APAARI NEWSLETTER

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EDITORIAL

APAARI is a relatively young but vibrant forum, which has made important strides, one of which is the development of its Vision 2025. It has already defined both the goal and strategies required for Agricultural Research for Development (ARD) in the Asia-Pacific region. The task for APAARI now is to develop a "Plan of Action" in the regional context, suitably matching with the five strategies outlined namely: strengthening regional co-operation and partnership; publication enhancement and dissemination; human resource development; advocacy for ARD and improvement in strategic thinking. The participants at the APAARI Expert Consultation in November 2000, held at Chiang Rai, Thailand deliberated extensively on these issues and decided on future course of action to be implemented.

Regional priority setting has obviously been considered very important. Major focus is now to develop regional strategies integrating NARS needs, IARCs/CGIAR research agenda and GFAR supported global initiatives. There is an obvious need to have separate inputs from sub-regional fora, networks, and organizations. Diverse stakeholders' participation in this exercise is also considered necessary to strengthen ARD perspective at the regional, sub-regional and national level. Also recent shifts in CGIAR policy/agenda to consider NARS needs at the regional level will have to be integrated. Furthermore, APAARI also stands to benefit from GFAR's recent initiatives to strengthen the regional fora.

APAARI is now working on the modalities for regional priority setting and going ahead with its own initiatives to catalyse NARS to establish an Asia-Pacific Agricultural Research Information System (APARIS). Also, similar thrust is being provided for strengthening regional networks to make them more sustainable, to enhance publication and dissemination, to develop concrete plans for capacity building, promote thematic research on integrated natural resource management, systems research, agro-biodiversity management, and to generate awareness on IPR related policy issues by catalysing the policy makers. APAARI is targeting to develop its "Plan of Action" document soon to translate it's vision into action through active involvement of its stakeholders. Having completed a decade of its existence successfully, APAARI is now fully geared to accelerate ARD programmes in the Asia-Pacific region addressing in particular the concerns for resource conservation, poverty, productivity, and sustainability.

Editors

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, REGIONAL OFFICE FOR ASIA AND THE PACIFIC
MAILWAN MANSION, PHRA ATIT ROAD, BANGKOK 10200, THAILAND. TEL: 281-7844, TLX: 82815 FOODAG TH, FAX: 280-0445

REPORT ON THE SIXTH GENERAL ASSEMBLY OF APAARI AND EXPERT CONSULTATION ON STRATEGIES FOR IMPLEMENTING APAARI VISION 2025: AGRICULTURAL RESEARCH FOR DEVELOPMENT IN THE ASIA-PACIFIC REGION

8-10 November 2000, Chiang Rai, Thailand

The Sixth General Assembly of APAARI and Expert Consultation hosted by the Department of Agriculture, Government of Thailand, was held at Chiang Rai from 8-10 November 2000. Over forty participants attended this meeting. They represented APAARI member-NARS from Australia, Fiji, Iran, India, Republic of Korea, Nepal, Papua New Guinea, Pakistan, Philippines, Sri Lanka, Taiwan, Thailand, Vietnam and Western Samoa. Associate members present were from the IARCs/CGIAR namely ICRISAT, CIMMYT, ISNAR, IRRI, ICARDA, IPGRI, ICLARM, IWMI and ILRI. Other participants included a number of regional and international centres such as AIT, AVRDC, CABI, ICIMOD, and networks *viz.* TAMNET, CLAN, GoFAR, NACA and RWC.

INAUGURAL SESSION

The meeting was inaugurated by the Honourable Governor of Chiang Rai, with Dr R.B. Singh, Assistant Director General and Regional Representative, FAO-RAP, Bangkok, as the Guest of Honour. Both the Governor and Mr N. Sananarong, Deputy Director General, Department of Agriculture, Thailand welcomed the participants. Dr Ananta Dalodom, Vice-Chairman, APAARI and Director General, Department of Agriculture, referred to the emerging concerns on food security and appreciated the need for such regional meetings. Dr R.S. Paroda, Executive Secretary, APAARI in his welcome address highlighted the role of APAARI to promote and coordinate ARD with focus on NARS needs, and reported on APAARI's achievements. Dr Ian Bevege, Chairman, APAARI in his inaugural address expressed the need for an effective implementation of APAARI Vision 2025. He particularly referred to the APAARI strategy being developed for promoting information/communication networking. Dr R.B. Singh, expressed concern on food insecurity, poverty and environmental degradation. In this context, he referred to the UN Millennium Summit 2000 which has also highlighted these problems. He appreciated APAARI's role as a regional forum in Asia-Pacific and the efforts put forth by this association in bringing out APAARI Vision 2025. Dr Singh also stressed on APAARI's role in coordinating ARD in NARS, improving their capacity for decision making and priority setting. He further pointed out that FAO would be pleased to support/promote APAARI in its activities and lauded APAARI as one of the most vibrant regional fora.

Four new APAARI publications were released during this session namely: APAARI Vision 2025: Agricultural Research for Development; APAARI–a Decade of Progress; Bivalve Mariculture in India – a Success Story; Plant Genetic Resources Conservation and Utilization in the Asia-Pacific Region – Regional Synthesis Report.

EXPERT CONSULTATION

The Expert Consultation mainly focused on the implementation of APAARI Vision 2025 to strengthen agricultural research for development in the Asia-Pacific region. The programme was conducted in four technical sessions. Session-I dealt with Natural Resource Management and stressed on agro-biodiversity conservation, sustainable use and management; Session-II dwelt on Integrated Natural Resource Management for Sustainable Production and highlighted regional efforts and concerns, with focus on case studies of research carried out in the field by different IARCs, other international organizations in collaboration with NARS. Session-III addressed strengthening Information and Communication Technology and discussed the outcome of the 2-days APAARI meeting on ICT held at the same venue on 6-7 November 2000, preceding this consultation, involving NARS and other concerned regional and international partners. Session-IV was on APAARI Vision 2025 in form of an open discussion, and deliberated on the concerns of developing an Action Plan. The Plenary Session was chaired by Dr R.S. Paroda, wherein specific recommendations and suggestions given by the participants were endorsed. These have been summarized below:

Strategies for Agro-biodiversity Conservation in the Asia-Pacific Region

- National action plans for agro-biodiversity conservation should be developed on high priority; priorities for conservation of species, commodities etc, to be determined primarily by NARS.
- For information sharing, use of a common communication system, such as SINGER developed by CGIAR, was advocated.
- Greater need for capacity building/training among NARS was stressed, making use of APAARI.
- Public awareness, in particular among policy makers, assumes high concern. Regional ministerial

conferences need to be organized preceded by workshops on agro-biodiversity con-servation by FAO, IPGRI, GFAR, APAARI etc. At the national level, focus should be on senior research managers and grass-root organizations and NGOs. Also awareness on the importance of agro-biodiversity conservation needs to be created at the primary and secondary school levels. Relevant materials need to be developed for use by NARS.

The Inaugural Session

- Regional networks would need strengthening for their sustainability. Both national and regional networks should also include NGOs and other grassroot organizations. Need was expressed for establishing regional networks on livestock and genetic resources of microbes.

Future Strategies in INRM in the Asia-Pacific Region

- APAARI has a facilitating and coordinating role in the IARC-NARS partnership in INRM research, based on the framework developed by CGIAR Centres at the Penang meeting; IARCs have a major role to play in INRM with the NARS partners to ensure that the required basic, holistic research and methodologies are elucidated.
- A systems approach encompassing farmers, institutions and agro-ecosystems is crucial for the success of INRM, and the sustainability of the ecosystems. Critical issues and concerns on different aspects of INRM focusing on importance of water management, assessing soil degradation and desertification, Integrated Nutrient Management (INM), Integrated Pest Management (IPM), Resource Conservation Technologies (RCT) for pilot testing, particular focus on diversification of Rice-Wheat system with potato, legumes, maize and vegetables; farmers' identified research needs using participatory approaches; concern on the impact of climatic change on agriculture; enhanced use of underutilized crops (fruits, cereals, legumes) have to be addressed.

Release of Success Story by Dr Ananta Dalodom

IPR and Sharing of Genetic Resources

- Based on the needs of all member-NARS, APAARI will hold an Expert Consultation on 'Information and Training in the field of Intellectual Property Protection of Genetic Resources' in the near future.
- APAARI Secretariat will constitute a task force to conduct an 'Electronic Conference' to survey member-NARS, to assess the current status of IPR legislation and policies/practices and identify priority issues of national and regional concern.
- The Expert Consultation will focus on sharing of experiences/expertise among member-NARS and other institutions; IPGRI and GFAR collaboration in particular will be utilized in the planning and execution of this consultation.

Information Communication Technology (ICT)

- Considering the deliberations of the ICT Expert Consultation held prior to this meeting, and the expectations/concerns of member-NARS in developing ICT activities; it was urged that the Executive Committee of APAARI looks closely at the possibilities to carry further existing ICT activities in the region and also linking outside the field of agriculture in the strict sense, and to utilize the synergies with FAO, GFAR, CGIAR institutes and other regional/international partners.
- APAARI Secretariat activities could focus on linking of national web-based activities, to improve / undertake electronic distribution of scientific publications, the creation and maintenance of scientific databases and provide

support to training to establish stronger knowledge-sharing culture within and between agricultural institutions and other related organizations.

- APAARI Secretariat to assist on priority the member-NARS that are currently less developed in ICT so that they can benefit from ICT to promote/strengthen their agricultural research and development. ICT needs of such NARS are thus to be prioritized *vis-à-vis* action required by APAARI Secretariat.

APAARI Vision 2025: Emerging Plan of Action

The Plan of Action is conceived as an inter-related set of activities that APAARI members and partners agree to undertake jointly on the five strategies outlined in Vision 2025, namely (i) strengthening regional cooperation and partnerships, (ii) publication enhancement and dissemination, (iii) human resource development, (iv) advocacy for ARD, and (v) other strategic issues related to ARD improvement.

1. *Strengthening Regional Cooperation and Partnerships*

It was stressed that APAARI takes a relook at the regional priorities already identified/recommended for regional cooperation/partnerships in R&D, in order to crystallize current priorities. The follow-up suggested was:

- The sub-regional associations/groups will be requested to review their priorities by April 2001, so that their input is made available to the Mid Term Meeting of the CGIAR in May 2001.
- An Expert Consultation on regional priorities need to be organized by APAARI during its next Executive Committee meeting in September/October 2001, so that the outcome of the consultation could be made available at the International Centres Week in November 2001.
- APAARI will engage a consultant to design guidelines for activity priority setting; and to consider organizing a workshop to discuss these guidelines before adopting them. The need to define regional priorities – the distinction and complementarity between national and regional priorities will have to be better elaborated.
- The need to strengthen national priority setting was identified as a high priority, since national priorities are very important inputs for defining regional priorities. In order to address the needs of the member-NARS, the following activities need to be carried out by APAARI and other partners.
- ISNAR will facilitate the distribution of information on methodologies for national priority setting to APAARI members through a CD-ROM or other media.
- Dissemination of information on good practice/priority setting documents developed by NARS for exchange of such material and sharing of NARS-NARS experiences in the context of national priority setting by NARS.
- GFAR will facilitate exchange of experience on priority-setting among regional fora.
- Enhancing research partnerships in the region under APAARI umbrella such as (a) partnership among CGIAR/IARCs to improve the complementarity and effectiveness of their programme in the Asia-Pacific region (ICRISAT in South Asia and IRRI in Southeast and East Asia). Also, such successful partnerships to be made available to other NARS/stakeholders as per their needs. Other partnerships in key strategic areas include an integrated approach to the management of specific ecogeographic regions such as on the Mekong river basin (IWMI), studying impact of global climatic change on agricultural productivity (ICRISAT) and responding to issues related to sustainability of agricultural production. APAARI may involve other potential partners in proposals/endeavours for future R&D collaboration.
- Strengthening the information and communication capacity of the NARS in the region was identified as the foremost regional priority. The APARIS (Asia-Pacific Agricultural Research Information System) Project Proposal that emerged from the ICT Consultation has proposed a set of activities for the next two years with an indication of who can do what with active involvement of NARS partners as elaborated in the document 'Towards an APARIS for APAARI: Draft Report of the Expert Consultation on Development of an APARIS', Chiang Rai, 6-7 November 2000. In the formation of the project, emphasis has been laid on the use of existing regional expertise.

2. *Advocacy Role of APAARI*

In this, three possible activities to be carried out by APAARI or by the members were identified:

- Prepare discussion papers for policy makers on various ARD aspects related to the strategic importance of agricultural research and development. In this task, GFAR could facilitate the inter-regional exchange of

experiences and of policy papers which will help to strengthen the various initiatives that Regional/Sub-Regional Fora are undertaking.

- APAARI will look into the possibilities of organizing a regional consultation on these topics and invite senior policy makers, thereby promoting a dialogue with NARS leaders and senior policy makers, with possible participation of the Agriculture Ministers, the Finance Ministers and the concerned parliamentarians.
- Possibility of organizing a ministerial meeting in the Asia-Pacific region with FAO-RAP support may also be looked into; or arrange such a meeting back-to-back with other scheduled ministerial meeting, and/or incorporate this topic in the agenda.

Participants of the Expert Consultation on Strategies for Implementing APAARI Vision 2025

3. *Human Resource Development*

The third regional strategy will focus on:

- Capacity building/training in key ARD areas/fields and on NARS management, research priority setting and lay emphasis on developing action plan on identified training needs/opportunities in the region and prioritizing these as per national/regional needs.
- APAARI may coordinate human resource development taking benefits of developed NARS in the region, to help less developed NARS in need of expertise and guidance.

4. *Publication Enhancement and Dissemination*

The fourth regional strategy emphasizes on the enhancement of scientific publications and dissemination in ARD in the region. These activities can be integrated into an effective action plan to enhance publication activities especially the success stories, RWC activities, water management, regional research networks.

5. *Other Strategic Issues of ARD and Networking*

- The members stressed the need for R&D and coordination in genetic conservation and management of biodiversity/agro-biodiversity; and integrating these concerns into the plan of action for implementing APAARI Vision 2025. Major focus was on regional and crop networks, and benefits of R&D achievements to be made available to other NARS.
- It was urged that APAARI lays emphasis to develop sub-regional networks, and to help establish in particular network of Pacific Island countries; there is a niche for APAARI to be pro-active in coordinating such efforts in the sub-region.
- There is also a direct need for APAARI to coordinate networking/network activities in the region on underutilized crops with involvement of institutions such as IPGRI, ICUC, FAO, other regional/international centres, fora like GFAR, NGOs etc.

OTHER HIGHLIGHTS

The Governing Body recommended that considering the increased responsibilities of APAARI in coordinating national/sub-regional and regional activities, there is an urgent need to appoint a full time executive staff/manager/coordinator for APAARI (with/without external funding). The association needs to have such a staff member who can contribute effectively to the further growth of the association, and improve/strengthen existing links with stakeholders, NARS, IARCs, FAO, GFAR, etc.

EXECUTIVE COMMITTEE FOR 2001-2002

Chairman	Dr D. Joshy	Nepal
Vice-Chairman	Dr J. Kumar	Fiji
Members	Dr I. Bevege	Australia
	Dr Z. Karim	Bangladesh
	Dr S.H. Anang	Malaysia
	Dr P.S. Faylon	Philippines
Executive Secretary	Dr R.S. Paroda	India

APAARI HOLDS ICT EXPERT CONSULTATION

6-7 November 2000, Chiang Rai, Thailand

The Expert Consultation on the Development of an Asia Pacific Regional Agricultural Information System (APRAIS) was held at Dusit Island Resort hotel, Chiang Rai, Thailand during 6-7 November 2000. Mrs. Prapaisri Pitakpaivan, Deputy Director General of the Department of Agriculture, Thailand, who was also the Chief Guest, inaugurated the meeting. Twenty-seven participants attended this meeting and these included eleven (Information Nodal Points) nodal information officers of NARS of the Asia-Pacific namely: Bangladesh, India, Iran, Japan, Republic of Korea, Malaysia, Pakistan, Papua New Guinea, Sri Lanka, Taiwan and Thailand. There were participants from agricultural sub-sectors and networks in the region: APAFRI, APHCA, NACA; and from key players in information management and Agricultural Research for Development (ARD) namely CABI, FAO(WAICENT), EGFAR, ISNAR, and IRRI.

Participants of the First ICT Expert Consultation

The Expert Consultation was conducted in three technical sessions. The name *Asia-Pacific Agricultural Research Information System (APARIS)*, as suggested by Dr R.S. Paroda, was adopted.

Session I and II dealt with the current status of the use of Information and Communication Technology (ICT) in Agricultural Research and Development (ARD) globally, in the region and in individual NARS. Status reports for all the NARS members of APAARI had been prepared and the outcome was very promising.

In Session-III the ICT-ARD strategy for APAARI for moving towards an APARIS was discussed. In a round table discussion participants agreed on the scope for APARIS in terms of subject matter, stakeholders, geographical coverage, communication media and language. In the second part of this session participants were organized into 4 working groups to work on four aspects of the strategy:

- HRD and organizational management for ICT within NARS;
- Regional databases and information resources;
- A gateway function for APARIS;
- Organization and management of an APARIS.

In the plenary session, chaired by Dr R.S. Paroda, Executive Secretary of APAARI, the following recommendations were made for advancing the establishment of APARIS under the aegis of APAARI:

- The ICT expert group from NARS and regional organizations as convened for this consultation should form a steering committee to enable APARIS determine its structures, standards and work programme.
- An APARIS support group be constituted comprising, APAARI, FAO, GFAR, CABI, IARC (representative), *et al.* which will be responsible for raising resources from donors and others for the operation of APAARI – there should be a link between the two groups by representation of the steering committee serving on the support group.
- TOR for these two groups should be prepared and their membership confirmed.
- APARIS proposal should be prepared as a project activity identifying elements which can be undertaken by the partners (including APAARI) and those for which donor support will be sought. This proposal should subsume the current proposal on Knowledge and Information Systems of APAARI as its elements are parallel to those proposed for APARIS.
- Discussions should be held with organizations which might be prepared to provide coordinator support to APAARI for APARIS, at least in the initial stages.
- The feasibility study on APARIS as a gateway and its site mapping using the current APAARI website as a basis should be the first activity under APARIS.

These proposals have been endorsed by the APAARI General Assembly 8-10 November 2000. The next step will be to prepare an action plan for establishment of APARIS within APAARI framework. This action plan is to be coordinated with the ongoing work programme of APAARI's ICT manager.

RECENT ACTIVITIES AT AREEO, IRAN

The Agricultural Research Education and Extension Organization (AREEO) between March-September 2000, carried out the following important research activities:

MEETINGS ORGANIZED

- The Third Inter-Sessional Meeting of the Contact Group of the Commission on Genetic Resources for Food and Agriculture (CGRFA) was held in Tehran, Iran from 26-31 August 2000. The meeting was attended by 78 participants from 36 countries and 4 intergovernmental observer organizations. During the course of six-day meeting, the major items debated and examined were: Facilitated Access; Benefit Sharing and Financial Resources. The delegates noted that this Contact Group session was the most successful one to date and significant progress was made on Intellectual Property Rights (IPR) issues related to technology and commercial benefit sharing.

Signing of MoU between AREEO/Iran and ICARDA/CGIAR

- The Sixth Congress on Plant Breeding and Agronomy of Crops was organized at the Mazandaran (Babolsar) University from 2-6 September 2000. About 1000 persons comprising Iranian professors, researchers and agricultural experts from universities, research institutions and centres participated. Ten keynote addresses and 700 papers and posters were presented in the diverse fields of Agronomy and Plant Breeding.
- Fourteenth National Congress on Plant Pathology was held at the Isfahan University of Technology, in Isfahan from 3-7 September 2000. About 1500 persons comprising professors, researchers, scientists and experts from Universities, Institutes and Research Centres from all over the country participated and 800 papers were presented in the symposia on Olives, Biotechnology and Cereals, Plant Pests and Diseases, Weeds and Horticultural Crops.
- The Eighth Iran/ICARDA Planning and Coordination meeting on Dryland Agricultural Research was held in Maragheh and Karaj from 9-15 September 2000. About 110 Iranian researchers and specialists from all over Iran engaged in dry-land research participated. The meeting discussed and reviewed the results of different research projects executed in 1999 and made necessary planning for ongoing monitoring/execution of projects on cereals, oilseeds, pulses and forages.

STRENGTHENING OF INFORMATION AND DISSEMINATION

- Information Dissemination Network of AREEO through synchronous connection line S4K has succeeded in providing access to nearly 1000 users at national level through LAN and Dial, Internet and e-mail. The website can be accessed at www.areeo.or.ir.
- Workshops have been organized on crops such as date palm, tropical plants, citrus and pistachio with the participation of researchers, scientists and experts from all over the country to investigate and evaluate the results of research projects executed and necessary planning of research activities in future. In each of the aforementioned workshops held for 3 days, about 100 experts in the related fields participated.

IRAN-CHINA COLLABORATION

Ratification of joint research projects between Iran and China was done in the field of Colza.

OTHER HIGHLIGHTS

1. During the ICARDA Board of Trustees Meeting organized in Iran from 29 April to 6 May 2000, Dr Abbas Keshavarz, Deputy Minister of Agriculture and Head of Agricultural Research, Education and Extension Organization (AREEO) was elected as a Member of the Board of Trustees of ICARDA for a period of 4 years. Further, the Members of the Board paid a visit to Research Institute in Maragheh and got acquainted with the research activities underway.
2. The Memorandum of Understanding (MoU) for cooperation between Iran and the Consultative Group

on International Agricultural Research (CGIAR) was approved by the parliament of the Islamic Republic of Iran.

Dr Norman Borlaug, Nobel Laureate was invited to Iran by the Minister of Agriculture of the Islamic Republic of Iran and a Plaque of Appreciation was presented to him. Also an invitation was extended by the Government of Iran to Dr Gurdev Singh Khush, recipient of the World Food Prize and an Honorary Doctorate Degree in Plant Breeding was conferred on him by the Agriculture College of the University of Tehran and a Gold Plaque presented by the Ministry of Agriculture.

PUBLICATIONS

Publication of Research Highlights of Agricultural Research Education and Extension Organization (1997-1999) was brought out. This provides summary of research activities executed in 1999. The Research Report includes the results of all projects and also a summarized report on Education-Extension services.

[*Contributed by:* Dr Abbas Keshavarz, Head of Agricultural Research Education and Extension Organization (AREEO), PO Box 19835-111, Tabnak Avenue, Tehran, Iran].

RECENT ACTIVITIES AT CARP, SRI LANKA

GIS DATABASE DEVELOPED

The 250,000 scale map of Sri Lanka, produced by the Survey Department, was selected as the base map for developing the spatial database. As an electronic version of this map was not available, CARP assisted the Survey Department in producing one. The special database is a component of the CARP Agricultural Database System which also contains non-spatial data sets such as, demographic data, extents cultivated, crop and livestock production statistics etc. These data are stored in Access database format enabling relevant data to be conveniently displayed on a map as attributes (tabular or graphical) of a spatial theme, for example, rice production over the last 10 years in selected districts.

AGRICULTURAL INFORMATION NETWORK

CARP serves as the focal point of the Agricultural Information Network, AGRINET, which helps to share resources of 28 member libraries with scientists in the NARS, universities and others in the agricultural sector. Abstracts of scientific literature published worldwide on CD-ROM databases are provided by CARP to researchers. Bibliographies of research publications have also been produced. The CARP Library is a "Virtual" or Electronic Library, and its further expansion to be a "State-of-the-art" Agricultural Library, is underway.

RESEARCH PROJECTS COMPLETED

Among the research projects completed under CARP grants, the following have direct relevance to agriculture: i) Comparative study on the performance of newly evolved strains at Central Poultry Research Station with some of the exotic breeds, ii) Improvement of chilli through hybridization and selection, iii) Investigations on integrated control approach for bacterial wilt on potato and tomato in the up-country intermediate zone, iv) Transfer of delta endotoxin protein gene from *Bacillus thuringiensis* to *indica* rice plant to obtain a transgenic rice variety with resistance to stem borer and leaf folder, and v) Development and application of the isozyme technique for the identification of tea (*Thea sinensis*) clones.

DEVELOPMENT OF NATIONAL WEED STRATEGIES

Towards the formation of national weed strategies, 12 weeds have been preliminarily listed on top priority. They are *Andredera cordifolia, Chromalaena odorata, Cuscuta chinensis, Cyperus rotundus, Echinocloa crussgalli, Echinochloa crassipes, Imperata cylindrica, Lantana camara, Mimosa nigra, Parthenium hysterophorus, Pennisetum polystachyon and Salvinia molesta.* "Fact Sheets" indicating their location, crops effected, consequent crop losses are under preparation. Effective functioning of the national weed strategies will be monitored by CARP appointed committee on Plant Protection.

INTERNATIONAL LINKAGES/COLLABORATION

CARP is now establishing linkages with SAARC countries through Memoranda of Agreements and an MoU with the Australian Centre for International Agriculture Research (ACIAR) on collaborative research. These linkages are also developed with Indian Council of Agricultural Research (ICAR), Bangladesh Agricultural Research Council (BARC), Nepal Agricultural Research Council (NARC) and Pakistan Agricultural Research Council (PARC). These Memoranda relate to training, exchange of germplasm, consultancies and exchange of scientific information where the main beneficiary is the SLNARS.

[*For more details contact* : Executive Director, Council for Agricultural Research Policy (CARP), 114/9, Wijerama Mawatha, Colombo 7, Tel: 01 697103, Fax: 01 682951, E-mail: carp@sri.lanka.net].

ASIAN AQUACULTURE DEVELOPMENT: VISION AND STRATEGY

For world aquaculture, the 'Bangkok Declaration and Strategy for Aquaculture Development Beyond 2000' by the Conference on Aquaculture in the Third Millennium held in February 2000, provides a blueprint for government action for aquaculture development.

The Bangkok Declaration

The *Bangkok Declaration* urges that aquaculture be developed to its full potential so that it can make a net contribution to food security, economic growth, trade and improved living standards; that it be a component of development contributing to sustainable livelihoods of the poor; that policies promote farming practices that are environmentally and socially responsible; that states, their private sector and other legitimate stakeholders cooperate to promote the responsible growth of aquaculture and that regional and inter-regional cooperation be strengthened to raise the effectiveness of aquaculture development efforts.

The directional guidelines from these regional and global events suggest a 7-pronged thrust to Asian aquaculture development during the first decade of this new millennium, as follows:

- Basic shift in emphasis from aquaculture development to aquaculture for attaining social development objectives;
- Further emphasis on environmental sustainability;
- Harnessing and integrating both science-based and indigenous knowledge to improve aquaculture technology and systems and make these relevant to people's needs and circumstances;
- Increase use of information technology to development and to deliver environmentally sustainable innovations;
- Strategic shift in the networking structure from institutional to more people-centered networking;
- Increase technical cooperation among states;
- Greater participation and more active involvement in inter-regional cooperative actions.

An essential factor to underpin these thrusts will be education at all levels for which a regional collaborative effort has been initiated.

Integration of Fish Culture with Agricultural Systems

GOING GLOBAL

Global cooperation, in all likelihood, will be an obligatory direction for Asian aquaculture, for the inter-governmental NACA Organization whose membership currently includes 15 states in the region with five more active participants in Asia and one in West Asia. (Seven of these are among the world's top 10 aquaculture producers). The Bangkok Conference looked at the NACA mechanism as a model for the other developing regions, particularly Africa and Latin America.

The FAO constituted a team of global experts to propose an appropriate mechanism to carry out global cooperation in aquaculture development. The consultation suggested to start with, creating a Sub-Committee on aquaculture under the Committee on Fisheries; priority activities can be identified and plans and strategies developed from there. Meanwhile, a recently fielded NACA task force composed of four regional experts of an independent and honorary capacity, foresees NACA will be "obligated to extend its expertise and experience to newly emerging aquaculture-related organizations for the global well-being of the industry". They believe this to be one of the "imperatives for Asian aquaculture to continue to develop". The Task Force noted that inter-regional involvement of NACA is in accordance with the Bangkok Declaration although, recognizing that Asian aquaculture has itself much to cover to attain a higher state of technological development. It also cautioned that NACA's involvement in other regions be not made at the expense of its primary responsibility to the Asian region. In short, Asian aquaculture's obligation is

primarily to itself. To reinforce this purpose, the Task Force urged NACA to generate more benefits for the people of the region through the harnessing of all available resources. Along this line, it has, among others, recommended that NACA enables associations of states (e.g., ASEAN, EU, SAARC, SPC) to become its associate members, and, by the same token, for it to take a more active role in the broader arena of socio-economic development by becoming an associate member of global and regional fora and associations, not only in the sector of aquaculture or fisheries but in the wider area of agricultural development.

Clean and well-maintained Aquaculture Farms contribute to Sustainability of the System and Environmental Friendliness

PARITY AMONG PARTICIPANTS/MEMBERS

An expressed agenda of NACA stresses to promote regional self-reliance in aquaculture development by mutual assistance and elevate the aquaculture status of less developed countries on par with the more developed ones. NACA members are equal. They set policies, discuss, take a common stand on, and propose resolutions to issues in a collegial manner. NACA has additionally shown that cooperation has made more effective use of scarce national and donor resources and that sharing the regional pool of knowledge and technology has made greater impacts on overall regional aquaculture development. A future inter-regional aquaculture network arrangement might find it useful to follow this model, which is based on equality and cooperation to promote overall organizational strength and achieve self-reliance.

[Contributed by: Pedro B. Bueno, Network of Aquaculture Centres in Asia-Pacific (NACA), P.O. Box 1040, Kasetsart Post Office, Bangkok 10903, Thailand].

DR PARODA, DR REEVES AND DR CANTRELL RECEIVE 'CGIAR CHAIRMAN'S AWARD FOR OUTSTANDING SCIENTIFIC PARTNERSHIP'

The NARS of India, Pakistan, Nepal and Bangladesh have been at the forefront of commissioning a NARS-driven Rice-Wheat Ecoregional Initiative. The Rice Wheat Consortium for the Indo-Gangetic Plains (RWC) is being cited as one of the best Ecoregional Programmes. The RWC was also selected by APAARI as a model for NARS-CG partnership, for presentation in the Global Forum organized by GFAR in Dresden during May 2000 as the "best example of an effective research partnership". The RWC has raised awareness regarding benefits of a system's perspective and importance of integrating NRM with production research and fostered the use of new research tools. It has accomplished much in governance and partnerships, in science and the use of new research methods, and in impacts on farmers' fields.

Dr Ian Johnson, Chairman, CGIAR presenting the Award

The most recent and significant achievement directly attributable to RWC has been the rapid adoption of resource conserving technologies (RCTs), which occupy more than a hundred thousand hectares in the Indian sub-continent. In recognition of the contributions of the Consortium to the CG objectives, Dr Ian Johnson, presented the prestigious "CGIAR Chairman's Award for Outstanding Scientific Partnership" to the RWC. The award was received jointly by Dr R.S. Paroda, Director General, ICAR, on behalf of the NARS and Dr Ronald Cantrell, Director General, IRRI, and Prof. Timothy Reeves, Director General, CIMMYT.

CIRAD ACTIVITIES IN ASIA AND THE PACIFIC

INTRODUCTION

The Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), Paris, France is a scientific organization specialized in development oriented agricultural research for the tropics and subtropics. It is a state-owned body that was established in 1984 following the consolidation of French agricultural, veterinary, forestry and technology research organizations for tropical regions. CIRAD's mission is to contribute to the economic development of these regions through research, training and dissemination of scientific and technical information. In line with its mission, CIRAD's activities are largely oriented towards development in the countries of the South. By collaboration with these countries, CIRAD strengthens their research capacity, promotes the transfer of technology adapted to their needs and helps to build and sustain the international agricultural research and development system. Its activities play their part in meeting the huge challenges posed by population growth, food security and the sustainable use of the world's natural resources.

INSTITUTIONAL SET-UP

The centre employs 1800 persons, including 900 senior staff, who work in more than 50 countries, in Africa, Asia, the Pacific area and Latin America. In France, research activities are carried out in CIRAD-Montpellier, Nogent-sur-Marne, close to Paris, Corse, Guadeloupe, Martinique, Guyane, La Réunion, Mayotte, Nouvelle Calédonie and Polynésie Française. Its budget amounts to approximately 1 billion French Francs (152 million Euros), more than half of which is derived from public funds.

CIRAD is made up of seven departments : CIRAD-Ca (annual crops) ; CIRAD-Cp (tree crops) ; CIRAD-Flhor (fruit and horticultural crops) ; CIRAD-Emvt (animal production and veterinary medicine) ; CIRAD-Forêt (forestry) ; CIRAD-Tera (territories, environment and people) and CIRAD-Amis (advanced methods for innovation in science). The activities of the seven CIRAD departments are organized into 28 different programmes. CIRAD operates through its own research centres, national agricultural research system or development projects.

CIRAD Staff in Asia-Pacific
(Source: CIRAD CD-ROM, 2000 Version. Doc.: ISBN 2-87614-413-1)

CIRAD IN ASIA

CIRAD employs 40 scientists permanently based in Asia. Their research or development activities rest upon partnerships with national research institutions, higher education institutions like universities, international research institutes and local organizations including the private sector. This evolving organization is complemented by expert missions from France to assist current research, initiate new programmes, feasibility studies and provide expertise in development projects. Activities carried out in different countries are briefly reported here:

Indonesia: CIRAD is involved in Indonesia for over 30 years and continues to diversify its activities. Thirteen CIRAD scientists from several programmes (Oil Palm, Rubber, Natural Forest, Trees and plantations, Agrosystems, Humid and insular tropics, Economic policies – Ecopol) are currently working in Indonesia with public, international or private partners. CIRAD is studying innovative methods for improving food security, production and organizational aspects for certain major commodities, protection of the environment and sustainable management of forest resources. Modelling, remote sensing, management information systems and multi-agent systems are at the heart of several projects. CIRAD expertise is regularly sought for short-term assignments, most of them commissioned by the European Union and the World Bank. CIRAD is also actively involved in developing training modules for Indonesian scientists either in

Indonesia or in France. Some examples of CIRAD activities in Indonesia are as follows:

Collaboration with the Indonesian Public Research Sector: CIRAD is involved in several projects in partnership with IOPRI (Indonesian Oil Palm Research Institute), subject areas range from Oil Palm Breeding and Integrated Pest Management (IPM) strategies for pest and disease control, to agro-physiology to identify physiological components of oil palm yield elaboration (agro-physiological parameters and modelling information). CIRAD is working with the Ministry of Agriculture and Forestry (MAF) to improve upland farming on a catchment area scale through use of proper agro-meteorological and hydrological equipment and to promote small scale agribusiness. Also in conjunction with MAF, and through a European Union funded project, CIRAD provides technical and scientific support to the study of natural forest inventories at different sites, mapping and modelling using remote sensing images with a view to rationalize natural resource use.

Collaboration with International Centres: CIRAD is committing its scientists into three programmes; (i) with CIFOR (Centre for International Forestry Research), studies are being conducted on forest ecosystems and management of forests on degraded soils; (ii) in partnership with ICRAF (International Centre for Research in Agro Forestry), CIRAD promotes rubber improvement by grafted plants, cropping systems, latex tapping methods and post- harvest processing and quality, and (iii) with CGPRT, a UN centre, specialized in the economics of agricultural diversification in Southeast Asia, tools and methods for agricultural policy decision making are developed: MATA (Multilevel Analysis Tool for Agriculture) and Cadiac (Cadenas y diálogo para la acciòn) respectively a model for assessing the impact of economic policies on different agricultural sectors and a method for planning agricultural policies, developed as part of a cooperation in Latin America.

Vietnam: Research and development activities in Vietnam are closely linked with the Ministry of Agriculture and Rural Development and the National Agricultural Research System. In the mountainous area in northern part of Vietnam, a research project proposes alternative systems to slash and burn practice in order to optimize natural resources and develop cropping techniques that will ensure higher sustained yields and conserve soil fertility. Priority has been given to research on direct-sowing method. Preliminary results indicate that these low input techniques are efficient to stop soil erosion, improve soil structure and increase water use efficiency. CIRAD is also involved in a World Bank/Agence Française de Développement funded project focused on a rubber tree based diversified farming system in the Vietnamese highlands where climatic conditions are less conducive than in traditional zones. Periurban agriculture is becoming an increasingly important fresh food supplier for urban dwellers. CIRAD, in close connection with the French Ministry of foreign affairs and Asian Vegetable Research and Development Centre (AVRDC), has launched a regional project (Vietnam, Laos, Cambodia, and Thailand) on the management of periurban area to assure agricultural sustainability, a steady income for farmers and a regular supply of fresh food to urban markets. The project includes a definition of rules for resource sharing and environment friendly intensification of crop and livestock production as well as training and experience exchanges at a regional level.

In the domain of fish farming in the Mekong delta, CIRAD improved the techniques of catfish production in captivity, in collaboration with a private production unit and the University of Cantho. About 50,000 tonnes of catfish per year are now produced; 70 % is based on the rearing of fingerlings issued from the artificial reproduction. This reproductive success is part of a more ambitious project involving joint management of fish farming resources in the Mekong. The rising demand for live aquatic resources including studies on fish biodiversity in line with the booming population growth in those countries, cannot be solely met through natural resource exploitation.

In key areas such as crop protection and Integrated Pest Management (IPM), CIRAD, in partnership with the Southern Fruit Research Institute (SOFRI), aims to develop, diversify and release disease-free cultivars of citrus. In the framework of a sugarcane development project, CIRAD contributes through technical assistance in the field of agronomy, crop protection and choice of cultivars. New varieties of sugarcane have been introduced via CIRAD's international quarantine greenhouse based in Montpellier.

Thailand: CIRAD has invested in research for over 15 years with Kasetsart University in a project entitled "Development Oriented Research on Agricultural Systems (DORAS)". Research activities were mainly devoted to improve cotton production through breeding and biotechnology, tolerance to leafhoppers, crop protection to implement new techniques avoiding pesticides, and agro-physiology. This project is at the origin of a Cotton Network mainly devoted to training and collaborative trials, managed by CIRAD and participating institutions from Vietnam, Laos, Cambodia, Myanmar, Indonesia and the Philippines. More recently CIRAD has

undertaken research on rubber tree productivity improvement: in biotechnology and molecular biology involving molecular markers of the latex production and in agro-physiology to identify physiological and environmental constraints for latex production.

The sustainability of periurban agriculture raises many questions and research must address a wide range of topics such as technical production benchmarks, environmental changes, decision making tools in terms of production, marketing issue and health impact. The aim of a periurban agriculture project is to provide city policy makers and more generally stakeholders of the urban/periurban area, with relevant information and tools for an improved and concerted management. The project, implemented in Thailand in collaboration with the university as well as local communities, is establishing links with the regional periurban agriculture project based in Vietnam.

In the field of animal production improvement, CIRAD, in partnership with the University and a group of farmers, has undertaken a project on deer farming and studies on biodiversity of deer population, using molecular tools and promoting a regional initiative on the subject, linking Thailand, Laos, Vietnam and China.

CIRAD is also carrying out research and training activities in the framework of the Asian Institute of Technology (AIT), in two areas : food technology/ bioprocessing and remote sensing/tri-dimensional computer simulation. These activities, implemented at Thailand and regional level, involve partnerships with Asian universities and research institutes.

China: Through a partnership with the Institute for Automation of the Academy of Sciences of China, and the University of Agriculture, Beijing, CIRAD is developing a general plant growth model. Such a model combines descriptions of plant architecture, local and spot ecophysiological mechanism, growth and aging processes, and requires advanced mathematical and computation methods. Training is an important part of this programme of plant modelling.

CIRAD IN THE PACIFIC

Nouvelle Calédonie: Eighteen researchers from CIRAD form one of its most important overseas implantation. Since 1 January 2000, CIRAD intervenes through the Institut Agronomique Calédonie (IAC). The research programmes respond to the specific needs of Nouvelle Calédonie. Fruit and horticultural production research focuses on plant material adapted to the promotion of local genetic resources and to the market demand. The improvement of cultural techniques as well as sanitary aspects and product quality are taken into account. IAC has a research station on fruit and horticultural products with well-equipped laboratories, equipment for soilless flower culture production and experimental fields which permit full scale trials.

Traditional farming is taken into account in the framework of a territorial approach which permits technology transfer as well as better management of natural resources in the concerned areas. Multi-functionality of agriculture is also strongly promoted to improve development sustainability, both at economic and environmental level. This programme will allow the mobilization of all the components of rural development in order to secure the necessary links between these components.

The forest plantation programme aims to improve the natural diversity and the utilization of local species as far as conservation operations and management activities are concerned. Three subjects are treated: reforestation with vocation of timber obtained from local species; ecological restoration of degraded sites and rehabilitation of mine sites. In insular areas, the problems concerning animal rearing and wildlife are complementary. The programme concerns management of cattle and cervidae with respect to sustainable utilization of rangeland. The control of parasites especially ticks, is of major importance in this programme. Snail rearing is developed in the Ile des Pins. The hunting practices of the "Notu" have been regulated in order to enhance the protection of this bird in Nouvelle Calédonie.

Polynésie Française: The research on viral disease of vanilla led to the identification of five clones and to the introduction of improved plant material . A unit of *in vitro* culture production of virus free vanilla plants in Raiatea has been built. Research on sandalwood in the Marquise Islands concerns the inventory of existing sandalwood populations. The small quantity of remaining sandalwood raises concern to safeguard the species. The future creation of a network on the subject of sandalwood and other precious wood is a CIRAD initiative.

CIRAD contributed to the implementation of technical programme for the production of potatoes, broccoli, onions, carrots and cabbages with the intention to reverse the population migration from the archipelago to Tahiti. CIRAD also took part in the production of chips made from taro, yam and breadfruit. CIRAD gives an institutional support to the rural development services.

Vanuatu: Since 1994, CIRAD is in-charge of the management of the Vanuatu Agricultural Research and Training Centre (VARTC). The research on coconut, coffee and cocoa has now been diversified. Presently,

three research-development programmes represent CIRAD's activities in Vanuatu. These are perennial crops (coconut, cocoa, coffee), livestock (genetic improvement) and research diversification (producers organization; roots, tubers and kava operations).

In coconut, the existence of a viral foliar decay disease led to research on the creation of disease resistant plant material. Different cultivars of coconuts have been introduced, important breeding programmes have been launched and performance trials have been set up (such as the regional programme "Production and Dissemination of Improved Coconut Cultivars (PDICC)". Coconut hybrids, such as Local Tall x Rennell Tall are the most promising for resistance to the foliar decay disease as well as for copra production. Through VARTC, CIRAD participates in the coconut genetic resources network (COGENT), especially concerning the different aspects of the utilization of coconut, germplasm collection and quality of copra. The agrophysiology programme aims to improve the coconut based farming system in order to accelerate production and optimize farming techniques.

The cocoa operation is focused essentially on quality improvement. A close relationship with the Producer Organization Project (POP) has been developed. This project promotes the creation of farmers' organizations mainly devoted to export towards niche markets. Since 1998, about 1000 producers have been organized within three organizations. Their products are certified "organic". Promising results have been achieved in the organic cocoa export. The POP VARTC operation will be extended to 2002 in order to rationally optimize activities like marketing, post harvesting and packaging.

Two regional projects on roots and tubers are coordinated by CIRAD from Vanuatu : SPYN : (South Pacific Yam Network) and TANSAO : (Taro Network for Southeast Asia and Oceania), the objectives of these projects are to ensure food security, preserve genetic diversity and develop post-harvest technologies.

Papua New Guinea: CIRAD took part in the creation of a research station on coconut (James Stewart Research Station) within the Coconut and Cocoa Research Institute (CCRI). During the last six years, in coconut germplasm, genetic and agronomic experiments has been set up. With CCRI, CIRAD also participates in the study of cocoa diseases in PNG.

[*Contributed by:* Dr A. Derevier, Director, External Relations and Dr F. Pointereau, Delegate for French Overseas Departments and Territories, CIRAD, 42 Rue Scheffer, 75116 Paris, France; Website: www.CIRAD.fr].

25TH REGIONAL CONFERENCE FOR ASIA AND THE PACIFIC

Poverty alleviation and agricultural development were the focus of the 25th session of the FAO Regional Conference for Asia and the Pacific, held from 28 August to 1 September in Yokohama, Japan. Delegates from 32 Asian and Pacific countries attended.

Participants stressed the importance of alleviating poverty in a region where more than half the population is poor and more than 500 million people do not have regular access to adequate food. Delegates expressed concern about sustaining agricultural growth against a backdrop of expanding population and improperly managed natural resources.

Asia's annual agricultural growth has not fully recovered from the financial crisis of1997. Yet agriculture remains the region's most important source of employment In order to revive the sector, delegates emphasized the need for increased agricultural investment and economic reform. FAO officials pointed out that government funding for sustainable.agriulture and rural development is inadequate.

Biotechnology also featured high on the conference agenda, particularly regarding genetically modified foods. Asia's rich biodiversity and well-established infrastructure for agricultural research, production and marketing make it especially suited to expansion in this field. Conference participants endorsed a proposal calling on FAO to establish a regional biotechnology network, tentatively called the Asia-Pacific Bionet, which would hold consultations and workshops on the use of this technology.

A parallel consultation of NGOs and CSOs (Civil Society Organizations) underlined the importance of strengthening cooperation among themselves and with FAO.

[*Source* : FAO Contact August 2000; E-mail: gii-registry@fao.org; Fax: +39-06-5705-3152]

APAARI was represented by its Chairman Dr Ian Bevege who particularly invited attention for increase in investment in Agricultural Research for Development as the focus of the meeting was very much in line with APAARI Vision 2025.

REPORT OF THE FOURTH ANNUAL MEETING OF CORRA

6-7 November 2000, Chiang Rai, Thailand

The Fourth Annual Meeting of the Council for Partnership on Rice Research in Asia (CORRA), was organized by the International Rice Research Institute (IRRI), hosted by the Department of Agriculture, Thailand. The meeting was held from 6-7 November 2000 at Chiang Rai. About 25 participants attended this meeting and participated in the deliberations, conducted in four sessions. Summary report is given highlighting the major decisions taken and suggestions/ recommendations made. APAARI was represented by Dr R.S. Paroda, Executive Secretary, APAARI.

Opening Session of the Meeting

I. PAST ISSUES

INGER: In the past major interest has been expressed by CORRA members about the need to continue and strengthen this very successful International Network for Genetic Evaluation of Rice (INGER), for germplasm exchange. The following actions were taken:

1. A code of conduct was approved by CORRA members.
2. Dr Javier will anticipate having to include GMOs in the future.
3. INGER leadership will participate in the formulation of DUSN criteria for rice.
4. Endorsed the proposals from the June 2000 CORRA PVP Workshop.
5. Endorsed the INGER TAC proposed workplan for 2001.
6. Study the feasibility of two types of INGER trials to increase the number of entries submitted:
   a) Unrestricted testing;
   b) Restricted testing (based on conditions imposed by nominating country).

CORRA PVP-IRRI hosted a workshop on PVP during February 2000, co-sponsored by APAARI. The proceedings of this workshop have been made available to APAARI members.

II. NEW ISSUES

A. Increased Role of Public Awareness [Mr Duncan Macintosh]

1. The PA Unit is focused on developing positive public image for IRRI. It agreed on the following strategies to achieve the above:
   a) Establish a position – the members accepted the position that IRRI is an objective evaluator of new technologies. However, some NARS did not agree with the stand of IRRI that it is "neither for or against biotechnology". It is recommended that the stand should be fine-tuned to fully reflect the IRRI activities without antagonizing IRRI donors.
   b) Reach out to the media.
   c) Reach out to NGOs.
2. It was also proposed and acknowledged that rice research and production was the focus of unprecedented media attention because of the biotechnology debate and that this should lead to a range of new opportunities for IRRI and its NRA partners.

B. Web-based Technology: Creating Access to Rice Science or Widening the Digital Divide [Dr Paul Marcotte]

1. IRRI Training Programme has rich, successful history of training of NARS scientists.
2. The programme is using multimedia instructional material (print materials, slides and tapes, videos, computers) in its activities.
3. IRRI training programme has launched a training school without walls (internet university).
4. Various NARS have requested assistance in establishing distance education through Internet.

C. Functional Genomics [Dr R.P. Cantrell and Dr R.W.G. Padolina]

1. IRRI will act as an unbiased broker of information and will make all materials available in the public domain.

Participants of the Fourth Annual Meeting

NARS participati is nece: har
the vast number of itants f

Collaboration will be ased on a royalty or
exclusive basis, inclu ng a provision fc
exemption.

UPGRADING COMPETITIVENESS IN AGRICULTURAL R&D IN TAIWAN

In order to accommodate the increasingly competitive world market, and to increase farmers' and fishermens' income, the ROC has focused on the development of new crop varieties and also hosted international meetings. These highlights are briefly reported:

Varietal Improvement: *New Aromatic Rice Strain Taikenyu No. 62069 Developed:* Taikenyu No. 62069 originated from the cross between Kinuhikari and Taiken No. 4, developed at taiwan Agricultural Research Institute, COA, in 1992. Kinuhikari, released in 1988 in Japan, has a good eating quality. Taiken No. 4, released in 1990 at Taiwan, is an aromatic cultivar. Taikenyu No. 62069, is a semi-dwarf strain with good plant type, possessing resistance to many diseases and suitable for growing during second crop season of Taiwan. It's milled rice is short, with good appearance and excellent eating quality.

Meetings Organized: More recent ones are mentioned such as, i). Congress on "Marine Protected Area Promising a Safe Home for Marine Organisms", July 2000, ii). International Conference on "Wetland Management", September 2000, iii). Workshop on "GMO in Agriculture: Its Implication for Production and Consumption in Taiwan and European Union", September 2000 and iv). Forum Meet on the "Perspectives of Biodiversity in Taiwan", September 2000.

[*Contributed by*: Dr Ming Lai Wang, Director General, International Cooperation Department, Council of Agriculture, Executive Yuan, 37, Nanlai Road, Taipei, Taiwan 100].

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The work planned in this programm
recent article published in Scienc

III. ISSUES FOR THE NEXT CORRA MEETING

A. ***Water Management:*** This issue was highlighted as a major problem and IRRI was requested to place greater emphasis on this. Special interest was expressed for the research on direct seeding and development of aerobic rice technologies.

B. ***Mechanization and Precision Farming:*** Technologies for input use-efficiency inputs were expressed as major concerns for several CORRA members.

C. ***Continuing Interest:*** INGER, Functional Genomics, Genetic Transformation.

iker n CORRA Report : Sixtl ral Assembly meeti
'AA m 8-10 Novembe hiang Rai, Thailan

DR SURINDER K. VASAL RECEIVES THE WORLD FOOD PRIZE

Dr Surinder K. Vasal shared this year's World Food Prize with his colleague Dr E. Villegas at CIMMYT on the development of a miracle maize, protein-enriched corn known as Quality Protein Maize (QPM). QPM possesses higher quality protein and desirable agronomic characteristics, and is being grown in several countries. It will help address the problem of malnutrition that is ramping particularly among children in developing countries. Dr Vasal heads CIMMYT's regional office in Bangkok, and also coordinates activities of the Tropical Asian Maize Network (TAMNET).

APAARI heartily congratulates Dr Vasal for receiving this prestigious award.

ICUC Activities in Asia

The International Centre for Underutilized Crops (ICUC) is an autonomous, non-profit, scientific and training centre. It was established in 1988 and is based at the University of Southampton, U.K. The strategic aims of ICUC are: (i) To develop new crops from underutilized species and further develop crops which are presently used well below their potential, and to foster their adoption for the benefit of both the producers within sustainable production systems and consumers in local, regional and international markets, and (ii) To conserve global biodiversity through its sustainable use.

Training on Propagation Techniques in Tropical Fruits (Inset – Mangosteen)

The centre has the following activities:

(i) Identification of demand, needs and opportunities for research and development of new and underutilized crops;

(ii) Undertake research and development to promote the use of underutilized crops;

(iii) Managing information on underutilized crops from any source, which ranges from the technical to listing of individuals, groups and institutions involved with research, product development, marketing and production and others;

(iv) Devising, promoting or conducting relevant training to provide needed professional and vocational development and to develop the skills needed for technology transfer.

ICUC's strategic programmes are commodity oriented with current priority given to indigenous species in the following commodity groups: Fruit and trees; Vegetables, Pulses, Roots and Tubers; Cereals and pseudocereals; Oilseed and Industrial Crops; and Storage, Fodder and Energy Crops.

Activities in Asia

During the past 10 years or so, ICUC has been implementing the following R&D – Knowledge-base Information and Dissemination and Human Resource Development Programme in Asia:

Research and Development

Improvement of Tropical Fruits: The Underutilized Tropical Fruits in Asia Network (UTFANET) was established in 1995 by ICUC in partnership with APAARI, CSC, FAO and IPGRI. Countries participating include Bangladesh, India, Indonesia, Nepal, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam. ICUC's major promotion of UTFANET over the years received a boost from the National Lottery Charities Board, UK. The network secretariat has now moved to PCARRD, the Philippines and a full-time Coordinator is appointed by ICUC. The participating countries agreed on a 3 year (2000-2003) workplan that includes:

- Farmer's participatory survey (including production, uses, processing and marketing).
- Characterization of jackfruit, pummelo and mangosteen.
- Propagation and distribution of planting materials (especially through farmers' nurseries).
- Identification of the water and nutrient requirements of pummelo and jackfruit.
- Training of scientists and farmers (for propagation techniques).

Priority setting on the species was carried out on underutilized tropical fruits and this was guided by farmers and experts on fruit trees and markets in order to determine the priority species for the region. Germplasm collection and evaluation of priority species, jackfruit, pummelo and mangosteen have taken place in three countries and further collection is in progress. Diversity of jackfruit and pummelo was studied in Bangladesh and Nepal. Both vegetative and *in vitro* (tissue culture) propagation methods of jackfruit and pummelo have been established.

Jackfruit Product Development: ICUC funded a project of the Bangladesh Council for Scientific and Industrial Research (BCSIR) to develop products from jackfruit. Several products including toffees, biscuits, drink, dry

pulp in syrup, were successfully produced. A field trial was carried out and high level of product acceptability was found, particularly amongst children. ICUC in collaboration with BCSIR arranged a project seminar, followed by an exhibition of products at BCSIR, Local entrepreneurs have contacted BCSIR to market biscuits, toffees and drinks.

Products made out of Jackfruit – biscuits, drink, sweets

Fruits for the Future: A major project entitled "Fruits for the Future" has been initiated by ICUC, in collaboration with IPGRI and ICRAF, to overcome the constraints of lack of access to appropriate information on propagation and production methods, post-harvest, processing and marketing. ICUC has commissioned specialists in Sri Lanka and India to produce monographs and extension manuals on Tamarind and *Ziziphus*.

Homestead Farming: ICUC funded a study on the diversity of homestead farms in Bangladesh. The project involved three different ecosystems and the objectives were: (a) to identify superior types of species through farmers' survey and evaluation, (b) multiplication of these species and (c) on-farm vegetable seed production, to rehabiltate home farm systems.

Improvement of Safflower in Pakistan: A project was implemented by ICUC in collaboration with Barani Research Institute in Chakwal to select suitable types of safflower to grow under rainfed conditions. Two lines were selected for seed multiplication and for further trials.

Knowledge-base Information and Dissemination

Following on the success of UTFANET, ICUC in collaboration with FAO has formed Underutilized Traditional Vegetables for Asia and the Pacific Network (UTVAPNET). It was established at a Regional Workshop on Conservation and Use of Traditional Vegetables, held in Los Baños in 1999. The network will link with different initiatives in the region dealing with collection and germplasm conservation.

Documentation: ICUC continues to expand its database on underutilized crops which includes much information generated from Asian activities within the various commodity groups. The information includes botanical, agricultural and product data on underutilized plant species that is not easily accessible elsewhere.

Publications: Eight publications have been issued, and two more are in the press. These publications are mostly the proceedings of the conferences and workshops organized by ICUC in the region. ICUC also funds the publication of Newsletter for UTFANET (two issues per year).

Conferences and Workshops: ICUC has organized workshops on the different commodity groups of underutilized species in Bangladesh, Malaysia, Pakistan, Philippines, Sri Lanka and Thailand.

Human Resource Development

ICUC provided studentships to students from Bangladesh and Nepal for training at the Ph.D level. Also, ICUC in collaboration with its partners, arranged and financed training programmes in:

- Malaysia – Crop improvement (for 4 years);
- Thailand – Production Management of Tropical Fruits (Practical Training);
- India (jointly with IPGRI) – UTFANET;
- Bangladesh – Propagation methods of Jackfruit and Pummelo;
- Philippines – Propagation methods of Mangosteen.

To further promote and strengthen research and development activities in underutilized crops, ICUC has international, regional and national collaborators. It has prepared a proposal for The Asia-Pacific Regional Collaborative Research Network on Underutilized Crops.

[*Contributed by:* Dr Nazmul Haq, Director, International Centre for Underutilized Crops, University of Southampton, SO17 1BJ, United Kingdom].

RESEARCH ACTIVITIES AT JIRCAS

JIRCAS [Tropical Agriculture Research Centre (TARC) until October 1993] has made a number of strides in its overall effort to cope with the world's growing food crisis and increasing environmental pollution after its establishment. Two new comprehensive projects were initiated this year:

- Development of low-input technology for reducing post-harvest losses of major crops in Southeast Asia, and
- Development of agroforestry technology for the conservation of tropical forests.

PROJECT ON POST-HARVEST LOSSES IN MAJOR CROPS

In the Southeast Asian region where the climate is typically hot and humid, post-harvest losses are estimated to account for about 30% of the total yield. These losses are mainly due to improper drying and storage conditions. At present, the technology which might help reduce post-harvest losses is confronted with many problems.

The objective of the studies undertaken is to develop low-input drying technology which uses natural resources such as sunlight, plant husks and straw. These preservation methods will employ natural enemies (insect predators) and products such as neem and pheromones. The studies also include the development of an effective, low-cost technological system that will help farmers and small-scale agricultural enterprises reduce their post-harvest losses.

The scope of these studies will encompass a quantitative and qualitative survey of post-harvest losses for staple crops such as rice and maize, and the identification of the causes of post-harvest deterioration in crop quality. The five-year programme (2000 – 2004) will also examine the dynamic annual status of major stored product's insects and microorganisms, the mechanisms of damage caused by these organisms, and methods of control. The overall aim of the project will be the comprehensive development of technology for reducing post-harvest losses applicable to developing regions.

The project will be mainly implemented in Thailand in collaboration with the researchers of the Department of Agriculture, King Mongkut University and Kasetsart University.

DEVELOPMENT OF AGROFORESTRY TECHNOLOGY

JIRCAS has played a part in alleviating forest degradation by focusing its efforts on methods of reforestation and ways to motivate local inhabitants to participate in reforestation activities. JIRCAS has been working closely with Malaysia on deforestation issues. In Malaysia, forests are logged on a large scale and the enrichment of remaining secondary forests is a major task for the government.

JIRCAS has proposed a more flexible research project entitled 'Development of agroforestry technology for conservation of tropical forests'. This programme will seek to balance out effects on secondary forests, burnt forests, monoculture plantations and grasslands by introducing cropping systems of not only cash crops and fruit trees but also indigenous trees and medicinal plants. The final aim is to establish a technological base for the ongoing development of biodiversity-rich forests, high-value timber forests, forests that perform critical environmental functions and fruit tree orchards where soil fertility has been improved or is well-maintained. These studies will contribute to the mitigation of agriculture-forestry conflicts while promoting environmental conservation and sustainable forest resource management.

The duration of the project is for seven-years (2000 – 2006), and its specific objectives include a socio-economic evaluation of agroforestry, the establishment of a productive environment for agroforesry, and the development of agroforestry techniques with effective utilization of shade trees. Individual targets for the programme are technical development for the re-establishment of a productive environment for agroforestry and development of techniques for growing non-arboreal crops under shade trees.

During 2001, JIRCAS will be transformed from a government institute into an agency after celebrating its 30th anniversary this year, which should allow for more flexibility in its research activities across the globe.

[*Contributed by*: Dr Tetsushi Hidaka, International Research Coordinator, Japan International Research Centre for Agricultural Sciences, Ministry of Agriculture, Forestry and Fisheries, 1-2 Ohwashi, Tsukuba, Ibaraki 305-8686, Japan].

APAARI PUBLICATIONS

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
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  by Dr Chae Yun Cho
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  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.*

Other Recent Publications

- Proceedings – Fifth General Assembly of APAARI and Expert Consultation on Research Management Mechanisms of National Agricultural Research Systems (NARS), October 13-15, 1998, Suwon, Republic of Korea.
- Proceedings – Expert Consultation to Develop APAARI Vision 2025 and Fifth Executive Committee Meeting of APAARI, November 29-December 1, 1999, FAO-RAP Bangkok, Thailand.
- APAARI. 1999. National Agricultural Research Systems in the Asia-Pacific Region – A Perspective. Asia-Pacific Association of Agricultural Research Institutions. FAO Regional Office for Asia and the Pacific, Bangkok.
- APAARI – Vision 2025.
- APAARI – A Decade of Progress.

FUTURE CONFERENCES

Title	:	International Seed Testing Association (ISTA) 26th Congress
Venue	:	Anges, France
Period	:	14-22 June, 2001
Contact	:	Jean-Claude Stephan, Rue Georges Morel, BP 24, F-49701 Beaucou-e cedex, France
Tel	:	+33-2-41225803
Fax	:	+33-2-41225801
E-mail	:	Jean-claude.stephen@geves.fr
Title	:	5th International Conference on Biotechnology, Science and Modern Agriculture: a new Industry at the Dawn of the Century
Venu	:	Ravello, Italy
Period	:	15-18 June 2001
Contact	:	Prof. Vittorio Santariello, Conference Secretariat International Consortium on Agricultural Biotechnology Research (ICABR) University of Rome 'Tor Vergata', Via Tor Vergata snc, Roma 00133, Italy
Tel	:	+39 06 72595843
Fax	:	+39 06 72595721
E-mail	:	Bracclari@economica.uniroma2.it
Website	:	http://www.economica.uniroma2.it/conference/icabr
Title	:	BIO 2001
Venue	:	San Diego, California, USA
Period	:	24-27 June, 2001
Contact	:	The Biotechnology Industry Organization (BIO) 1625 K Street, N.W. Suite 1100 Washington, DC 20006-1604
Tel	:	+1 202 8572504
Fax	:	+1 202 3318123
E-mail	:	Bio2001@bio.org
Website	:	www.bio.org
Title	:	World Botanic Gardens Congress – Partnerships Within and Beyond the Gardens
Venue	:	Asheville, North Carolina
Period	:	25-30 June, 2001
Contact	:	The American Association of Botanical Gardens and Arboreta (AABGA) 351 Longwood Road, Kennen Square, P.A. 19348
Tel	:	+1 610 9252500
Fax	:	+1 610 9252700
Title	:	Special Assembly of International Tropical Fruits Network
Venue	:	Kuala Lumpur, Malaysia
Period	:	June-July 2001
Contact	:	Coordinator TFNET GPO Box 12-301, 50774 Kuala Lumpur, Malaysia
Tel	:	+60 3 89416589/90
Fax	:	+60 3 89416591
E-mail	:	Tfnet@mardi.my
Website	:	http://www.mardi.my/tfnet
Title	:	International Conference on Tropical Ecosystems: Structure, Diversity and Human Welfare
Venue	:	Bangalore, India
Period	:	15-18 July 2001
Contact	:	The Secretariat ATB 2001-01-02 c/o Ashoka Trust for Research in Ecology and the Environmental (ATREE), 659, 5th 'A' Main, Hebbal, Bangalore, 560024, India
Tel	:	+91 80 3533942, 3530069
Fax	:	+91 80 3530070
E-mail	:	Atb2001@vsnl.com
Website	:	www.atb2001.org or www.atree.org
Title	:	31 Soybean and 56th Corn & Sorghum Seed Conference and Seed Expo 2001
Venue	:	Chicago, Illinios, USA
Period	:	5-7 December, 2001
Contact	:	Susanne Nicholas, ASTA, 601, 13th Street NW, Suite 570, South Washington
Tel	:	+1 202 6383128
Fax	:	+1 202 6383171
E-mail	:	snicholas@ix.net.com
Website	:	www.amseed.com

All queries relating to APAARI Newsletter be addressed to:
APAARI Secretariat, FAO Office in India, 55, Max Mueller Marg, New Delhi-110 003
Phone: +91-11-4628877; Fax: +91-11-4620115; E-mail: FAO-IND@field.fao.org
APAARI Homepage: http://www.apaari.org

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