



APAARI

Newsletter

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Editorial

The past five decades have witnessed tremendous growth in agriculture. With its intensification and diversification, there has been a paradigm shift in operationalization and management of agricultural research for development (ARD). This has necessitated emphasis on participatory research, both multi-sectoral and multi-disciplinary, to achieve desired goals of food security and poverty alleviation, and address issues concerning natural resource management, environmental protection etc. In this context, effective involvement of the Civil Society Organizations (CSOs), mainly the non-governmental organizations (NGOs), to mobilize action at the grassroot level, with major focus on socio-economic development of small farmers and marginalized farming communities becomes critical. On the contrary, the collaborative research efforts involving public institutions, CSOs/NGOs and other stakeholders have been rather limited and not so well organized.

To address the above concerns, the Asia-Pacific Association of Agricultural Research Institutions (APAARI), jointly with the Asian NGO Coalition for Agrarian Reform and Rural Development (ANGOC), with support of Global Forum on Agricultural Research (GFAR), organized an "Asia-Pacific Regional Workshop on Agricultural Research for Development (ARD)" from 17-18 April 2008. Over 25 experts from NARS, CSOs/NGOs, GFAR, FAO, CGIAR and other organizations such as the Forum of Agricultural Research for Africa (FARA) had participated. The meeting discussed ARD priorities, opportunities and challenges in the Asia-Pacific region, sharing the experiences of NGOs in ARD. The meeting further advocated the need to establish an Asia-Pacific NGO Consortium and discussed the possible modalities for its operationalization in order to address emerging issues of food security, poverty reduction, social and gender equity, linkages among scientists, policy makers, farmers and NGOs and strengthening links between research and extension. It was mainly emphasized that research focus has to be farmer centered in a participatory mode.

It was also unanimously felt that the Consortium will provide strong linkages of NGOs with researchers and farmers, and develop mechanisms for better access to information and technology dissemination. It will also help in carrying out advocacy work to scale up research for development with emphasis on translating research results at the grassroot level for the farmers' benefit, for community empowerment and sustainable livelihood of rural poor.

The name suggested for the proposed consortium is 'NGO Association for Agricultural Research in the Asia-Pacific (NAARAP)'. A major goal of the Consortium will be to develop strategic partnership with APAARI and GFAR in the conduct of ARD. The operational modalities were also discussed aiming at resource mobilization, coordination mechanism and reorienting research agenda to address the Millennium Development Goals. It is our expectation that NAARAP will soon emerge as a viable institution to link science with society.

Editors

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APAARI-ANGOC-GFAR Asia-Pacific Workshop on ARD

The role of Civil Society Organizations (CSOs), largely the non-governmental organizations (NGOs), is becoming increasingly important in providing the benefits of agricultural research to farmers, through their grassroot level approach. However, much concerted efforts of diverse stakeholders are needed in a collaborative, partnership mode to achieve agricultural sustainability with focus on poverty alleviation, food security, environmental protection etc. with the required thrust on agricultural research for development (ARD). In order to deliberate on this emerging concern, APAARI, jointly with ANGOC and with support from GFAR, organized a regional workshop at Bangkok from 17-18 April 2008, to discuss possible ways of strengthening regional cooperation among the NGO community actively associated with ARD activities and to explore possibilities for the establishment of a regional NGO consortium which can provide a neutral platform for regular interaction and legitimacy for representation in the national, regional and global organizations engaged in ARD.

Workshop Deliberations

At the Inaugural Session, both the Chairman APAARI Dr. Raghunath Ghodake and the Executive Secretary, Dr. Raj Paroda welcomed the Chief Guest Dr. He Changchui, FAO Assistant Director General and Regional Representative for Asia and the Pacific; Fr. Francis Lucus, Chairman ANGOC, Dr. Mark Holderness, Executive Secretary, GFAR and Dr. Sidi Sanyang, Director of Policy and Marketing, FARA and other dignitaries and participants. In their brief remarks, the above dignitaries asserted the need for such a workshop to focus on the role played by NGOs in the field of agricultural research in Asia-Pacific region and the opportunities to discuss ARD priorities in regional context. Dr. Paroda in particular stressed on continued partnership and consultation mechanism among the NGO community to achieve desired goals with reorientation of ARD agenda in the context of emerging changes in the agricultural sector.

The technical deliberations were conducted in four sessions. Session I dealt with Agricultural Research for Development in Asia-Pacific: Challenges, Opportunities and Priorities, wherein five presentations were made and these covered all aspects of the subject at the global, regional, national and local level. Session II on Sharing NGO Experience in ARD, had five presentations that dealt with experiences in ARD in South, Southeast Asia and the Pacific sub-regions. Session III on Thematic Group Discussions, focused



Group Photograph of the Participants

on three topics, namely; regional NGO priorities in ARD; knowledge sharing and establishment of e-forum and modalities for partnership. The group deliberations highlighted the need to redirect agricultural research with active participation of NGOs particularly in the national agricultural research system (NARS), to meet the needs of small farm holders (SFHs) and other marginalized groups with focus on participatory research. Session IV dealt with the need to have an Asia-Pacific NGO Consortium. Dr. Sidi Sanyang of FARA made a presentation on NGO Consortium for Africa on ARD. This was followed by comments by the four panelists and discussion leading to several interventions. Dr. Raj Paroda, in his Chairman's remarks appreciated such similar initiatives of other regions. Subsequently, all NGO participants met separately to look into the modalities for establishing and operationalizing an NGO Consortium for Asia-Pacific.

In the Plenary Session, the Rapporteurs of the three thematic groups and the one on NGO Consortium made presentations of their group recommendations. The topics being inter-related, it was agreed that a consolidated report will provide cohesiveness and clear understanding. The participants unanimously decided to form a "NGO Association for Agricultural Research in Asia-Pacific, NAARAP". The major goal of the Consortium will be to develop strategic partnership with APAARI and GFAR in the conduct of ARD agenda. Further, operational/organizational modalities for its establishment were also discussed. All NGO participants agreed to be the members of NAARAP with its Secretariat for the first two years at ANGOC in the Philippines. Both APAARI and GFAR agreed to support and work closely with NAARAP in future. It was also agreed that representation of NGOs at Asia-Pacific level could be ensured in the regional and global fora through NAARAP in future.



APARIS Technical Workshop on Development and De-centralized Management of ARD Information Resources and APARIS Steering Committee Meeting

Asia-Pacific Agricultural Research Information System (APARIS), in collaboration with GFAR and ACIAR, organized a technical workshop from 19-20 April 2008 at Rama Gardens Hotel, Bangkok on Development and De-Centralized Management of ARD Information Resources. Among the 20 participants of the workshop, 10 were National Information Nodal Points (NINPs) from Bangladesh, Nepal, India, Malaysia, Pakistan, Philippines, Papua New Guinea, Sri Lanka, and Thailand who participated in the workshop to strengthen

APARIS and its linkages with the National Agricultural Information Systems (NAIS) of the Asia-Pacific using the de-centralization approach of the Global ARD Web Ring. The workshop was facilitated by resource persons from GFAR, FAO and AIT, and APARIS Coordinator.

GFAR and FAO emphasized the critical role of NAIS in this web ring as most of the agricultural knowledge is created at a research institute level. ACIAR advocated that greater adoption of agricultural R&D by farmers is possible if improved communication at various levels leads to cooperation among the development stakeholders. GFAR observed that there is growing evidence that information science is influencing farmers more than the agricultural science in some cases.

After country briefs by NINPs, the workshop deliberated on various priority issues at NAIS level, including Standardization, Coordination and Sustainability. Through a group exercise, the participants came up with several recommendations for further development of the Global ARD Web Ring in which APARIS and its NAIS can participate using newly available tools/applications/frameworks such as RSS feeds, AgriFeeds, and CIARD. APARIS, through its own applications, demonstrated how these can be incorporated and implemented in NAIS.

The workshop was followed by the meeting of the APARIS Steering Committee, composed of three NARS leaders (one each from Southeast Asia, South Asia, and the Pacific) and representatives from ACIAR (the current chair), GFAR (the Co-Chair), FAO, and AIT. The Steering Committee commended the progress made so far by APARIS, finalized the work plan for 2008 (see box),



Participants of the Meeting

and suggested future strategies to further improve the impact of APARIS at NARS/NAIS level. The advocacy and capacity building roles of APARIS were identified as critical.

The proceedings of both activities are available at www.apaari.org.

[Source: Dr. Sahdev Singh, APARIS Coordinator]

APARIS Program of Work

- Regular improvement in APAARI Web Site
- Enhanced Sharing of Research Information through Regional Agricultural Expert Locator (RAEL) and Regional Agricultural Information Gateway (RAIG)
- Development of APAARI Communication Strategy Paper
- Institute Directory Update and a CD on Directory of NARS
- Publication of new Status Report on ICT/ICM in ARD for Asia-Pacific and Success Stories
- Sensitization of NARS leaders to knowledge sharing, management and regional networking

APAARI Executive Committee Meeting

APAARI Executive Committee Meeting was held on 19 April 2008, at Rama Gardens Hotel, Bangkok back-to-back with the Asia-Pacific NGO Regional Workshop on ARD. The Chairman, Dr. Raghunath Ghodake welcomed the members and special invitees. He was pleased to announce the establishment of a NGO Consortium on ARD for the Asia-Pacific region. He stressed on inter-regional partnership and active involvement of farmers, the private sector, CSOs and NGOs. This was

followed by remarks from the Vice-Chairman, Dr. Abd Shukor, appreciating the achievements of APAARI for strengthening ARD partnership in the region.

Dr. R.S. Paroda, Executive Secretary, APAARI dealt with the achievements made during last six months: holding the APCoAB Steering Committee Meeting, APAARI's participation in GFAR Steering and Program Committee Meetings, organization of NGO and ICT Meetings, etc. He mentioned regarding the new publications and



Members of the Executive Committee

those under process including ASTI report. Meetings on Bio-technology, Expert Consultation on Adaptation to Climate Change and the one on Underutilized Crops in the Pacific would be organized later this year. He expressed thanks to ACIAR, COA, GFAR, MAHYCO and CIAT for additional funding support. Discussing work plan for 2008, members appreciated the multi-faceted activities of APAARI. Dr. Paroda apprised the members on new memberships of ICRAF, SAARC and

IFAP. Budget options were also discussed for the activities on hand and the proposed program was duly approved. Dr. Ghodake thanked COA and Dr. Roy Y.Y. Wu for the generous support of US\$ 105,000 for a period of three years. Members were also pleased to hear that National Taiwan University has decided to join APAARI as new Associate Member effective 2008.



Dr. Ghodake Honored with Order of Logohu

APAARI Chairman Dr. Raghunath Ghodake recently received the Order of Logohu (OL) from the Governor General of Papua New Guinea, His Excellency Grand Chief Sir Paulias Matane on 27 March 2008. The award was in recognition of Dr. Ghodake's distinguished services to the community in the area of scientific leadership, research policy and management and institutional development, including his present role as the Director General of the PNG National Agricultural Research Institute (NARI).

Dr. Ghodake is among the 10 recipients who received the Order of Logohu by The Orders of Papua New Guinea in the 2008 New Year Honours list announced on 3 March 2008. The investiture ceremony was held at the Government House in Port Moresby, witnessed by Government Ministers; Heads of foreign missions, statutory departments and agencies; VIPs; colleagues; and family members. The Order of Logohu is the third highest flagship of The Orders of Papua New Guinea, conferred annually to individuals in recognition of their services to the development of PNG.

APAARI members are pleased to congratulate Dr. Ghodake on this well deserved recognition.



Dr. Raghunath Ghodake (right), PNG Governor General Grand Chief Sir Paulias Matane, Lady Kaludia and NARI Council Chairman Dr. John Kola posing for group photograph after the investiture ceremony

“Oasis” Challenge Program Endorsed



UNCCD's Executive Secretary, Lue Gnacadja, signs support letter

“Oasis” – a new Challenge Program proposal has recently been submitted to CGIAR jointly by ICARDA and ICRISAT for its funding. This Challenge Program aims to address desertification – the degradation of the world's vast drylands due to human and climatic factors with major focus on Sub-Saharan Africa (SSA). A workshop for the project finalization was organized at Bonn, Germany from 12-14 March 2008. On APAARI's behalf, Dr. J.C. Katyal, Vice-Chancellor, Haryana Agricultural University, India, being an expert in the field of Natural Resources Management (NRM) participated.

The Oasis Challenge Program outline is founded on three knowledge streams (K-stream), the real strength of the proposal is the close team work, continuity and interface it emphasizes between three K-streams. The K-stream 1 deals with assessment and diagnostic aspects of desertification. Based upon that information, K-stream 2 is charted to develop leading edge knowledge tools and protocols to improve the sustainable management and creation of dryland ecosystem services that impact productivity, profitability and stability of farming and farmers' livelihoods. K-stream 3 superimposes

output and outcome of diagnostic and prescription work conducted under K-stream 1 and 2. K-stream 3 outlines to accomplish this by working closely with policy makers, development agencies and institutions and farmers and herders by employing an integrated participatory approach to identify problems, develop solutions and assess impact.

Oasis will particularly focus on integrating bio-physical with socio-economic science, a difficult and leading-edge research goal. It will form learning alliances with stakeholders to simultaneously build their capacities while ensuring that the outputs

meet their needs and can be readily scaled-up for global impact.

In view of its importance, APAARI has endorsed this CP proposal for consideration of donors. However, APAARI would appreciate if rather than debate, greater emphasis on mobilization of community action and farmer's resolve to modernize conventional techniques and practices leading to productive, profitable and stable agriculture is laid. Appropriate technology and government support apart, mapping involvement of a village based socio-stimulant or village Jankar (one who knows about the problems of farming and farmers and works as a non-profit seeking volunteer NGO) in K-stream 3 will be necessary. It is he who will be responsible for motivating native action and community participation to deal with the stubborn adversaries of dryland agriculture development. In the past, individuals belonging to this class were able to weld group participation for initial development of fragile natural resources and subsequent equitable sharing, management and maintenance.



Meeting with New Director General, DOA, Thailand

Dr. Raj Paroda, Executive Secretary called on the new Director General, Dr. (Ms.) Metanee Sukontarug, Department of Agriculture, Thailand on 4 March 2008. Dr. Metanee had invited Directors of all Research Institutes beside senior officers from her Directorate.

At the outset, Dr. Paroda congratulated Dr. Metanee on taking over the prestigious position and thanked all Directors for attending the meeting. He briefly mentioned about various activities of APAARI and emphasized as to how we could strengthen partnership in areas of mutual interest.

Ms. Metanee expressed specific interest in building collaboration with other NARS through APAARI. She also emphasized importance of new challenges such as climate change, bio-fuels, food storage practices and biosafety measures concerning use of GM crops and agrochemicals.

Dr. Metanee also envisioned APAARI's role in strengthening bilateral/multilateral cooperation with other NARS in the region.



Meeting with Dr. Metanee Sukontarug

Recent Activities of APCoAB

Steering Committee Meeting

The VIII Steering Committee Meeting of Asia-Pacific Consortium on Agricultural Biotechnology (APCoAB) was held on 28 February 2008 at the National Agricultural Science Centre Complex, New Delhi. The meeting was chaired by Dr. Raghunath Ghodake, Chairman, APAARI and attended by seven Steering Committee Members or their representatives. The participants commended the achievements of APCoAB and made suggestions on expanding its activities in information dissemination, capacity building and regional collaborations. The work plan for 2008 (see box) was approved by the Steering Committee.



Member of APCoAB Steering Committee

Work Plan for 2008

1. Publications

- (i) Success Stories:
 - Sugarcane Tissue Culture
 - Banana Tissue Culture
 - Bt Cotton in China
- (ii) Special Report on Biosafety Regulations of Asia-Pacific Countries.
- (iii) CDs: Agricultural Biotechnology Research Institutes of Asia-Pacific Region.

2. Web Site Development and regular updating of (i) News and Events, and (ii) Agricultural Biotechnology Institutions in the Asia-Pacific region.

3. Meetings

- (i) APCoAB Steering Committee Meeting (February and October 2008).

4. Expert Consultations and Trainings:

- (i) Expert Consultation on Biotechnology & Biosafety, at MARDI, Malaysia during August 2008.
- (ii) Training Program on *In vitro* and Cryopreservation Techniques for Conservation of Plant Genetic Resources, at NBPGR, New Delhi.
- (iii) Training Program on Production of Virus-Free Planting Material in Tree Crops, at TNU, Taipei.

Collaboration with CoA, Taipei

APAARI and CoA have finalized a collaborative program on promotion of agricultural biotechnology research, with a total three-year budget of US\$ 225,000 will focus on four activities viz.,

- (a) organizing policy dialogues to promote modern biotechnology in the Asia-Pacific region,
- (b) training of scientists from APAARI member institutions on virus free plant/seedling production of fruit crops at National Taiwan University, Chinese Taipei,
- (c) training of scientists from APAARI member institutions on agrobiodiversity conservation, and
- (d) publication of success stories/status reports and web-based knowledge sharing on developments in agricultural biotechnology in the Asia-Pacific region.

CoA will contribute US\$ 35,000 per annum to this program.



Dr. Roy Y.Y. Wu Presenting Cheque to Dr. Ghodake

APCoAB Participates in AARINENA Expert Consultation

The Association of Agricultural Research Institutions in the Near East and North Africa (AARINENA) in collaboration with Global Forum on Agricultural Research (GFAR), FAO, ICARDA and ARC-Egypt held an Expert Consultation Meeting on Regional Agricultural Biotechnology Network at Cairo on 15-16 December 2007 to discuss a proposal for the establishment of Regional Network for Agricultural Biotechnology in the Near East and North Africa. Coordinator, APCoAB was invited to share his experiences in the Asia-Pacific region and discuss possible interregional collaboration with the new network. The efforts of APCoAB in promoting agricultural biotechnology in the Asia-Pacific region were appreciated. It was decided to jointly approach GFAR to provide funding support for Bioinformatics Training Course to be held by AARINENA biotechnology network in Egypt, and Expert Consultations on

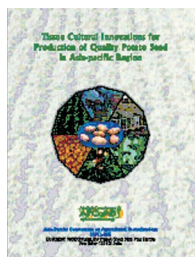
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Biotechnology and Biosafety to be held by APCoAB in Malaysia during 2008.



Participants of Expert Consultation

New Publications



Tissue Culture Innovations for Production of Quality Potato Seed in Asia-Pacific Region.

The publication provides detailed information on production of virus-free potato explants, their rapid multiplication using *in vitro* methods, and microtuber and minituber production. Methods of integrating micropropagation with conventional potato seed production are suggested. Success stories of quality potato seed production using micropropagation in some Asia-Pacific countries have been detailed.



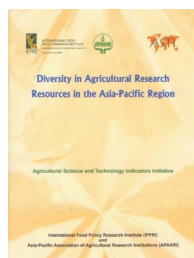
Micropropagation for Quality Seed Production in sugarcane in Asia and the Pacific.

The publication provides step-by-step protocol for production of disease free planting material in sugarcane using meristem tip culture method. Field multiplication of *in vitro* plantlets aimed at reducing the cost of seedling paid by the farmers is also detailed. Success stories of *in vitro* sugarcane propagation in India, Australia and the Philippines are recounted.

All publications are available for downloading at APCoAB web site (www.apcoab.org).

[Source: Dr. J.L. Karihaloo, APCoAB Coordinator]

Study on Diversity in Agricultural Research Resources



Science and Technology (S&T) are the major contributors to food security, poverty reduction and economic growth, and their overall impact has been witnessed in South Asia through the remarkable success of Green Revolution. In order to meet the emerging challenges in agriculture, it is necessary to understand the existing diversity in agricultural research resources in the region. Quantitative data are also vital for measuring, monitoring and benchmarking the performance of national agricultural research systems (NARS).

In this context, based on joint efforts of ASTI/IFPRI and APAARI, recently two publications have been brought out, namely, the Research Brief No. 11, and the Status Reports on 'Diversity in Agricultural Research Resources in the Asia-Pacific Region'. These provide useful information on major investment trends, variation in human resources, and the institutional developments in the public research and development (R&D) systems of 11 countries (South Asia: Bangladesh, India, Nepal, Pakistan, Sri Lanka; Southeast Asia: Indonesia, Laos, Malaysia, the Philippines, Vietnam; Pacific: Papua New Guinea). It was observed that distribution of R&D spending among Asia-Pacific countries was quite uneven, with China, Japan and India, accounting for the lion's share of the regional agricultural research expenditures. Many countries in the region such as Malaysia and Vietnam realized impressive growth in agricultural R&D spending in recent years, whereas growth in other countries has remained sluggish (and in some cases negative). Further, bulk of the R&D in agricultural sector is currently financed by the government, although there has been some diversification through private sector in recent years. Competitive funding mechanisms, internally generated funds, production or export levies have also been used as research support mechanisms lately. Much variation has also been observed in donor dependence, being higher in Laos and Nepal. Through national agricultural technology projects (NATP), funded by the World Bank, India has increased R&D expenditure in the recent past. Also, substantial increase in agricultural research has been observed lately involving private sector partnership, particularly in the field of biotechnology, as evident by release of GM crops in India and the Philippines. The Asia-Pacific region has a wide number of networks related to agricultural research, besides international research carried out by the CGIAR. Other international and regional organizations like ACIAR and JIRCAS conduct or fund research in the region.

It is felt that wider dissemination of this report will be useful in catalyzing the policy makers, research managers of the national research systems and the donors. It will also help in assessing the gaps and future needs for strengthening agricultural research to develop the mechanism and achieve goals in the Asia-Pacific region.



National Agricultural Research Institute Papua New Guinea-Brief update on ARD Activities

The PNG National Agricultural Research Institute (NARI) is a statutory research organization, established by an Act of National Parliament of PNG in 1996 to conduct and promote applied and development oriented research on food crops, emerging food and cash crops, livestock and resource management issues. The Institute also contributes to policy development and provides technical, analytical and diagnostic services and up-to-date information to the agriculture sector with emphasis on sustainable environment and efficiency in resource use, improved output quality and production, and increased skills and capacities of human capital.

Vision and Strategic Objectives

In its vision for PNG, NARI foresees prosperous PNG agricultural communities and pursues its work by advocating innovative agricultural development through scientific research, knowledge creation and information exchange. The major targets are the smallholder semi-subsistence and semi-commercial farmers. Research and development efforts are thus focused on assuring food security, increasing income and improving livelihoods for all in PNG with overall broad-based economic growth and national development. These efforts are reflected in NARI's strategic objective of achieving enhanced productivity, efficiency, stability and sustainability of the smallholder agriculture sector for improved welfare of rural families and communities who depend wholly or partly on agriculture for their livelihoods.

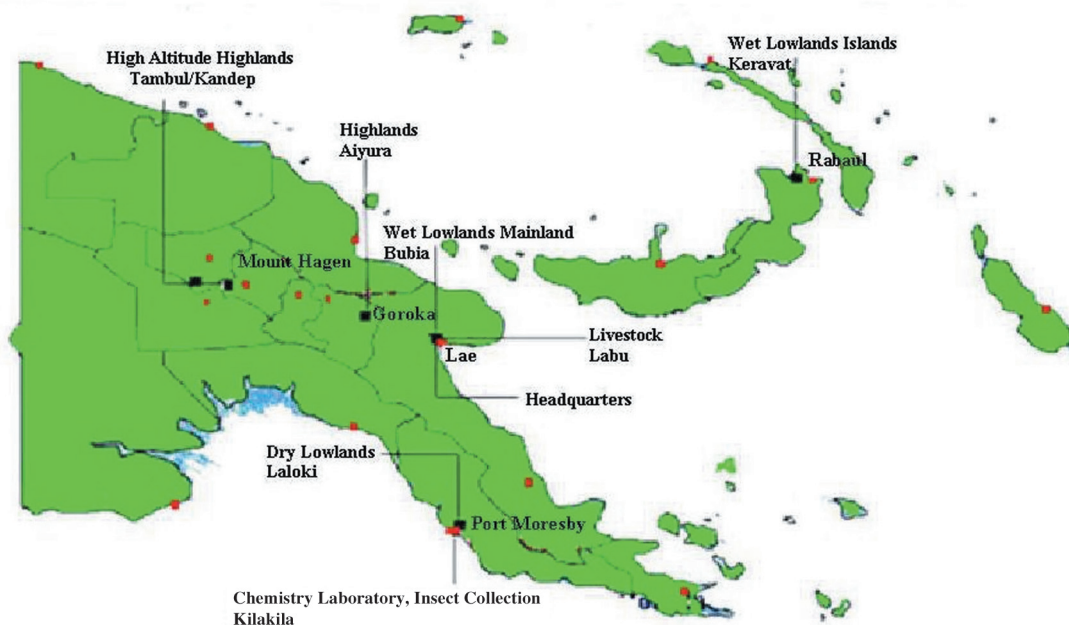
The Institute celebrated its 11th Anniversary on May 6, 2008, and has so far released 36 sets of improved technologies with information packages to the PNG farming community. At present, it undertakes over 40 on-going research and development projects.

Research and Development Programs

NARI is recognized for its high development relevance to PNG and the Pacific region. With the head office in Lae, Morobe Province, the Institute has multidisciplinary programs which are strategically located throughout the country. These include five agro-ecological and other national and information programs.



NARI Research and Technical Programs



Agro-ecological Programs

- Wet Lowlands Mainland Program – Bubia, Morobe Province
- Wet Lowlands Islands Program – Keravat, East New Britain Province
- Highlands Program – Aiyura, Eastern Highlands Province
- High Altitude Highlands Program – Tambul, Western Highlands Province
- Dry Lowlands Program – Laloki, Central Province

National Programs

- Geographical Information Systems
- Livestock
- Rice and Grain
- Weed Management
- Chemistry Laboratory Services
- National Agricultural Insect Collection
- Biometrics and Statistics

Information and Outreach Programs

- NARI Information Centers
- Training and Advisory Services
- Library and Documentation
- Publications
- Community Based Resource Centers
- Field Days/Open Days and Innovations Shows

[For more details contact: NARI Head Office, Sir Alkan Tololo Research Centre, P.O. Box 4415, Lae, Morobe Province, Papua New Guinea. Telephone: 475 1444/475 1445 Facsimile: 475 1450 E-mail: narihq@nari.org.pg Web Site: www.nari.org.pg]

CARP Develops Biotechnology Investment Plan

The Council for Agricultural Research Policy (CARP) Sri Lanka, has identified biotechnology as a thrust area for agricultural research and key area for development on a national scale. Accordingly, CARP was awarded a project by FAO on "Formulation of a National Agricultural Biotechnology Research and Development (R&D) Program and Investment Plan" to be executed by CARP. Its overall objective is to facilitate the application of appropriate biotechnologies in Sri Lanka to improve agricultural production and consequently contribute to the enhancement of food security in the country.

Specific objectives of the project are to: develop a national research and development (R&D) program based on the assessment of present capacities, and national needs and priorities in the area of agricultural biotechnology research; develop an investment plan for 2009-2015 for biotechnology R&D for submission to potential donors/funding agencies (local/foreign) and/or the government; strengthen human capacities in agricultural biotechnology R&D.



CARP and FAO Officials

Overall the program is very comprehensive with several activities scheduled. These include three stakeholders' workshops (workshop-1 to define the needs and priorities; workshop-2 to assess the present status and direction of biotechnology R&D in Sri Lanka; workshop-3 for discussion and finalization of the National Biotechnology R&D program); six national surveys (on biotechnologies in use or under development and agriculture commodities

involved, capacity building, infrastructure, legal framework, public awareness and economics including trade issues related to biotechnology); and six training programs (pathogen detection using molecular technology, use of molecular tools and bioinformatics in agriculture genetics, plant genome manipulation and generation of transgenic crops, legal framework for biotechnology, agricultural biotechnology: public awareness and participation, and economics and trade issues related to agricultural biotechnology)

[Source: Prof. Rohan Rajapakse, Executive Director, CARP, Sri Lanka]

NARI Releases Taro Beetle Control Technology

The PNG National Agricultural Research Institute (NARI) has released a new technology in May 2007 for controlling taro beetles. The technology comprises two chemicals, Bifenthrin and Mustang (Confidor), with specific application methods. Taro is a major food and cash crop in PNG and the Pacific. However, taro farmers have experienced significant crop losses over generations due to damage caused by taro beetles by burrowing through the corms; making them unappealing for marketing and consumption.

The new technology was developed through a four-year collaborative research between NARI and Fiji's Secretariat of the Pacific Community and Department of Land Resource with support from the Australian Centre for International Agricultural Research (ACIAR). Prior to this, there was no known control method for this pest despite decades of research. The technology will enable production of good quality taro, both for food security and cash income. This will also create opportunities for taro export industry. Taro farmers in PNG and the Pacific now have this technological innovation commercially available in special taro beetle control packs. The two insecticides are cheap and easy to use, and research has shown that there are no unsafe chemical residues in the taro corms when harvested. The fungicides have to be applied twice during a cropping season – once during planting and another after three months. A liter of Bifenthrin costing around US\$ 40 can treat about 2,000 taro plants and that of Mustang can control about 1,600 plants. In case of Bifenthrin 100 EC, farmers get a profit of around

US\$ 600, whereas in case of Mustang 200 EC profit margin remains at around US\$ 470.

[Source: Senior/ Anzu, NARI, Papua New Guinea]



A NARI officer demonstrates the new taro beetle control technology to taro farmers



Agriculture and Fisheries Programs in Samoa

The Ministry of Agriculture and Fisheries is the principal organization charged to provide the policies, regulation and technical support for its stakeholders in Samoa. Samoa firmly believes in maintaining very high quality of its natural resources for its agriculture and fisheries to prosper. These resources are the basis of the economy and health of Samoa and they must be properly and sustainably managed for the benefit of the nation.

At least 15 Acts of Parliament and numerous subsidiary ordinances assign a wide set of responsibilities to the Minister and these are delegated to the CEO. The CEO is assisted by an Executive Management Team comprising of 6 Division leaders (ACEO). These divisions conduct research, provide technical advice and demonstrations, and make available improved technologies such as: promising planting materials to achieve increased quantity and quality in agricultural and horticultural production for both domestic and export markets. These researches include new and improved cultivars, pests and diseases prevention and management, crop cultivation, and post-harvest handling and marketing.

Below are some of the goals and objectives for each of the Divisions within the Ministry of Agriculture and Fisheries.

Crops Division

To undertake research and development as well as to provide advisory services to improve crop production for subsistence and commercial producers, processors and marketers.

Animal Production and Health Division

To conduct research and development and provide advice on animal health and meat inspection services to improve livestock production and for subsistence and commercial producers, processors and marketers.

Fisheries Division

To undertake research, monitoring and reporting that will assist in promoting community involvement for in-shore fisheries, private

sector investment in commercial fisheries, and adoption of sustainable fisheries practices and promotion of aquaculture.

Quarantine Division

To prevent the introduction and spread of unwanted agricultural pests and diseases, whilst facilitating the import and export of commodities, in compliance with all existing agreements and international obligations. Also to regulate and monitor the importation and use of pesticides.

Policy, Planning and Communication Division

To investigate and develop policy advice on domestic and international primary production, trade, conservation and bio-security issues. In addition, to provide timely reports on marketing and other primary industry sector issues.

Corporate Services

To provide training, human resource management services, financial and asset management, record keeping and reception. This Division also ensures MAF compliance with Public Monies Act, Treasury Instructions and the PSC Act.

[Source: Mr. Philip Tuivavalagi, Ministry of Agriculture and Fisheries, Samoa]



New GFAR Executive Secretary



Dr. Mark Holderness has joined as new Executive Secretary of the Global Forum on Agricultural Research starting January 2008. Dr. Holderness has worked in science related to international agricultural development for 20 years. A council Member of several scientific societies, he is also a Board Member of the World Vegetable Center (AVRDC). Basically, a plant pathologist, his interests cover a wide range of scientific areas. Prior to this he served as Director of Agriculture with CAB International.

APAARI looks forward to greater collaboration with Dr. Holderness and convey best wishes on his appointment to this coveted position.

New Administrator of RDA Appointed



The Rural Development Administration (RDA) is having a new Administrator in Dr. Soo-Wha Lee effective 8 March, 2008. Before joining RDA, Dr. Lee has served the Government for 30 years holding many important positions, the latest being Deputy Chief of the Korea Forest Service. Earlier he worked as Director General of Food/Grain Quality Bureau, President of Agricultural Products Quality Management Services, Agricultural Counselor of Korea's embassy in the U.S.A., and Director General of the Bureau of Agricultural Statistics and Information. Dr. Lee received his M.A. and Ph.D. degrees in Economics from the University of Missouri-Columbia, U.S.A. in 1992 and 1994, respectively.

Dr. Lee envisions to boost efforts towards highly competitive agriculture as a bio-industry in the era of globalization. He plans to support the farmers to produce excellent agricultural commodities through adaptation of new cropping technologies that require low input and are environment-friendly. Likewise, modern and automated production facilities shall be promoted to make Korean farmers globally-competitive.

APAARI members congratulate Dr. Lee on this prestigious appointment and look forward to strengthen research partnership with NARS of South Korea.

Symposium on Global Climate Change Being Held

APAARI is organizing a Symposium on Global Climate Change: Imperative for Agricultural Research in Asia and the Pacific, to be held at JIRCAS, Tsukuba, Japan from 21-22 October 2008 and is co-sponsored by CIMMYT, ICARDA, ICRISAT, AVRDC and GFAR. Adaptation and mitigation to climatic change was identified as an important subject by the members of APAARI during an earlier Expert Consultation on Research Need Assessment organized during late 2006. Accordingly, APAARI has planned to hold this symposium to develop required Framework for reorientation of agricultural research to address specifically issues related to the climate change adaptation and mitigation and would cover crops, livestock, fisheries and agro-forestry. It is expected that 100 participants would attend the symposium of which around 40 will be members of APAARI. Rest would be experts from various institutions in Japan. The symposium will have keynote speakers, lectures, plenary sessions and country status reports representing West, South, Southeast Asia and the Pacific sub-regions to debate the key issues for developing appropriate recommendations for reorienting agricultural research to adapt and mitigate global climate change and to ensure continued agricultural growth and development. Most of the CG centers will also present an account of research relating to this subject. There will also be plenary discussions on three topics: (i) Strategies and priorities for mitigation (ii) Reorientation of research priorities for adaptation (iii) Capacity development for enhanced adaptation and mitigation.

It has become evident from the fourth assessment report of the Inter-Governmental Panel on Climate Change (IPCC), released in 2007, that increases in the emission of green house gases (GHGs) have resulted in warming of the climate system by 0.74°C between 1906 and 2005. The report has further projected that temperature increase by the end of this century is likely to be in the range 2 to 4.5°C. It is expected that future tropical cyclones will become more intense, with larger peak wind speeds and more heavy precipitation. Himalayan glaciers and snow cover are projected to contract. It is also very likely that hot extremes, heat waves, and heavy precipitation events will continue to become more frequent. Increases in the amount of precipitation are expected more in high-latitudes, while decreases are likely in most sub-tropical regions. At the same time, the projected sea level rise by the end of this century is likely to be between 0.18 to 0.59 meters.

Such global climatic changes are affecting agriculture through their direct and indirect effects on crops, soils, livestock and pests, and hence the global food security. IPCC report has particularly indicated vulnerability of developing countries of the Asian region, especially its megadeltas to increasing climate change and variability due to its large population, predominance of agriculture, large climatic variability, and limited resources to adapt. Extreme events in the last few decades have increased in temperate and tropical Asia, including floods, droughts, forest fires, and tropical cyclones such as Tsunami. Runoff and water availability are projected to decrease in the arid and semi-arid regions of Asia. Sea-level rise and an increase in the intensity of tropical cyclones is expected to displace tens of millions of people in the low-lying coastal areas of Asia; whereas increased intensity of rainfall would increase flood

risks in temperate and tropical Asia. South Asia alone is the home for almost one quarter of the world population. The rapid and continuing increase in population implies increased demand for food. It is estimated that by 2020, food grain requirement in Asia would be almost 30-50% more than the current demand. This will have to be produced from same or even shrinking land resource due to increasing competition for land and other resources by non-agricultural sector. Accordingly, the world food situation will be strongly dominated by the changes that would occur in Asia because of its huge population, changes in diet pattern and associated increased demand for food and feed. Alleviating poverty and attaining food security would be the major challenges to most Asian countries in the 21st century. Producing enough food for the increased population with reduced resources in adverse environmental scenario would be a major challenging task before most of the developing nations. Accordingly, concerted efforts would be needed to maximize food production, minimize environmental degradation and attain socio-economic development through reorientation of agricultural research that would comprehensively address all urgent concerns relating to mitigation and adaptation to climatic change.



APAARI Staff Changes



Ms. Urairat Rujirek has been promoted and re-designated as Administrative Associate, effective 1 May 2008. She has been working with APAARI as Secretary-cum-Accountant for the last ten years. She works at APAARI Office, Bangkok.



Ms. Poonam Saini, Master's in Computer Science, has recently joined APAARI as Executive Assistant – ICT, effective 5 May 2008. Before joining APAARI she worked as a programmer in India and the U.S.A.



Ms. Monica Sachdev, Graduate with Diploma in Secretarial Practice, has joined APCoAB/APAARI office at ICRISAT, New Delhi, effective 27 February 2008. Earlier, she worked as Secretary with Protection of Plant Varieties and Farmers' Rights Authority, India.

APAARI family wishes them all the success.

Selected Examples

Pesticide use cut: Misuse and overuse of insecticide sprays by Asian rice farmers is dangerous to human health and damaging to the environment. IRRI researchers, in partnership with the Vietnamese Department of Plant Protection and Leyte State University, have launched an innovative public information campaign in the Mekong River Delta that is reaching some 92 percent of the delta's 2.3 million farm households. Insecticide use has decreased by 72 percent. Paddy output in the delta increased to 14 million tons (up from 11 million tons). The campaign is being extended to one million rice farmers in the Red River Delta. The campaign won Scotland's St. Andrew's Environmental Prize. (www.irri.org)

Aquaculture boosts farm incomes: Integrated aquaculture/agriculture (IAA) techniques developed by World Fish Center and partners are boosting farm incomes and productivity. Farms using IAA techniques produce 1.3 to 1.6 tons of fish per hectare, compared to less than 900 kg/ha commonly achieved. On average, the integrated pond/vegetable garden of IAA farms generate 72 percent of household income and are essential for food and nutrition security among poor farming communities in Asia. (www.worldfishcenter.org)

China's newest food crop: ICRISAT researchers have successfully introduced pigeonpea in Guangxi Province, China. Pigeonpea is a hardy, drought-tolerant food legume high in protein and B vitamins and offers the added benefit of fixing nitrogen and other nutrients in the soil. The Chinese Academy of Agricultural Sciences is working to promote pigeonpea cultivation in three more provinces characterized by harsh, dryland farming conditions. This research effort received China's Love Ball and Friendship Awards. (www.icrisat.org)

Halting malaria at its source: Research by IWMI and partners is addressing public health aspects of water use in agriculture. The CGIAR Systemwide Initiative on Malaria and Agriculture (SIMA) is developing improved water management practices for better mosquito control. Traditionally, malaria prevention efforts have relied on pesticides or pharmaceutical drugs. As mosquitoes develop resistance to pesticides and as drugs lose their effectiveness against the malarial parasite, SIMA is working to develop improved water management practices that curb malaria at its source: stagnant pools of water common in irrigated agriculture. (www.cgiar.org/iwmi/sima)

Forest policy for ecosystem health: CIFOR researchers are developing guidelines for improved timber production that minimizes harm to forest ecosystems by using site-sensitive harvesting techniques. These guidelines have reduced impacts of heavy machinery on forest soils (e.g. soil compaction) by 25 percent, and increased carbon sequestration in the remaining vegetation by 50 percent. (www.cifor.org)

[Source: <http://www.cgiar.org/>]



DFID Team for Scoping Study

A DFID expert team for Scoping Study consisting of Dr. Andy Hall and Dr. Rasheed Sulaiman had a meeting with Dr. Raj Paroda, Executive Secretary, APAARI in New Delhi to explore the possibilities of collaboration between APAARI and DFID for developing a "Strategy for Research on Sustainable Agriculture" in South Asia. Dr. Andy explained the objective of the study to identify important research areas and programs in South Asia which could further be strengthened through DFID support in a partnership mode with APAARI. Dr. Paroda briefed them about the on-going APAARI regional networks in agricultural research for development. APAARI is overseeing their operations through the organization of group meetings, capacity building and exchange of information. In a recently organized expert consultation to review the progress of agricultural research networks and consortia, it was recommended that the existing networks need to be evaluated for their effectiveness as well as impact. Dr. Paroda suggested that DFID could support such evaluation activity in order to identify those networks which are important and need further support for still better performance and results. He further assured the DFID team that APAARI would be happy to also undertake the responsibility for catalysing new research networks, in areas of research gaps, involving greater partnership among NARS of South Asia.



Linking Farmers to Market: Some Success Stories from Asia-Pacific Region



Asia-Pacific Association of Agricultural Research Institutions
FAO Regional Office for Asia and the Pacific
Bangkok, Thailand

To receive a copy of this publication, please send e-mail to
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Forthcoming Meetings/Events

Sixth International Symposium on *In Vitro* Culture and Horticultural Breeding. Queensland, Australia, 24-28 August 2008.

The Sixth International Symposium on *In Vitro* Culture and Horticultural Breeding will be held in Queensland, Australia from 24-28 August 2008. The theme of the symposium is '2020 Vision for *in vitro* horticultural breeding'. The topics for discussion include advances in plant tissue culture and plant molecular breeding, transgenic and crop improvement, GM impact and future demands, and emerging technology. For details, please visit <http://www.une.edu.au/campus/confco/ivchb2008/theme.htm>

Harlan II – Biodiversity in Agriculture: Domestication, Evolution and Sustainability. An International Symposium, University of California, Davis, U.S.A., 14-18 September 2008.

The University of California, Davis will host an international symposium titled 'Harlan II: Biodiversity in Agriculture: Domestication, Evolution and Sustainability; from 14-17 September 2008. It will review the progress that has been made in our understanding of the factors that affect biodiversity in plant and animal agriculture, including the process of domestication, and will also address the importance of biodiversity in agricultural sustainability, using the example of California agriculture with over 300 commodities as an inspiration. The scientific program will be organized around three themes: crop and animal domestication scenarios; processes of agricultural evolution; and the global implications of agricultural biodiversity and sustainability of California agriculture. Registration and further details of the symposium are available at: <http://harlanii.ucdavis.edu/index.htm>

The 10th Asian Regional Maize Workshop, Makassar, South Sulawesi, Indonesia, 20-23 October 2008.

The 10th Asian Regional Maize Workshop will be held in Makassar, South Sulawesi, Indonesia from 20-23 October 2008. It will be facilitated by the Indonesian Agency for Agricultural Research and Development (IAARD) and the International Maize and Wheat Improvement Center (CIMMYT). Scientists and maize production specialists of all disciplines, governmental and non-governmental organizations, and seed industries are invited to participate and submit their contributions. (CropBiotech Update, April 2008)

International Symposium on the Biosafety of GMOs, Wellington, New Zealand, 16-21 November 2008.

Held biennially by the International Society for Biosafety Research, the 10th International Symposium on the Biosafety of Genetically Modified Organisms will highlight past achievements and future directions in environmental biosafety research and risk assessment of GMOs. It is scheduled from November 16-21, 2008 at Te Papa, Wellington, New Zealand. For more information visit <http://www.isbgmo.info> or e-mail Michelle Kane at mk@tcc.co.nz. (CropBiotech Update, 29 February 2008)

4th World Congress on Conservation Agriculture, New Delhi, India, 4-7 February 2009.

The 4th World Congress on Conservation Agriculture will be jointly organized by the Indian Council of Agricultural Research (ICAR) and the National Academy of Agricultural Sciences (NAAS). The co-sponsors of the Congress are the International Center for Agricultural Research in Dry Areas (ICARDA), the Rice-Wheat Consortium (RWC), the Food and Agriculture Organization (FAO), the Indian Society of Soil Science (ISSS) and the Indian Society of Agricultural Economics (ISAE). All important aspects of research and development related to conservation will be covered in several sessions and satellite work-group meetings. There will be plenary lectures, invited lead papers, poster papers and workshops by experts on the following thematic areas: Resource productivity and efficiency; institutional innovations and policy; environment, indigenous knowledge and practices and equity. For details, contact Dr. P.K. Joshi, Organizing Secretary, 4th World Congress on Conservation Agriculture, National Center for Agricultural Economics & Policy Research, Pusa, New Delhi 110 012, Fax: +91-11-25842684, E-mail: pkjoshi@ncap.res.in, Web: www.ncap.res.in

International Training Course on “*In Vitro* and Cryopreservation Techniques for Conservation of Plant Genetic Resources”, India, 3-15 November 2008.

APCoAB in collaboration with Bioversity International and Indian Council of Agricultural Research is organizing a training program with an objective to enhance the capacities of personnel engaged in *in vitro* and/or cryopreservation techniques for plant germplasm conservation. The course will consist of lecture and practical sessions using various vegetatively propagated and recalcitrant seed species. Young scientists are encouraged to participate in the training course. For more details please visit www.apcoab.org or www.bioversityinternational.org/News_and_Events/Training_Courses/default.asp

Expert Consultation on Agricultural Biotechnology for Promoting Food Security in Developing Countries, Malaysia, 20-22 August, 2008

APAARI in collaboration with Malaysian Agricultural Research and Development Institute (MARDI), is organizing an expert consultation on: “Agricultural Biotechnology for Promoting Food Security in Developing Countries” at Mines Beach Resort, Selangor Darul Ehsan, Malaysia from 20-22 August 2008. Need for the consultation is felt in view of the renewed challenges to food security that the world is facing currently. Developments over the last two decades indicate that agricultural biotechnology offers exceptional opportunities to enhance farm productivity, profitability and environmental sustainability. Adoption of biotechnology tools and products has, however, been uneven due to several factors including lack of resources, limited collaboration between countries as well as between public and private sectors, regulatory hurdles, and lack of science-based awareness.

Continued on page 14 ➔

Forthcoming Meetings ...

The Expert Consultation will bring together 40-50 national policy planners, research experts, biosafety managers and other public and private sector stakeholders from Asia, Africa and the Pacific to deliberate on the above issues with particular reference to developing countries. An action plan will be formulated to facilitate application of biotechnology for enhancing food and agricultural production through national, regional and intersectoral efforts.

9th International Conference on Dryland Development

The 9th International Conference on Dryland Development is scheduled to be held at Bibliotheca Alexandrina, Alexandria, Egypt, from 7 to 10 November 2008, under the title "Sustainable Development of Drylands: Meeting the Challenge of Global Climate Change". Chairman: Prof. Dr. Adel El-Beltagy, Chair of IDDC, Chair of Global Forum on Agricultural Research (GFAR), and Chair of Agricultural Research and Development Council of the Ministry of

Agriculture and Land Reclamation, Government of Egypt. For more information please visit: <http://www.egfar.org/egfar/website/new>

All Africa Congress on Biotechnology

The first All Africa Congress on Biotechnology will be held in Nairobi, Kenya from September 22-28, 2008. The theme of the Congress is 'Harnessing the Potential of Agricultural Biotechnology for Food Security and Socio-Economic Development in Africa'. Biotechnology concepts, applications in plants and animals, intellectual property rights and biosafety risk assessment are some topics of discussion. For more information please visit: <http://abneta.org/congress/>

CGIAR Annual General Meeting 2008

The next CGIAR Annual General Meeting will be held from December 1-5, 2008 at Maputo, Mozambique. For more information please visit: <http://www.cgiar.org/meetings/index.html>



Short Communications/News

IFAD: Urgent Investment in Agriculture Needed in the Developing World

"Urgent investment in agriculture is needed to produce affordable food for rural people in developing countries", concluded the International Fund for Agricultural Development (IFAD) governing council after its annual meeting. The meeting highlighted the importance of investing in agriculture in the face of rising food price and climate change.

Delegates from IFAD's 164 member nations discussed the measures that should be taken to protect the rural poor from commodity price increase. Reducing transportation costs, creating safety nets for those who buy more food than they produce and boosting productivity through public research and microcredit schemes are among the measures that should be taken. The council also called on the international community to examine setting up a mechanism to regulate and monitor the impact of biofuel policy and usage, amidst concerns that biofuel production threatens food security. Renowned geneticist Dr. M.S. Swaminathan commented that "Food security must always be the bottom line."

IFAD is an international financial institution and a specialized United Nations agency. It currently supports more than 200 programs and projects in 84 developing countries. The press release is available at <http://www.ifad.org/media/press/2008/16.htm>

World Bank and IFAD Project in Bangladesh to Boost Agri-Research

A new US\$ 84.6 million project aims to increase farmers income and boost agricultural productivity in Bangladesh by strengthening the country's research and extension services. The National Agricultural Technology Project is made possible by a US\$ 62.5 million and US\$ 19.5 million loan from the World Bank and the International

Fund for Agricultural Development (IFAD). More than 1.7 million small holders and marginal farmers will take part in the project.

"Several things in the project design are genuinely new to Bangladesh," said Nigel Brett, IFAD's country program manager for Bangladesh. "In particular, the approach to funding agricultural research through an autonomous foundation has not been tried before. This will enable a variety of public and private organizations to fund a wide range of agricultural research proposals." The project will also include amending the country's Agricultural Research Council Act of 1996. Read the press release at <http://www.ifad.org/media/press/2008/04.htm>

Asian Agriculture Given a Boost by the UN

The United Nations World Meteorological Organization supported a 10 nation, three-day meeting to discuss sustainable farming practices to feed the growing populations in Asia. Representatives from China, Iran, Kazakhstan, Mongolia, Nepal, Pakistan, Russia, Thailand, Uzbekistan and Vietnam conferred on issues critical to promoting sustainable agriculture in the region, including drought response, impacts of climate change, water resources, pest and diseases.

Recommendations from the meeting include: investing in more urban and indoor agriculture to assist in providing food for urban dwellers; provision for seasonal prediction and early warning systems for drought and flood, and a guide for farmers to decide what crop to plant in particular climatic conditions. Disease forecasting which is already successfully used in developing countries should also be implemented in Asia to better help the farmers in fighting plant pests and diseases. See the news article at: <http://www.un.org/apps/news/story.asp?NewsID=25145&Cr=Asia&Cr1=Climate>



APAARI Success Stories



Baby Corn Production in Thailand (1994/1) by
Dr. Chamnan Chutkaew and Dr. R.S. Paroda



Tilapia Farming in the Philippines (1994/2) by
Dr. Rafael D. Guerrero III



Hybrid Rice in China (1994/3) by
Mr. Lou Xizhi and Dr. C.X. Mao



Dairying in India (1994/4) by Dr. R.P. Aneja



Hybrid Cotton in India (1995/1) by
Dr. A.K. Basu and Dr. R.S. Paroda



Palm Oil Industry in Malaysia (1995/2) by
Dr. Y.B. Basiron



**Transformation in Korean Farming – A Success
Story of Effective Linkages (1996/1)** by
Dr. Chae Yun Cho



Cotton Production in Pakistan (1996/2) by
Dr. Badaruddin Soomro and Dr. Parvez Khaliq



Orchids in Thailand (1997/1) by
Dr. Kanchit Thammasiri



Wheat Production in Iran (1997/2) by
Dr. Abbas Keshavarz and Dr. M.J. Mirhadi



Agro-Tourism in Australia (1997/3) by
Dr. Tom Connors



Direct Seeded Rice in Malaysia (1998/1) by
Dr. Cheong Ah Wah



Groundnut in China (1998/2) by
Dr. Duan Shufen, Dr. Hu Wenguang and
Dr. Sui Qingwei



Oilseeds in India (1999/1) by Dr. Mangala Rai



**Integrated Pest Management in Rice in Indonesia
(1999/2)** by Dr. Soejitno



Bivalve Mariculture in India (2000/1) by
Dr. V.N. Pillai et. al.



**Farming of Carrageenophytes in the Philippines
(2001/1)** by Dr. Rafael D. Guerrero III



**Resource Conserving Technologies: Transforming
the Rice-Wheat Systems of the Indo-Gangetic
Plains (2002/1)** by Dr. Raj K. Gupta, Dr. Peter
R. Hobbs, Dr. J.K. Ladha and Dr. S.V.R.K. Prabhakar



**Success Story on Control of New Castle Disease
in Village Chickens (2003/1)** by
Dr. Robyn Alders.



**Success Story on the Lentil Improvement in
Bangladesh (2004/1)** by Drs. Ashutosh Sarker,
William Erskine, M. Abu Bakr, M. Matiur Rahman,
M. Ali Afzal and Mohan C. Saxena



**Success Story in Classical Biological Control of
Agricultural Pests in India (2004/2)** by
Dr. S.P. Singh



**Success Story on Sustaining the Green Revolution
in India (2004/3)** by
Dr. S. Nagarajan



**Success Story on the Rainbow Trout
(Oncorhynchus Mykiss) Culture in the Himalayan
Kingdom of Nepal (2005/1)** by
Dr. Ash Kumar Rai and Dr. Ram C. Bhujel



**Success Story on the Commercialization of Bt Corn
in the Philippines (2005/2)** by Reynaldo V. Ebor, Jr.,
Amparo C. Ampil, Merle B. Palacpac and Carlo
G. Custodio Jr.



**Selected Success Stories on Agricultural
Information System (2006/1)** by
Dr. Sahdev Singh



**Linking Farmers to Market: Some Success Stories
from Asia-Pacific Region (2008/1)** by Dr. Rosendo
S. Rapusas (Philippines), Prof. Dinghuan Hu, Dr. Kevin
Z. Chen, Mr. Hu Song (China) and Dr. V. Prakash (India)

APAARI Members

MEMBERS

- ACIAR-Australian Centre for International Agricultural Research (Australia)
- AREO-Agricultural Research and Education Organization (Iran)
- BAR-Bureau of Agricultural Research (Philippines)
- BARC-Bangladesh Agricultural Research Council (Bangladesh)
- CARP-Sri Lanka Council for Agricultural Research Policy (Sri Lanka)
- COA-Council of Agriculture (Chinese Taipei)
- DOA-Department of Agriculture (Thailand)
- IAC-Institut Agronomique Neo-Caledonien (New Caledonia)
- ICAR-Indian Council of Agricultural Research (India)
- JIRCAS-Japan International Research Center for Agricultural Sciences (Japan)
- MAFF-Koroniva Research Station, Ministry of Agriculture, Forestry and Fishery (Fiji)
- MARD-Ministry of Agriculture and Rural Development (Vietnam)
- MARDI-Malaysian Agricultural Research and Development Institute (Malaysia)
- MCFF-Ministry of Commerce, Forests and Fisheries (Samoa)
- NARC-Nepal Agricultural Research Council (Nepal)
- NARI-National Agricultural Research Institute (Papua New Guinea)
- PARC-Pakistan Agricultural Research Council (Pakistan)
- PCARRD-Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (Philippines)
- RDA-Rural Development Administration (Republic of Korea)

ASSOCIATE MEMBERS

- AVRDC-World Vegetable Center (Taipei)
- Bioversity International (Italy)
- CIMMYT-International Maize and Wheat Improvement Center (Mexico)
- ICARDA-International Center for Agricultural Research in the Dry Areas (Syria)
- ICBA-International Center for Biosaline Agriculture (United Arab Emirates)
- ICRAF-International Center for Research in Agroforestry (Kenya)
- ICRISAT-International Crops Research Institute for the Semi-Arid Tropics (India)
- IFAP-International Federation of Agricultural Producers (France)
- IFPRI-International Food Policy Research Institute (U.S.A.)
- ILRI-International Livestock Research Institute (Kenya)
- IRRI-International Rice Research Institute (Philippines)

APAARI Members (continued)

- IWMI-International Water Management Institute (Sri Lanka)
- NTU-National Taiwan University (Chinese Taipei)
- PNG UniTech - Papua New Guinea University of Technology (Papua New Guinea)
- SAARC-South Asian Association for Regional Cooperation, SAIC (Bangladesh)
- The World Fish Center (Malaysia)

RECIPROCAL MEMBERS

- AARINENA-Association of Agricultural Research Institutions in the Near East and North Africa (Jordan)
- AIT-Asian Institute of Technology (Thailand)
- APAFRI-Asia-Pacific Association for Forestry Research Institutions (Malaysia)
- APSA-The Asia and Pacific Seed Association (Thailand)
- NACA-Network of Aquaculture Centers in Asia-Pacific (Thailand)

Recent Publications

- Proceedings of the Expert Consultation on Agricultural Innovations: Linking Farmers to Market
- Proceedings of Expert Consultation to Review Progress of Agricultural Research Networks and Consortia in Asia-Pacific
- Diversity in Agricultural Research Resources in the Asia-Pacific Region
- Linking Farmers to Market: Some Success Stories from Asia-Pacific Region
- Agricultural R&D Capacity and Investments in the Asia-Pacific Region
- Micropropagation for Quality Seed Production in Sugarcane in Asia and the Pacific
- Lentil Production in Nepal
- Biosafety Regulations of Asia-Pacific Countries (In Press)
- Proceedings of Asia-Pacific Regional Workshop on Agricultural Research for Development (In Press)

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