 - Occupational Village Workshop, Vietnam)

Department of Information Technology (DIT), Government of India [on 'Protecting Software Inventions']; Prof. V C Vivekanandan, NALSAR University of Law, Hyderabad [on 'International Disputes in IPR-DSB Approach']; Mr. S. Majumdar, Patent Attorney, S Majumdar & Co., Kolkata [on 'IPR Portfolio Management']; Mr. Rajendra Kumar, Attorney, K&S Partners, Gurgaon, India [on 'Protection and Management of Geographical Indications']; Dr. S. Mauria, ADG (IPR & Policy), Indian Council of Agricultural Research (ICAR) [on 'Practices in Protection of New Plant Varieties']; Mr. V. K. Gupta, Director TKDL, Council of Scientific and Industrial Research (CSIR), New Delhi, India [on 'IPR and Traditional Knowledge']; Dr. K Satyanarayana, Sr. DDG, Indian Council of Medical Research (ICMR), Government of India [on 'IPR Issues in Medicines Case of Drugs Protection from Developing Countries']; Mr. Yashawant D. Panwar, Scientist-D, PFC-TIFAC, New Delhi [on 'Patentability Analysis including Patent Search']; Prof. Madhukar Sinha, WTO Study Centre, Indian Institute of Foreign Trade, New Delhi [on 'Digital Rights Management']; and Mr. V. Lakshmikumaran, Sr. Attorney, Lakshmikumaran and Sridharan Associates, New Delhi [on 'Principles and Practices of IPR Licensing'].

The overseas participants presented their country / institutional status reports in two sessions respectively chaired by Dr. A. K. Sood, Head, International Division and Adviser, DST, Government of India and Dr. Balam Sharma, Indian Agricultural Research Institute (IARI), New Delhi.

Field visits were undertaken by the participants to PFC-TIFAC office at Vishwakrama Bhawan, New Delhi; Intellectual Property Office at Dwarka, New Delhi and other places. During the field visit to PFC-TIFAC, Mr. R. Saha, Director, introduced the participants with the functions of the PFC and its increasing popularity in the recent years and a lecture was delivered by Ms. Sangeeta Nagar, Principal Scientific Officer on the 'Women Scientist Programme' being executed by PFC-TIFAC followed by questions and answers session. The visitors were specifically interested in knowing how they may initiate similar programmes in their own countries.

In the field visit to the Indian Patent Office (IPO), New Delhi, Dr. K.S. Kardam, Deputy Controller of Patents & Designs and Mr. S. K. Swarup, Assistant Controller of Patents & Designs presented an overview of the operations and services being executed by the IPO including its digitised information system and easy-to-access website.

At the Concluding Session Dr. Rajiv Sharma, Adviser, International Division, DST, Government of India was the Chief Guest. Mr. R. Saha, Director, PFC-TIFAC presented a summary of the Training Course followed by a Feedback Session chaired by Prof. Arun Kulshreshtha, Director, NAM S&T Centre in which participants gave their valuable and critical comments on the course content and made suggestions for designing similar programmes in future. Some participants even mentioned that the training course organised in Manesar was very different and more beneficial to the developing countries than the ones being organised by the agencies such as WIPO and ARIPO.

The brainstorming discussion among the participants and the trainers was finally concluded with significant outcome, and to ensure the sustainability the participants, trainers and organisers unanimously adopted the 'Manesar Resolutions', a copy of which is appended.

The 'Certificate of Participation' was handed over to the participants of the Training Course by the Chief Guest. The Valedictory Function was concluded with the Concluding Remarks by Dr. Rajiv Sharma and Vote of Thanks by Mr. Yashawant Dev Panwar, Principal Scientific Officer, PFC-TIFAC. The participants thanked and greatly applauded the efforts made by the NAM S&T Centre and PFC-TIFAC in organising such a wonderful and useful Training Course.

technical skill upgradation and formation of collective action groups among households and communities in the villages, which can motivate and empower village people to make their lives more secure and prosperous. But the rural enterprises largely follow traditional and primitive technologies and the application of modern technologies is yet to be practiced in villages for efficient and productive use of the material, financial and skill resources of rural people. It is therefore necessary to identify the relevant technologies which have the potential for increased employment opportunities for the rural people, and improve upon or adapt the same to local conditions, wherever required. Developing institutional mechanisms to encourage the growth of skill and knowledge-based jobs through the creation of strong linkages between academia, industry and vocational training institutions is an ideal solution to the problems of unemployment and poverty among the villagers.

A number of developing countries have initiated programmes to build up and operate rural businesses and micro-enterprises with a group of households working together or in clusters. In this context, the concept of Occupational Community Villages (OCVs) in Vietnam is unique. The OCVs form the country's rural industry base, in which several households work together to produce a single product. This collective approach allows groups to develop some degree of economy of scale and greatly improves their sustainability and efficiency. However, despite the success of OCVs in





MANESAR RESOLUTIONS

ON INTELLECTUAL PROPERTY RIGHTS

WE, THE SCIENTISTS, TECHNOLOGISTS, PROFESSIONALS, ADMINISTRATORS AND POLICY MAKERS FROM Botswana, Brazil, Cambodia, Colombia, Egypt, Ghana, India, Indonesia, Iran, Iraq, Jamaica, Kenya, Malaysia, Malawi, Mexico, Myanmar, Nepal, Nigeria, Pakistan, Panama, Peru, South Africa, Sri Lanka, Sudan, Tanzania, Turkey, Uganda, and Zambia;

PARTICIPATING IN the International Advanced Training Course on Intellectual Property Rights (IPR) for NAM and Other Developing Countries, jointly organised by the Centre for Science and Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre) and the Patent Facilitating Centre (PFC) of the Technology Information, Forecasting and Assessment Council (TIFAC), Government of India during 12-17 July 2010 at New Delhi / Manesar (Gurgaon), India;

HAVING EXTENSIVELY DELIBERATED ON various issues related to knowledge, approaches and experiences concerning the management of IPR in NAM and Other Developing Countries with particular reference to the development of IPR systems for national growth;

UNANIMOUSLY EXPRESSING that the International Advanced Training Course has been a resounding success and extremely useful to the participants; and

CONVEYING GRATITUDE TO the Department of Science and Technology, Ministry of Science and Technology, Government of India for its generous support for such a programme,

UNANIMOUSLY resolve and propose the following actions by the concerned authorities in the participating countries:

- Developing countries should take steps towards capacity building on the management of IPR integrated in their respective S&T systems and develop a robust mechanism for the creation, protection, utilisation, promotion and management of IPR.
- Developing countries should initiate programmes to create awareness about IPR and enhance theoretical, technical and practical knowledge as well as skills on IPR among their professionals.
- The countries should evolve suitable systems for identifying inventions and carrying out patentability analysis to provide sound protection to the inventive work of their scientists.
- Each country should evolve a comprehensive database of Intellectual Property (IP) and Traditional Knowledge (TK) that need to be protected in the country.
- Protection of traditional knowledge and biological resources is an important need to be fulfilled to avoid piracy of resources. Each country should evolve suitable mechanisms in this direction which may include documentation of resources, designing suitable laws and exploring existing laws to provide protection to traditional knowledge and biological resources.
- More attention should be paid by the developing countries to IPR related aspects and anti-competitive practices in all cases of technology transfers.
- Considering the expertise of India in the field, and the need for such advanced training in the developing world, the Department of Science & Technology, Government of India is kindly requested to provide liberal financial support to the NAM S&T Centre for the organization of similar training course and interactive workshops on IPR in India with participation from developing countries, on a yearly basis, under its programme on international cooperation in science and technology.
- In view of the growing demand from the middle level professionals of developing countries to learn the management of IPR for the benefit of their countries, the Department of Science and Technology, Ministry of Science and Technology, Government of India are solicited to institute a fellowship programme on IPR management with the facilitation of the NAM S&T Centre.
- The Department of Science & Technology, Ministry of Science and Technology, Government of India may consider requests from other developing countries for deputation of the concerned Indian experts to provide technical advice on Human Resources Development (HRD) and creation of infrastructure on IPR management in those countries.
- The NAM S&T Centre will strive to organise similar annual or biennial training courses on IPR with technical support from the Patent Facilitating Centre (PFC) of the Technology Information, Forecasting and Assessment Council (TIFAC), Government of India and financial support of the Department of Science & Technology, Ministry of Science and Technology, Government of India
- Other developing countries should come forward to host programmes on IPR in collaboration with the NAM S&T Centre with facilitation by the Centre on international travel of resource persons and participants from other countries and liability on the host organisation limited to arrange funds to meet the costs on local hospitality including accommodation, meals and local transport for the resource persons and participants, and other organizational expenses of the programme.
- Participants were very appreciative of the activities undertaken by PFC and were keen to have collaboration with PFC to develop similar systems in their countries. In this context, they urged the NAM S&T Centre to take appropriate steps for engaging PFC in the collaborative effort.
- Participants greatly appreciated the Women Scientists Scheme of PFC under which women scientists are being trained in IPR for one year. PFC may consider the participation of some women scientists from various developing countries as trainees under this ongoing scheme. Developing countries may also consider initiating similar programmes and would very much appreciate the sharing of information from PFC to facilitate the implementation of such projects nationally.

DONE THIS DAY, THE 17TH JULY 2010, AT HOTEL HERITAGE VILLAGE, MANESAR, HARYANA, INDIA.



(Contd. from Page 4 - Occupational Village Workshop, Vietnam)

a national setting, they are still not fully equipped to move into higher value markets and do not have enough resources and skills to evolve into small and medium scale enterprises. There are similar programmes in many other developing countries aimed at the promotion of cottage and village industries and micro-enterprises and application of S&T for rural industrialisation and income generation in villages.

In order to deliberate on this issue, the Centre for Science and Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre) organised an international workshop at Tayho Hotel, Hanoi, Vietnam on 'Application of Science & Technology for Occupational Villages Development' during 25 August 2010, jointly with the International Cooperation Department of the Ministry of Science & Technology (MOST), Government of Vietnam and the Centre for Regional Research and Development (CRD) of Vietnam.

The Inaugural Session commenced with the Welcome Remarks by Mr. Nguyễn Văn Ban, Vice Director of CRD, that were followed by an Introduction to the Workshop by Prof. Arun P. Kulshreshtha, Director, NAM S&T Centre highlighting the background of the event, the role being played by the Centre in promoting South-South cooperation in various scientific areas and specifically in context with issues related to the application of science and technology for rural industrialisation, employment generation and income enhancement in villages in the developing countries. Dr. Nguyen Quan, Vice Minister of MOST gave the Inaugural Address followed by the Vote of Thanks by Mr. Tran Hau Ngoc, Deputy Director General of the Department of International Cooperation, MOST.

15 countries, namely, Cambodia, Ethiopia, India, Indonesia, Iran, Kenya, Myanmar, Nepal, Nigeria, Pakistan, Philippines, Sri Lanka, Tanzania, Uganda and Vietnam participated in the workshop. The 18 overseas participants were from Cambodia [Mr. Hoeung Kimsay, Official, Science and Technology Office, Department of Industrial Techniques, Ministry of Industry, Mines and Energy (MIME), Phnom Penh], Ethiopia [Mr. Yared Awgichew, Agriculture Technology Transfer Expert, Ministry of Science and Technology (MOST), Addis Ababa], India [Dr. Anil Kumar Singh, Scientist-G & Head, Technology and Business Development (TBD), Central Institute of Medicinal and Aromatic Plants (CIMAP), Council of Scientific & Industrial Research (CSIR), Lucknow; Mr. Ammanaghata Rudrappa Shivakumar, Principal Investigator RWH, Karnataka State Council for Science and Technology (KSCST), Bangalore; Dr. Brij Mohan Sharma, Secretary, Society of Pollution & Environmental Conservation Scientists (SPECS), Dehradun; and Prof. Vasala Madhava Rao, Head, Centre for Geoinformatic Applications in Rural Development (C-GARD) & Head I/C, CIT, National Institute of Rural Development, Hyderabad], Indonesia [Mr. Darmawan Listya Cahya, Researcher, Agency for the Assessment & Application of Technology (BPPT), Jakarta], Iran [Dr. Hojjatollah Hajihosseini Sefideh, Director, Research Institute for Development Studies, Iranian Research Organization for Science and Technology (IROST), Tehran], Kenya [Dr. Salome Muthoni Guchu, Assistant Director of Research, Ministry of Higher Education Science and Technology, Department of Research Management and Development, Nairobi], Myanmar [Dr. Aye Aye Khai, Associate Professor, Department of Biotechnology, Technological University, Kyaukse], Nepal [Prof. Dilip Subba, Secretary, Nepal Academy of Science and Technology (NAST), Kathmandu], Nigeria [Mrs. Angela Chineme I. Nwanya, Chief Scientific Officer (Food Division), Raw Materials Research & Development Council, Abuja], Pakistan [Mr. Syed Nawazish Ali Shah, Deputy Scientific Adviser (International Liaison), Ministry of Science & Technology, Islamabad], Philippines [Dr. Ma. Josefina Pormento Abilay, Regional Director, Department of Science and Technology (DOST), MIMAROPA Region, Taguig City, Metro Manila], Sri Lanka [Ms. Jayasamara Gunaratne, Assistant Director, Vidatha Program, Ministry of Technology and Research, Colombo], Tanzania [Mr. Omar Jumanne Bakari, R/O Technology Diffusion & Commercialization, Commission of Science and Technology



Group Photo of Foreign Participants of Hanoi Workshop at Ha Long Bay

(COSTECH), Dar Es Salaam], Uganda [Mr. William Balu-Tabaaro, Managing Director, Geo Engineering Technologies (GET), Entebbe], and a representative from the NAM S&T Centre [Mr. M. Bandyopadhyay, Senior Expert]. In addition to these foreign delegates, there were 57 participants from the host country, Vietnam.

21 scientific papers were presented in three Technical Sessions, which were co-chaired respectively by Dr. Dilip Subba, Nepal and Mr. Vu Quoc Tuan, President, Vietnam Association of Crafts Villages; Dr. Anil Kumar Singh, India and Mr. Luu Duy Dan, Vice President, Occupational Association of Vietnam; and Dr. H. Hajihoseini, Iran and Mr. Vu Quoc Tuan, President, Vietnam Association of Crafts Villages.

The scientific presentations were on 'Potentials and Situation of Occupational Villages in Vietnam' by Mr. Luu Duy Dán [Vice Chairman and General Secretary, Occupational Association of Vietnam]; 'Policy and Practical Measures to Promote Occupational Villages in Ethiopia' by Mr. Yared Awgichew of MOST, Ethiopia; 'Science & Technology for Rural Industrialization and Employment Generation in India' by M. Bandyopadhyay of the NAM S&T Centre; 'Spreading the Green Aura of Medicinal and Aromatic Plants for Improving Rural Economy' by Dr. A. K. Singh of CIMAP, CSIR, India; 'Status of Occupational Villages Development in Cambodia' by Mr. Hoeung Kimsay of MIME, Cambodia; 'Rainwater Harvesting (RWH) Project to Generate Sustainable Solutions for Drinking Water and Create Local Employment in Karnataka India' by Mr. A. R. Shivakumar of KSCST, India; 'Enhancing Natural Resource Management and Sustainable Development through Water Resources Management: Focus on Agricultural Productivity and Appropriate Technologies' by Mr. W. Balu-Tabaaro of GET, Uganda; 'Current Status on R&D for the Development of Rural Community in Myanmar' by Dr. Aye Aye Khai of the Kyaukse Technological University of Myanmar; 'Application of Science and Technology in Occupational Villages' by Mr. Trần Trọng Thành [Vice-Chairman, Management Board, Asia and Europe Trade Promotion and Investment JSC ASEM, Vietnam]; 'Initiation on Industry Cluster of Micro-Small-Medium Automotive Component Industries in Regency of Bekasi and Locate to Jababeka Industrial Estate' by Mr. Darmawan L. Cahya of BPPT, Indonesia; 'Energy Efficient Lights A New Era for Rural Employment' by Dr. B. M. Sharma of SPECS, India; 'Benefits and Experience Gained through the Vidatha Program being Implemented by the Government of Sri Lanka to Uplift the Economic Levels of the Public by Transferring Science & Technology to the Village Level' by Ms. Jayasamara Gunaratne of the Ministry of Technology and Research of Sri Lanka; 'How should Nepal use Science and Technology for Its Rural Development?' by Dr. Dilip Subba of NAST, Nepal; 'Application of Science and Technology in Occupational Villages Development in Nigeria: The RMRDC Approach' by Mrs. Angela C.I. Nwanya of RMRDC, Nigeria; 'S&T Interventions toward Rural Industrialisation in Mimaropa Region' by Dr. Ma. Josefina P. Abilay of the DOST, MIMAROPA Region,



(Contd. from Page 6 - Occupational Village Workshop, Vietnam)

Philippines; 'A Review on the Role of Science and Technology on Rural and SMEs Enterprises in Iran' by Dr. H. Hajihoseini of IROST, Iran; 'Technology and Rural Development In Tanzania' by Mr. Omar J. Bakari of COSTECH, Tanzania; 'Design and Development of Village GIS for 101 Villages in Bhilwara District, Rajasthan State' by Mr. Madhava Rao of NIRD, Hyderabad, India; 'Digital Villages Project: A Recent Strategy Towards Socio-Economic Empowerment of Rural Communities in Kenya' by Dr. Salome M. Guchu of the Department of Research Management and Development, Ministry of Higher Education Science and Technology of Kenya; 'Rural Uplift through Science and Technology' by Mr. S. Nawazish Ali Shah of the Ministry of Science & Technology, Pakistan; and 'Role of NAM S&T Centre on South-South Cooperation through Science & Technology' by Prof. Arun P. Kulshreshtha, Director, NAM S&T Centre.

The Concluding Session was chaired by Prof. Arun P. Kulshreshtha, Director, NAM S&T Centre and Mr. Nguyen Van Ban, Vice Director, CRD, Vietnam, in which the participants shared their ideas on how they and their concerned agencies intend to proceed with the follow up on the issues raised during the workshop and proceed with bilateral collaboration to support each other's ongoing programmes and initiate new activities.

During the Concluding Session a set of recommendations for submission to the governments and concerned agencies on matters concerning the occupational village development was also worked out and deliberated upon, after which a document titled 'Hanoi

Recommendations on Application of Science & Technology for Occupational Villages Development, Rural Industrialization and Employment Generation' was unanimously adopted.

The Valedictory Address in the Concluding Session was given by Dr. Nguyễn Quân, Vice Minister of MOST followed by the distribution of the Participation Certificates and the Concluding Remarks by Mr. Nguyễn Văn Ban, Vice Director of CRD.

En route to Ha Long Bay in the Gulf of Tonkin situated in the north-eastern part of Vietnam, ~170 Km from Hanoi, the participants visited two Occupational Community Villages (OCVs), respectively related to manufacturing of Silk and Ceramic products and interacted with the people working there. Ha Long Bay is one of the world's natural wonders and is among UNESCO World Heritage sites. The participants were taken by boat to the caves, which have peculiar stone formations.

The participants thanked and greatly applauded the efforts made by the NAM S&T Centre and the International Cooperation Department of the Ministry of Science & Technology, Government of Vietnam and the Centre for Regional Research and Development of Vietnam in organising such a wonderful and useful workshop. The contributions made by Ms Ngo Thi Loan, Vice Head of Project Department in CRD, Vietnam and Ms. Trieu Thi Bao Hoa of the Department of International Relations in MOST of Vietnam for the success of the programme were particularly recognised.

PARTICIPATION OF CENTRE'S SCIENTISTS IN WORKSHOPS/SEMINARS/CONFERENCES

28 July 2010	Dr. V. P. Kharbanda , Publications Advisor, attended a Stakeholder Consultation on 'India-Turkey Free Trade Agreement (FTA)' jointly organised by the Indian Council for Research on International Economic Relations (ICRIER) jointly with the Federation of Indian Chambers of Commerce and Industry (FICCI), New Delhi.
02-05 Aug. 2010	Mr. M. Bandyopadhyay , Senior Expert & Administrative Officer, attended the international workshop on 'Application of Science & Technology for Occupational Villages Development' organised by the NAM S&T Centre jointly with the Ministry of Science & Technology, Vietnam and the Centre for Regional Research & Development of Vietnam at Hanoi, Vietnam and presented a paper titled 'Science & Technology for Rural Industrialization and Employment Generation In India'.
26 Aug. 2010	Dr. V. P. Kharbanda , Publications Advisor, Ms. Isha Parmar , Ms. Priyanka Rana and Ms. Chitra Prasad , Research Assistants, attended a workshop on 'Women in Science' organised by the U.S. Embassy in New Delhi.
13-14 Sept. 2010	Dr. V. P. Kharbanda , Publications Advisor, attended a conference on 'Opportunities for Global Partnership between India and Japan - Infrastructure, the Environment, and Finance' organised by the Indian Council for Research on International Economic Relations (ICRIER) jointly with the Japan Bank of International Cooperation (JBIC) in New Delhi.
15 Sept. 2010	Mr. Gaurav Gaur , Research Assistant, attended a conference on 'Sustainable Growth and Enhancing Integration in Asia' jointly organised by the Research and Information System for Developing Countries (RIS) and Asian Development Bank Institute (ADBI) in New Delhi.
16-17 Sept. 2010	Dr. V. P. Kharbanda , Publications Advisor, attended an international conference on 'SAARC@25' organised by India International Centre (IIC) and RIS, New Delhi.

DISTINGUISHED VISITORS TO THE CENTRE

27 July 2010	Dr. A. G. Appu Rao , Scientist, Human Resource Development and Mr. M. Krishnamurthy , Controller of Finance & Accounts, Central Food Technological Research Institute (CFTRI), Mysore (Karnataka), India
16 Aug. 2010	Prof. Jitendra Behari , School of Environmental Sciences, Jawaharlal Nehru University (JNU), New Delhi, India
07 Sept. 2010	Dr. Anjan Kumar Chatterjee , Director, Dr. Fixit Institute of Structural Protection & Rehabilitation, Mumbai (Maharashtra), India
09 Sept. 2010	Dr. Abhay Kothari , Director and Dr. Kathan Kothari , Outreach Programme Coordinator, Manthan Educational Programme Society (India), Ahmedabad (Gujarat), India
09 Sept. 2010	Prof. Ravi Prakash , Vice Chancellor and Prof. Nirupama Prakash , H.O.D., Professional Development, Jaypee University of Information Technology, Solan (H.P.), India
21 Sept. 2010	Dr. Devendra Kothari , Professor, Population and Development Initiatives, Jaipur, India
30 Sept. 2010	H.E. Mr. Oleksandr D. Shevchenko , Ambassador and Mr. Roman , First Secretary, Embassy of Ukraine in New Delhi



HANOI RECOMMENDATIONS

ON APPLICATION OF SCIENCE & TECHNOLOGY FOR OCCUPATIONAL VILLAGES DEVELOPMENT, RURAL INDUSTRIALISATION AND EMPLOYMENT GENERATION

WE, THE SCIENTISTS, TECHNOLOGISTS, PROFESSIONALS, AND POLICY MAKERS FROM Cambodia, Ethiopia, India, Indonesia, Iran, Kenya, Myanmar, Nepal, Nigeria, Pakistan, Philippines, Sri Lanka, Tanzania, Uganda and Vietnam;

PARTICIPATING IN the International Workshop on 'Application of Science & Technology for Occupational Villages Development' jointly organised by the Centre for Science and Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre), International Cooperation Department (ICD) of the Ministry of Science & Technology, Government of the Socialist Republic of Vietnam, and the Centre for Regional Research and Development (CRD) of Vietnam during 2-5 August 2010;

CONVEYING GRATITUDE to the Government of the Socialist Republic of Vietnam for its generous support for this programme,

HAVING EXTENSIVELY DELIBERATED ON various issues related to the application of science and technology for occupational villages development, rural industrialisation, employment generation and income enhancement in villages in the developing countries;

UNANIMOUSLY EXPRESS that the International Workshop has been a resounding success and has provided an opportunity to the participants from various countries to discuss their country specific schemes and programmes, problems and constraints, and also exchange ideas and expertise on the subject;

NOTING THAT

- A number of developing countries have initiated programmes to build up and operate rural businesses and micro-enterprises with a group of households working together or in clusters; and
- Though Occupational Community Villages (OCVs) in Vietnam have attained considerable success, in some other countries, such entities have not yet fully equipped to move into higher value markets and do not have enough resources and skills to evolve into small and medium scale enterprises;

UNANIMOUSLY RECOMMEND that the following actions may be taken up by the concerned authorities in the participating countries:

- The countries may formulate their plans for the strengthening of the existing occupational villages and similar structures as well as in the creation of new entities to promote the development and transfer of technologies for application in villages and adoption by the concerned users and industries aimed at employment generation and income enhancement in villages;
- For the progress and sustenance of occupational villages and rural industry, priority should be given to concentrate on formation and expansion of less capital-intensive projects involving maximization of the existing indigenous technological capabilities;
- New and appropriate technologies should be introduced to make the products and processes compatible and sustainable in the market;
- Emphasis should be laid on the upgradation and adoption of existing technology rather than investing on high-tech and sophisticated areas;
- The initial approach should be on building up the techno-economic infrastructure and development of ancillaries for large industrial houses;
- An important policy issue should be on evolving a technology based product mix;
- Empowering rural people including women in production of medicinal and aromatic plant based products by setting up of micro-enterprises should be encouraged;
- A comprehensive resource inventory for each country should be developed by utilizing the expertise of the local S&T institutions and such information should be used for converting the resources into commercially viable projects by application of S&T;
- An inventory of appropriate technologies developed at the national level which could be transferred to rural areas should be prepared;
- In order to find solutions to the problems being experienced by occupational villages, like traditional handloom, jute processing and handicrafts, introduction of efficient looms and use of modern hand tools or semi mechanised tools should be supported;
- Modernisation of agriculture and agro-business establishments to add value to the products should be supported;
- Dedicated low cost computerized integrated design and sample making systems for handlooms and handicrafts should be evolved to improve production and competitiveness of goods manufactured by these sectors;
- There should be proper coordination and appropriate linkage between the village entrepreneurs and the S&T institutions for dissemination of proven technologies for application in rural areas, and also to utilize the expertise and facilities of the S&T institutions;
- Academic institutions, actors in the technological innovation systems and other national research laboratories should be involved and encouraged with incentives for supporting the process of technology diffusion, creation of new technology-based enterprises and employment generation in villages;
- Suitable training programmes for entrepreneurs and workmen need to be designed and implemented for various fields with appropriate transfer mechanisms;
- Countries should streamline their laws and regulations to facilitate all aspects of occupational villages' development and similar activities, thereby bringing their regulations into compliance with S&T friendly policies, and eliminating contradictions between such policies and actual regulations governing the availability of credit, customs, standards, taxation, etc.;
- Micro-credit institutions should be strengthened and established to assist rural people in technology transfer, and procedures related to providing financial assistance for the transfer of technology should be simplified;
- An environment should be created to access capital quickly and implement the projects along with access to technology from other parts of the world;
- There is a need to establish a proper information system to exchange and learn from each other regarding S&T management models to share the successful experiences among developing countries;
- Governments should fund R&D organisations for improvement, modernisation and refurbishment of infrastructure which will enable them to help occupational villages and similar enterprises;
- Professionals from the developing countries having programmes on OCVs should meet at regular intervals and share their experiences (success or failure stories) and formulate strategies for all round success.

THUS DECLARED AND ADOPTED IN HANOI, VIETNAM ON THIS DAY, 3RD AUGUST 2010.



SCIENCE AND TECHNOLOGY NEWS IN THE DEVELOPING WORLD

Africa: Fibre Optics along the African Coast

The Ile de Batz ship travelled on the African coast to lay cable for the Eastern Africa Submarine Cable System (EASSy), a 10,000-km undersea network that will connect with nine African countries along the east coast of the continent and serve an additional 12 landlocked nations through backhaul networks. Interconnection with other undersea international cable systems will enable traffic on EASSy to seamlessly connect to Europe, North and South America, the Middle East and Asia, thereby enhancing the east coast of Africa's connectivity to the global telecommunications network. The EASSy system, with a 1.4-Tb/s capacity, is only one of several such initiatives. The 4500-km TEAMS (The East African Marine Systems) offers a capacity of 120 Gb/s to 1.4 Tb/s, while the 13,700-km cable system by the SEACOM company provides a capacity of 1.28 Tb/s. These submarine cable systems could lead to important changes on the continent. African retail carriers can now enjoy equal and open access to inexpensive bandwidth, removing the international infrastructure bottleneck and supporting economic growth. The introduction of broadband Internet to the continent will contribute to development in a variety of ways. Africa can now launch itself as a major competitor for call centres/business process outsourcing. The financial and manufacturing sectors, among others, can lower costs even while increasing productivity. Hospitals performing clinical studies can share data in real time with collaborating sites around the world. And science, education and other research can be conducted in east or southern Africa. Using the Internet, farmers in Tanzania will be able to access both the local and international markets for their products without having to rely on middlemen and cooperatives. Schools in South Africa can take advantage of resources available through the Tertiary Education and Research Network of South Africa. And surgeons at the Regency Medical Centre in Dar es Salaam, also in Tanzania, may be able to perform complicated procedures in real time using telemedicine, working with major medical centres in India.

Source: *Photonics Spectra*, 6th April 2010

Africa / Brazil: Launch of Knowledge Sharing Initiative

An agricultural collaboration between Africa and Brazil, called 'Africa-Brazil Agriculture Innovation Marketplace', was inaugurated in July 2010 as part of the Brazil-Africa Dialogue on Food Security, Fighting Hunger and Rural Development. The main goal of the initiative is to develop South-to-South knowledge and technology transfer, and to encourage policy discussions between the two regions. The listed objectives of the initiatives are to enhance agricultural innovation and development on the African continent through the establishment and strengthening of partnerships between African and Brazilian organizations; promote investments in agricultural research and development; mutually contribute to the achievement of the United Nations Millennium Development Goals; promote knowledge exchange between Africa and Brazil; and support agricultural development in Africa in line with the African Union NEPAD - CAADP.

Source: *Crop Biotech Update*, 30th July 2010

Egypt: Library of Alexandria Science Supercourse

The Bibliotheca Alexandrina in Egypt and the World Health Organisation (WHO) collaborating Centre in the University of Pittsburgh, University of Michigan and Google launched a Science Supercourse project on 5-6 January 2009 at the Bibliotheca Alexandrina. The primary goal of the Science Supercourse project is to provide free-of-charge the most up-to-date information to educators, scholars and scientists in developing countries. The proof-of-principle was established over the past decade with the Supercourse of Epidemiology, comprising 3557 lectures, 58,000 teacher/professor users, and an estimated 1 million students reached in 175 countries. Thirteen lectures were received from 9 Nobel Laureates and 161 from 73 members of the U.S. National Academy of Sciences and Institute of Medicine. The Science Supercourse project initiative is to build an Internet archive of Power Points in four main scientific fields: Medicine and Public Health, Agriculture, Engineering and Environment. The presentations are compiled from the Internet through a system designed by the Information and Communications Technology

Department of the Bibliotheca Alexandrina. The Library is the repository and the secretariat for this global initiative, with financial support from the Swiss Development Corporation. A DVD containing more than 3600 lectures is being distributed worldwide. Additional information is available at <http://www.pitt.edu/~super1/>

Source: *TWAS Newsletter*, Vol. 22, No.1 (2010)

India: ~\$30 Laptops for Students

The Human Resource Ministry of India unveiled a Rs.1,500 (around \$30) laptop which is designed specifically for students. Possibly the cheapest computer, the device weighing 400 grams, no bigger than a conventional laptop, is a single unit system with a seven-inch diagonal touch screen and a built in key board along with a 2 GB RAM memory, wi-fi connectivity, USB port and powered by a 2-watt system to suit poor power supply areas. The storage capacity can be enhanced by inserting a higher memory disc. The Ministry started its efforts by holding discussions on this concept with a group of experts at the Indian Institute of Science, Bangalore and Indian Institutes of Technology in Kanpur, Kharagpur, Madras and Bombay. The low cost laptops will be distributed in institutions by the HRD Ministry and will be available for the students in 2011. The Ministry expects the price is expected to drop to Rs.1,000 (\$20) and reach Rs.500 (\$10) as innovations are introduced. Many in the private sector are willing to join the innovation. The final price will depend on the transportation cost. Some subsidy on the device may also be given and if the transport cost is less, the government may bear that as well.

Source: *Mail Today*, New Delhi, 23rd July 2010

India: National Innovation Council

A National Innovation Council has been set up in India to prepare a road map for the Decade of Innovation 2010-2020. Dr. Sam Pitroda, Adviser to the Prime Minister on Public Information Infrastructure and Innovations and IT expert, who helped revolutionize information and communication technologies in India in the late eighties, will lead a team of experts from S&T, industry, academia and administration in this Council, which has been given the mandate to evolve an Indian model of innovation focusing on inclusive growth and creating an appropriate ecosystem conducive to fostering inclusive innovation. It will delineate appropriate policy initiatives within the government required to spur innovation. In addition, it will promote the setting up of Sectoral Innovation Councils and State Innovation Councils. While encouraging all important sectors of the economy to innovate, it will take special efforts to facilitate innovation by micro, small and medium enterprises. The Council will focus on public services delivery and encouraging multi-disciplinary and globally competitive approaches for innovations. In the recent past, the Ministry of Science and Technology had drafted the National Innovation Act of 2008 [<http://www.dst.gov.in/draftinnovationlaw.pdf>] to facilitate public, private or public-private partnership initiatives for building an innovation support system to encourage innovation, evolve a National Integrated Science and Technology Plan and codify and consolidate the law of confidentiality in aid of protecting confidential information, trade secrets and Innovation.

Source: *The Hindu*, 17th August 2010

Kenya: Climate Change and Rainmakers' Predictions

The Nganyi rainmakers have begun collaborating with meteorologists, combining their indigenous knowledge with modern science, to help them make more accurate weather forecast for the communities that depend on their advice. The rainmakers' predictions are based on close observation of natural phenomena, like the budding or flowering of specific plant species and the behaviour of local insects and animals, associated with seasonal changes. The Kenya Meteorology Department is adding its scientific knowledge to the traditional knowledge of the Nganyi in a project lead by the IGAD Climate Prediction and Applications Centre (ICPAC) to provide more reliable information for communities at risk from climate change. Rainmakers' predictions only pertain to the immediate community and the meteorologists forecast apply on the national and regional level. ICPAC believes the two groups will compliment each other to better serve parts of Kenya that have been affected by drought and erratic rainfall in recent years. The project uses a system that combines each group's



(Contd. from Page 9 - S&T News)

knowledge. After making their predictions for the upcoming season, Nganyi rainmakers meet with researchers that compare the Nganyi forecast with a scientific forecast from the Climate Outlook Forum to develop a consensus forecast. The project has been in use for two seasons with positive results. The forecasts were surprisingly accurate for the local area, even on one occasion when it appeared to contradict the overall seasonal outlook at the country level. The information from the project is being used to protect the health and livelihood of the indigenous people from the impact of climate change. Relaying the information through traditional rainmakers will make it more accessible for local communities that find the scientific approach cluttered with technical terms. By incorporating the indigenous knowledge of the Nganyi with scientific weather technology, the ICPAC project has discovered a way to combat the affects of climate change without neglecting the heritage of the Nganyi people.

Source: *ResearchSEA - News Update*, 5th July 2010

Malawi: New Maize Varieties and New Business Models

The climate is changing, rainfall is decreasing and the weather is now dictating which varieties farmers grow and in turn which varieties seed companies produce. After facing crop failure in the recent years, Malawi farmers are now putting their hope on two drought tolerant maize varieties: ZM 309 and ZM 523. These varieties were developed especially for the dry areas and infertile soils of Malawi through the Drought Tolerant Maize for Africa (DTMA) project of International Maize and Wheat Improvement Center (CIMMYT), Malawi's Ministry of Agriculture and Food Security, and the Chitedze Research Station. Along side the development of new varieties to cope up with the changing environment, the seed companies are also innovating their business model. For instance, the Seed Co. Malawi, a leading southern African seed company, is offering ZM 309 and ZM 523 as open pollinated varieties (OPVs), which can be saved from one season and can still be planted after three subsequent seasons without affecting yield and other favorable traits. OPVs are different from other commercially available hybrids which must be bought and sown fresh every season, or else the performance of the crops would decrease.

Source: *Crop Biotech Update*, 9th July 2010

Panama: Fungal Disease wipes out 30 Amphibian Species

Amphibians are the oldest class of existing four-legged vertebrates, having been around for 300 million years. A Panamanian park has lost around 40% of its amphibian species in the past decade, with some dying out before biologists had even learned of their existence. Combining genetics with nearly ten years of field surveys, biologists discovered 11 new species, only to find that five of them are already extinct in the area. The disease chytridiomycosis, caused by the chytrid fungal pathogen *Batrachochytrium dendrobatidis*, threatens more than 2,800 amphibian species worldwide. Amphibians infected by the disease have skin several times thicker than normal, which affects their ability to breathe and the transfer of electrolytes. The epidemic hit in 2004, enabling researchers to conduct a before-and-after comparison. After sequencing toe clippings or liver samples from 297 specimens collected before the decline, the researchers found that the area was home to 63 known species. By using DNA barcoding, which involves sequencing standardized DNA marker fragments to match specimens with known species, 11 species were further identified that were previously unrecognized. Thirty of these species are now extinct in the area, including five that were wiped out before we even knew they were there. This brings the total loss of amphibian lineages to 41%. The researchers also looked at amphibian evolutionary history, which considers all the frogs, salamanders and caecilians that have existed over millions of years. Conservationists use species as a category to describe what needs protecting. Herpetologists are attempting to preserve animals by removing them from their natural habitat. Another conservation method being explored is the use of probiotics. Frogs and salamanders have symbiotic bacteria growing on their skin, defending them against the fungus.

Source: *NatureNews*, 19th July 2010

Peru: Painting the Andes

Peru is home to more than 70 percent of the world's tropical glaciers, but global warming has already melted away 22 percent of them in the last 30 years, according to a World Bank report last year. In a remote

corner of the Peruvian Andes, men in paint-daubed boiler suits diligently coat a mountain summit with whitewash in an experimental bid to recuperate the country's melting glaciers. It's a bizarre sight at 4,756m above sea level, where crops or trees don't grow. Licapa is above the tree line. The people live mainly from selling their alpacas' wool. The idea is based on the simple scientific principle that changing the albedo (a measure of how strongly an object reflects light) of a surface by whitening means that it does not absorb so much heat and emit infrared radiation, which takes time to leave the earth's atmosphere and warms trapped greenhouse gases, in effect creating a micro-climate. The man behind the idea is not a glaciologist, but an inventor, Eduardo Gold. His non-governmental organization Glaciares de Peru was one of the 26 winners of the World Bank's '100 Ideas to Save the Planet' competition in November last year. His plan is to paint a total area of 70 hectares on three peaks in the Andean region of Ayacucho in southern Peru. The workers use jugs, rather than paintbrushes, to splash the whitewash onto loose rocks around the summit. So far they have painted some two hectares, 10th of the total area aimed to cover on the peak. The project has been awarded funding of US\$200,000 by the World Bank.

Source: *Taipei Times*, 30th June 2010

Sudan: Antibiotics in Ancient Nubians

A new study, which found large doses of tetracycline embedded in the bones of ancient African mummies by discovering green fluorescence in Nubian skeletons, suggests that people have been using antibiotics for nearly 2,000 years. What's more, they probably got it through beer, and just about everyone appears to have drunk it consistently throughout their lifetimes, beginning early in childhood. The scientists were also able to trace the antibiotic to its source, grain that was contaminated with a type of mold-like bacteria called *Streptomyces*. Common in soil, Strep bacteria produce tetracycline antibiotics to kill off other, competing bacteria. Grains that are stored underground can easily become moldy with *Streptomyces* contamination, though these bacteria would only produce small amounts of tetracycline on their own when left to sit or baked into bread. Only when people fermented the grain would tetracycline production explode. Nubians both ate the fermented grains as gruel and used it to make beer. It is becoming increasingly clear that this prehistoric population was using empirical evidence to develop therapeutic agents. While the modern age of antibiotics began in 1928 with the discovery of penicillin, the new findings suggest that people knew how to fight infections much earlier than that, even if they didn't actually know what bacteria were. Some of the first people to use antibiotics may have lived along the shores of the Nile in Sudanese Nubia, which spans the border of modern Egypt and Sudan. Given the amount of tetracycline there, they had to know what they were doing. They may not have known what tetracycline was, but they certainly knew something was making them feel better.

Source: *Evri.com*, 3rd September 2010

UAE: World's Largest Thermosolar Plant

A consortium comprised of Spanish firms Abener and Teyma has been awarded the Engineering, Procurement and Construction (EPC) contract to construct the Shams 1 concentrated solar plant in the Emirate of Abu Dhabi for the 100 megawatts of power plant. The Shams 1 plant will be made up by 768 parabolic trough collectors and 12 modules of mirrors spread over a surface of 300 hectares. The development society is Shams One Company composed of MASDAR (60%), Total (20%) and Abengoa Solar (20%). The whole investment amounts to 600 MUSD within a stipulated period of 24 months. During 25 years, Abengoa Solar and Total will be in charge of the Operation and Maintenance. The produced electricity will be sold to the Abu Dhabi Water and Electricity Company (ADWEC) under a long-term power purchase agreement. The consortium Abener and Teyma represents the emergence of a new leader in engineering and construction of projects for sustainable development and is based on the wide experience of these two firms as EPC constructors of pioneer thermosolar plants and the largest biofuel plants, as well as on the capacity of both companies to undertake the execution of successful projects. The consortium has been set up after the completion of significant projects such as the two worlds ISCC plants located in North of Africa, and the largest Solar Platform of Europe based in Spain.

Source: *Energetica XXI Enews Letter*, 13th September 2010



Dr. Devendra Kothari (C), Professor, Population and Development Initiatives, Jaipur, India



H.E. Mr. Oleksandr D. Shevchenko, Ambassador (2nd from L) and Mr. Roman, First Secretary (R) Embassy of Ukraine in India



Prof. Nirupama Prakash, HOD, Professional Development and Prof. Ravi Prakash, Vice Chancellor, Jaypee University of Information Technology, Solan, H.P., India



Dr. AG Appu Rao, Scientist, HRD and Mr. M. Krishnamurthy, Controller of F&A of CFTRI, Mysore, India (3rd and 4th from L)



Dr. Anjan Kumar Chatterjee (C), Director, Dr. Fixit Institute of Structural Protection & Rehabilitation, Mumbai, India

Director NAM S&T Centre Meets and Visits



Director with H.E. Chea Sieng Hong, Secretary of State of Cambodia

VISIT TO CAMBODIA

On his way back from Hanoi after organising the international workshop on 'Application of Science & Technology for Occupational Villages Development' during 25 August 2010, Prof. Arun P. Kulshreshtha had a brief stopover in the member country Cambodia. He held a highly productive meeting in Phnom Penh, the Capital of Cambodia, with His Excellency Chea Sieng Hong, Secretary of State, Ministry of Industry, Mines and Energy (MIME). He also

acquainted himself with Mr. Sok Chea, Chief Science and Technology Office; Dr. Tung Ciny, DDG; Mr. By Pitou, Director; Mr. Ponnara Hak, National COST Focal Point and Deputy Director of Cooperation and ASEAN Affairs; Mr. Ven Keahak, Focal Point of the NAM S&T Centre in Cambodia and Chief, Technology Office and Deputy Director, and others during his visit to the Department of Industrial Techniques of the MIME and responded to their queries on further helping the Cambodian scientists through the interventions of the NAM S&T Centre.

Prof. Kulshreshtha also spent a day in Siem Reap to see the ancient heritage site of Angkor Wat.

MEETING WITH THE AMBASSADOR OF TUNISIA IN INDIA

On 27th September 2010 Prof. Kulshreshtha called on H.E. Dr. Mohamed Elies Ben Marzouk, Ambassador of Tunisia in New Delhi and discussed with him the matters of mutual interest, including the possibility of Tunisia becoming a member of the NAM S&T Centre. Mr. Arif Traouli also, First Secretary of the Embassy, and Mr. M. Bandyopadhyay, Senior Expert & Administrative Officer, NAM S&T Centre were also present during the meeting.



Director at DIT MIME with Mr. Ven Keahak (L), Mr. Sok Chea, Mrs. Tep Rany and Dr. Tung Ciny (R-L)



Director and Mr. M. Bandyopadhyay with H.E. Dr. Mohamed Elies Ben Marzouk, Ambassador (2nd from R) and Mr. Arif Traouli, First Secretary, Tunisian Embassy in India



Centre Announces

International Workshop on SCIENCE AND TECHNOLOGY POLICY AND SUSTAINABLE DEVELOPMENT Tehran, Iran, 5-7 January 2011



Science and Technology (S&T) is increasingly recognised as the determinant factor of national development. Although scientific and technological developments are the most effective means to improve the quality of life and achieve prosperity, without considering sustainable development in science and technology policy and actions, the developmental objectives will tend to become fuzzy and defocused. Therefore the scientists, policy makers and executives are required to pay specific attention to sustainability issues in research, planning and implementation phases of S&T projects and initiatives.

Recognising the significance of sustainability in S&T policy making, the Centre for Science & Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre) is organising a 3-day **INTERNATIONAL WORKSHOP ON SCIENCE AND TECHNOLOGY POLICY AND SUSTAINABLE DEVELOPMENT** in Tehran, Iran during 5-7 January 2011 jointly with the National Research Institute for Science Policy (NRISP), Ministry of Science, Research and Technology of Iran. The aim of the workshop is to exchange the views and collectively evolve the ideas and practices to be followed while executing the S&T policy programmes within individual countries and concerned organisations and agencies.

OBJECTIVES OF THE WORKSHOP

- To discuss concepts of the role of S&T for sustainable development; concepts and current status of S&T policy making in various countries; and role of S&T in a prosperous future of humanity;
- To provide national bodies with international best practices and learnt lessons in S&T policy making;
- To share information on S&T policies and legal framework and models and identify major constraints;
- To promote international cooperation among NAM and other developing countries on the subject.

TOPICS

1. Sustainable development: Conceptual framework
2. Socio-economic dimensions of S&T policies and sustainable development
3. Public understanding of science and sustainable development
4. S&T Policy and sustainable development
5. High technologies and sustainable development
6. Commercialising science and technology and sustainable development
7. New approaches and indicators of science and technology assessment

The Centre invites nominations from concerned government departments, academic and R&D institutions and representatives of private bodies which are engaged in R&D, planning and management on S&T policy, policy implementation and assessment in developing countries to participate in the workshop. **The last date for submission of nominations is 19th November 2010.**

For further details, please visit the website of the Centre <http://www.namstct.org>