

**Expert Consultation on Strengthening of Research Partnerships
Through Networks and Consortia
and
The Seventh General Assembly of APAARI**

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P R O C E E D I N G S



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

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Preface

Research partnerships in agriculture are gradually gaining wide acceptance to address issues of common concern. Also the partnerships, based on shared vision, have been established involving scientists, and/or institutions in the form of either, research networks or Consortia. As a result of some successful examples, partnerships are becoming a part of gradual shift in organizing agricultural research. The strategic partnerships also prove useful to accelerate the process of technology generation, assessment and refinement (TAR) and thus help in addressing some of the important challenges confronting the development of agriculture. APAARI, in pursuance of its mandate, has constantly strived to foster agricultural research partnerships among institutions and other stakeholders in the region.

APAARI had earlier in 2001 organized an Expert Consultation to identify regional ARD priorities and to develop a plan of action for agricultural development where it was recommended that in order to translate the research priorities into programmes, an assessment of the on-going R&D initiatives be undertaken through a well planned gap analysis. As a follow up, a gap analysis was undertaken in view of the existing research networks in the Asia-Pacific region. Subsequently, an Expert Consultation on Strengthening of Research Partnerships Through Networks and Consortia was organized in Penang, Malaysia from 2-4 December, 2002 in partnership with the World Fish Centre (ICLARM).

The discussions in the Expert Consultation led to several useful suggestions for improving the existing research networks such as: CLAN, TAMNET, UTFANET etc., and to initiate some new networks which can address the specific issues of NRM, crops, livestock, biotechnology, microbes, resource conservation technologies, post harvest technologies, information technology, etc.

These proceedings present a brief account of the deliberations held during the Expert Consultation and the Seventh General Assembly of APAARI. We express our thanks to the participants for providing their valuable input to improve the functioning of existing research networks and also for initiating new research partnerships. We are confident that this report will be found useful by all the members and the concerned research institutions/organizations. It is our expectation that research partnerships based on mutual trust and commitment among the participating organizations will go a long way in achieving the science led sustainable development of agriculture in the region.

(R.S. Paroda)
Executive Secretary

List of Acronyms

AARINENA	: Association of Agricultural Research Institutions in the Near-East and North Africa
ANGOC	: Asian NGO Coalition for Agrarian Reform and Rural Development
AIT	: Asian Institute of Technology
APAFRI	: Asia-Pacific Association for Forestry Research Institutions
APARIS	: Asia-Pacific Agricultural Research Information System
APCoAB	: Asia-Pacific Consortium on Agricultural Biotechnology
APSA	: Asia - Pacific Seed Association
AREO	: Agricultural Research and Education Organization
ASTI	: Agricultural Science and Technology Indicators
AVRDC	: Asian Vegetable Research and Development Centre
BAPNET	: Banana and Plantain Network
BAR	: Bureau of Agricultural Research, Philippines
BARC	: Bangladesh Agricultural Research Council
BUROTROP	: Bureau for the Development of Research on Tropical Perennial Oil Crops
CAAS	: Chinese Academy of Agricultural Sciences
CAC	: Central Asia and Caucasus
CARP	: Sri Lankan Council for Agricultural Research Policy
CLAN	: Cereals and Legumes Asia Network
COA	: Council of Agriculture
CORRA	: Council for Partnership on Rice Research in Asia
CWANA	: Central and West Asia and North Africa
CURE	: Consortium for Unfavourable Rice Environment
DOA	: Department of Agriculture (Thailand)
EAPGR	: East Asia – Plant Genetic Resources
EMBRAPA	: Brazilian Agricultural Research Corporation
FAO-RAP	: FAO Regional Office for Asia and the Pacific
GFAR	: Global Forum on Agricultural Research
GoFAR	: Group on Fisheries and Aquaculture Research
IARC	: International Agricultural Research Centre
ICAR	: Indian Council of Agricultural Research
ICBA	: International Centre for Biosaline Agriculture
ICLARM	: International Centre for Living Aquatic Resources Management
ICUC	: International Centre on Underutilized Crops
IGP	: Indo-Gangetic Plains
IFPRI	: International Food Policy Research Institute
ILRI	: International Livestock Research Institute
INGER	: International Network for Genetic Evaluation of Rice
IPGRI-APO	: IPGRI Office for Asia, the Pacific and Oceania
IRRC	: Irrigated Rice Research Consortium,
ISTA	: International Seed Testing Association
IWMI	: International Water Management Institute
JIRCAS	: Japan International Research Centre for Agricultural Sciences
MAFFM	: Ministry of Agriculture Forests, Fisheries and Meteorology (Western Samoa)
MARD	: Ministry of Agriculture and Rural Development (Vietnam)
MARDI	: Malaysian Agricultural Research and Development Institute
NACA	: Network of Aquaculture Centres in Asia-Pacific
NAARM	: National Academy of Agricultural Research Management

NARC : Nepal Agricultural Research Council
 NARI : National Agricultural Research Institute (Papua New Guinea)
 PARC : Pakistan Agricultural Research Council
 PCCARD : Philippine Council for Agriculture, Forestry and Natural Resources
 Research and Development
 PROCORD : Global Coconut Research for Development Programme
 PIC : Pacific Island Countries
 PVP : Plant Variety Protection
 RDA : Rural Development Administration (South Korea)
 RECSEA : Regional Cooperation in South East Asia on PGR
 RRN : Regional Research Networks
 RWC : Rice-Wheat Consortium
 SANPGR : South Asia Network on Plant Genetic Resources
 SEARCA : Southeast Asian Regional Centre for Graduate Study and Research in
 Agriculture
 SPC : Secretariat of Pacific Community
 SSA : Sub-Saharan Africa
 TAC : Technical Advisory Committee of the CGIAR
 TAMNET : Tropical Asian Maize Network
 UPOV : Union for the Protection of New Varieties of Plants
 UTFANET : Underutilized Tropical Fruits Asia Network
 WFC : World Fish Centre

Expert Consultation on Strengthening of Research Partnerships Through Networks and Consortia

Introduction: The Perspective Plan of APAARI has laid particular emphasis on regional collaboration/networking on programmes focusing agricultural research and development. To achieve these objectives, APAARI in 1997 organized an Expert Consultation on Management and Strengthening of Research Networks in the Asia-Pacific Region jointly with AREO, Tehran, Iran. The outcome of this meeting resulted in a clear understanding of the agricultural research networks operational in the region among the member countries for strengthening their structure, coordination in agricultural research and sustainability, and possible ways for their improvement. Subsequently, APAARI organized an expert consultation during 2001 at Bangkok, to identify the important priorities for ARD. The common areas of research opportunities included: i) natural resource management, ii) genetic resources iii) commodity chain development, iv) meeting protein demands, and v) tree and forest management. Two important cross cutting areas of research opportunities were: i) information management for agricultural development to address the issues as packaging, access and use of information and ii) capacity building to address issues of human resource development, institutional development, and research and policy development (food insecurity and poverty mapping).

For translation of these research priorities into programmes, it was decided to have an assessment of the ongoing R&D programmes through a well planned gap analysis, based on some of the existing research networks in the Asia-Pacific region. Accordingly, to review the current situation an Expert Consultation on Strengthening of Research Partnerships Through Networks and Consortia was organized by APAARI with the help of World Fish Center, from 2-4 December 2002 at Penang, Malaysia. These proceedings highlight the discussions of this meeting. The programme and the list of participants are given in Annexure I and II, respectively.

Inaugural Session:

Chair : Dr. R.P. Sapkota
Co-chair : Dr. S.H. Anang

Dr. M.V.Gupta, Director, International Relations, World Fish Centre Penang welcomed the participants. Dr. R.S.Paroda, Executive Secretary, APAARI apprised the delegates about the objectives of the Expert Consultation. He welcomed the participants, particularly the new members of APAARI and special invitees who were participating for the first time. He conveyed his gratitude to the Hon'ble Minister of Agriculture, Malaysia who sent his message of good wishes for the success of the Expert Consultation. Dr. Paroda briefly mentioned the achievements of APAARI during the last one year and informed that the Association had organized three Expert Consultations, brought out eight publications, enrolled new members, constituted Steering Committee of APARIS etc. It was mentioned that the meeting was organized primarily to get an assessment of the ongoing research networks, the gaps based on identifies research priorities and how these could be addressed. Dr. Paroda also raised concerns of poverty and food insecurity in Asia and emphasized that the region must get required importance from the donor community. He suggested that a meeting of policy makers could be convened to draw their attention towards achieving a sustainable agricultural development in the region.

Dr. R.P. Sapkota, in his inaugural address highlighted the importance of agricultural research networks for faster and cost effective development of agriculture in the region. It was mentioned that in view of declining investments in agriculture and gradual pull back of support from the donor agencies for ARD programmes, a partnership approach to solve the regional problems facing agriculture was considered crucial. He called upon the member NARS and other stakeholders to iron out any apprehensions and move ahead. He thanked all members for the support provided during his tenure as the Chairperson of APAARI.

Datuk Dr. S.H. Anang, Director General, MARDI read the message of Datuk (Dr.) Effendi Norwawi, Hon'ble Minister of Agriculture, Government of Malaysia. Dr. Norwawi conveyed his good wishes for the success of the meeting and expressed happiness for choosing Malaysia as the venue. He emphasized on the need to adopt modern technologies such as biotechnology, GIS, ICT etc. in order to enhance the farm yields. He desired that issues of integrated use of resources, sharing of NARS experiences, implications of IPRs etc., need to be understood and efforts made to improve the livelihood for sustainable development. The role of APAARI in promoting research partnerships in the region was highly appreciated.

On this occasion, two APAARI publications: i) Proceedings of the FAO – APAARI Expert Consultation on Status of Agricultural Biotechnology in the Asia-Pacific Region, and ii) ARD Priorities in the Asia-Pacific – A Synthesis, were released by Dr. Sapkota and Dr. (Ms) Meryl Williams, Director General, World Fish Centre, Penang, respectively.

The session concluded with a vote of thanks by Mr. P.K. Saha, Technical Officer, FAO-RAP and Liaison Officer, APAARI.

Technical Sessions:

Session I: Status of Regional Research Networks : Gap Analysis

Chair : Prof. Emil Q. Javier

Co-chair : Dr. (Ms) P. Pitakpaiwan

Prof. Emil Javier delivered a Keynote address on importance of ARD networks for strengthening agricultural research partnerships. This was followed by three presentations entitled An Overview of the World Fish Centre R&D Programme by Dr. (Ms.) Meryl J Williams, DG, WFC, and on APAARI initiatives – from priority setting to research networking and networks in South and South East Asia by Dr. R.S. Paroda, Executive Secretary and networks in the Pacific Region by Dr. R.D. Ghodake, DG, NARI.

Dr. (Ms) Williams apprised that the World Fish Center, Penang conducts research on fisheries and other living aquatic resources with a vision to contribute to food security and poverty eradication in developing countries. The major challenges focused on sustaining livelihood of one hundred and fifty million people who depend on fish for employment, and severe depletion of natural fish stocks. The Centre has five major research programmes namely on biodiversity and genetic resources, coastal and freshwater resources, policy and impact assessment, and partnerships, information and training that aim to raise and sustain the productivity of fisheries and aquaculture systems; protect the aquatic environment; save aquatic biodiversity; improve policies for sustainable development of aquatic resources and strengthen the capacity of national programmes to support sustainable development. It was informed that WFC has research collaboration with as many as 259 research institutions at global level including regional bodies, NGOs etc. of which 131 are in Asia.

Prof. Emil Javier, Chairman, iSC delivered the keynote address on importance of ARD networks for strengthening agricultural research partnerships.

The presentation focused on specific issues of networks such as their value, concerns and network-design features which could help strengthen research partnerships in the region. He defined networks as “an interconnected group or system” having a discrete entity. In this context, CGIAR was referred to as a network of sixteen autonomous international centres bound by a shared vision and mission and linked by a common set of benefactors. APAARI too was cited as a regional network, with several sub-regional networks covering various research problems and themes operational under its umbrella. Two important objectives of networks cited were to overcome the problem of economies of scale and to manage effectively research spillovers. Prof. Javier expressed concern over the sustainability of the networks. It was suggested that the network members must remain aware of the transaction and participation costs and also consider how long the network would sustain once the donor support dwindled or the founding members relinquished the leadership role. Five elements namely, a) clearly defined objective b) strong self interest of members c) effective coordination d) members committing their own resources, and e) sustained external funding were considered crucial for the success of the networks. A sunset clause was also suggested providing for an independent peer review for the network to indicate whether the network shall be allowed to wind up or renewed in its present form or revitalized with a new vision and format. He concluded his presentation with a suggestion to reckon the

challenges of proliferation, sustainability and accountability as one moves ahead with these networks.

Dr. R.S. Paroda, Executive Secretary made two presentations: i) APAARI Initiatives – From Priority Setting to Research Networking and ii) Networks in South and South East Asia.

In the first presentation, he elaborated on various initiatives of APAARI to promote the research partnerships in the region. He informed about the APAARI initiative to identify common research priorities at the regional / sub-regional level. It was mentioned that APAARI over the years has been able to catalyze inter-regional fora to identify common ARD priorities, promote dialogue among stakeholders to strengthen agricultural research and development, disseminate knowledge, transfer of technology through Success Stories, promote/strengthen/establish research networks/consortia, and strengthen and, establish regional agricultural information system. He mentioned that to translate the priorities identified in the Expert Consultation held in 2001, into concrete action proposals, it was necessary to undertake a gap analysis of the ongoing research partnerships. Some of the issues highlighted for the consideration of the delegates were: *Gap Analysis*- Identify gaps between present collaborative efforts and regional needs/priorities; *implications* for existing regional networks and regional collaborative programmes; adjusting and/or strengthening their activities; development of new proposals for regional and/or global partnerships; *funding strategy* - resource sharing by the stakeholders; mobilizing additional funding from donors. Some areas of future collaboration proposed were biotechnology, PHT, IPM, food legumes (lentil, soybean, and mungbean), cotton, minor fruits and vegetables, agro-forestry, disease management, soil conservation, soil fertility management and water management.

Dr. Paroda further presented the status of agricultural research networks in south and west Asia. The gap analysis was based mainly on the ARD networks in the sub-region that are supported by APAARI such as CLAN, RWC, TAMNET and UTFANET. He referred to successful examples of research networking, namely, release of several varieties of chickpea and pigeonpea and reduction in R&D time lag following participation of Bangladesh, Myanmar and Nepal in CLAN; development of improved varieties of groundnut and better management practices adopted by the farmers to increase their income in Vietnam and Indonesia; research programme facilitated by TAMNET on quality protein maize (QPM) in India; development and adoption of improved seed drill for zero tillage and several other resource conservation technologies under RWC research programmes.

It was mentioned that several of the regional NARS are still weak and capacity building efforts are required for improving their efficiency. Programmes such as training in use of ICT, impact assessment, enhancing involvement of west Asian countries need to be initiated, and emphasis be given for strengthening policy research and policy interface. The research gaps were identified in areas related to livestock, agro-forestry, and policy research and impact assessment. The need to bridge these research gaps was highlighted, whereas for the existing networks additional support was emphasized. Research in network mode was considered important for diversification of agriculture, post harvest technologies and enhancing productivity through improvements in water use. Further, important areas identified for collaborative research were commodity chain for linking production to markets, socio-economic studies including constraint analysis and impact assessment, proper use of genetically modified organisms and the implications of Intellectual Property Rights.

Pacific Region

Dr. R.D. Ghodake, Director General (acting), NARI, PNG presented gap analysis of research networks in the Pacific Region. He informed that this region comprises of 22 Island countries and territories with a population of 7.6 million representing diverse agro-ecological conditions and economies where agriculture and fishing formed main occupation for majority of the people. The major donors and collaborating institutions in the region included SPC, FAO, UNDP, EU, AusAID, NZDO, ACIAR, CIRAD, GTZ/GDS, USP, CGIAR institutes, APSA, CGPRT etc.

Among the major research issues were: natural resource management, crops followed by livestock, forestry and fisheries sectors in order of priority. In NRM, land management, soil fertility, watershed management and integrated NRM were important issues for research. In the crops sector: value addition, markets and marketing, plant genetic resources, including plant improvement and pest and disease management were identified as high priority research issues. For the livestock sector: efforts were called for feed formulation and development, animal waste management, livestock improvement (introduction and selection) and zoonoses.

The presentation focused on the research networks – past, present and planned such as: International Coconut Genetic Resources Network (COGENT), International Network for the Improvement of Banana and Plantain (INIBAP), Taro Genetic Resources: Conservation and Utilization (TaroGen), Taro Network for South East Asia and Oceania (TANSO), South Pacific Yam Network (SPYN), The Pacific Agricultural Plant Genetic Resources Network (PAPGREN) and South Pacific Regional Initiative on Forest Genetic Resources (SPRIG)

The gap analysis indicated that some high priority research issues were not addressed under networks, namely post-harvest operations like processing, storage, packaging, transportation, grading and quality improvement; market studies; feed formulation, locally available ingredients and resources; genetic material - introduction, improvement by selection; sustainability of atoll production through agro-forestry and other land management practices; feeding systems - especially proteins, fish pen culture, local alternatives, feed distribution, waste and disease management, poly-culture; Integrated systems involving agriculture, policy research on management of natural resources, environment, climate change, land and soil. However, work is required to ensure that the priorities get converted into real projects on the ground. He emphasized that networking for research may continue to be beneficial, given the nature of difficulties the countries face. Hence, NARS could gain through collaborative activities and networking.

During the discussion, important points emerged were: a) in the gap analysis, there is greater emphasis on demand side and supply side remained weak and this imbalance needs to be corrected, b) research in PHT is a high priority area, and c) that collective efforts are needed to bring the importance of research network concept to the attention of donors.

Session II: Network Reports

Chairman : Dr. William Dar
Co-Chair : Dr. Dae-Guen Oh

In this session, the reports of eight research networks were presented by respective network coordinators/representatives. These included CLAN, CORRA/INGER, RWC, TAMNET, GoFAR, PGR, COGENT, and BAPNET

CLAN: The network report was presented by Dr. C.L.L. Gowda, Network Coordinator. Cereals and Legumes Asia Network. He informed that CLAN was established in 1992 to serve as a research and technology exchange network for Asia involving sorghum, pearl millet, chickpea, pigeon pea, and groundnut. The network has successfully undertaken exchange, testing, and use of germplasm and breeding material and human resource development to upgrade research skills of NARS scientists. The activities of CLAN were appreciated and it was suggested that the scope of the network be enlarged by including legumes mungbean, soybean and lentil with cooperation of AVRDC and ICARDA, respectively, as new network partners.

CORRA : The presentation by Dr. William Padolina, DDG (Partnerships), IRRI dealt mainly with the outcome of Sixth CORRA meeting held from 14-15 September 2002, in Beijing, China and co-hosted by the Chinese Academy of Agricultural Sciences (CAAS). He informed that discussions were held on some major issues such as current trends of international rice trade; rice supply and demand; opportunities for improving rice productivity and profitability; implications and challenges for public sector agricultural research. The meeting identified prime constraints in rice production such as: quality seeds, resource use efficiency, mechanization, changes in labour force, declining farm land area due to urbanization and technology transfer/training. The meeting decided that the network would identify issues and directions for regional R&D networks, e.g., Irrigated Rice Research Consortium (IRRC), Consortium on Unfavourable Rice Environments (CURE), streamline and coordinate IRRI-NARES partnership and research agenda – by identifying priorities for member-countries, provide advice and feedback to IRRI on its research priorities and strategic activities. CORRA would further build collaboration and promote sharing of information and technology among the member-countries, facilitate technology transfer and information dissemination. The network would also strive to establish public/private partnership research.

RWC: The consortium report was presented by Dr. Larry Harrington, Director, NRM, CIMMYT. The Consortium was established in 1994 as an eco-regional Initiative of the CGIAR involving the National Agricultural Research Systems of South Asia, namely, Bangladesh, Nepal, India and Pakistan, the International Agricultural Research Centres and Advanced Research Organizations. The activities are being coordinated by Facilitation Unit, at CIMMYT, India office. RWC adopts a network approach and links national and international agricultural institutions to address the issues of productivity enhancement of rice and wheat in a sustainable fashion. The major focus of RWC is to address concerns of tillage and crop establishment, water, nutrient and pest management, socio-economics and policy issues. It was mentioned that the Consortium adopts a research agenda that is prioritized by participating NARS. The new technologies developed through the RWC, include tillage and establishment, of surface seeding of wheat, reduced tillage sowing, rice transplanting and dry seeded rice, IPM, IPNS and an overall eco-regional approach to NRM. Among major resource conservation technologies of RWC are Leaf Colour Chart (LCC) - a low cost device to ascertain optimum N use, zero till machine and reduced till systems. The adoption of technologies has also lead to decrease in greenhouse gas emissions, resulted in higher yields and has added up to six weeks of extra employment for the farmers.

During the course of the discussions, it was suggested that China being a major rice growing country, should also be made a Consortium partner.

TAMNET: Dr. Harrington also presented the report of TAMNET. It was mentioned that the functioning of TAMNET till 2000 had been quite satisfactory but in the recent past it had come to a standstill. The maize trials had stopped in 2002 and the last issue of its Newsletter was published in the year 2000. One of the main reasons cited for the present situation was that facilitation unit and financing support provided by CIMMYT for TAMNET had stopped and the office in Bangkok had been closed. It was informed that TAMNET can continue as a CIMMYT coordination activity provided Research is NARS driven and network themes are re-assessed by stakeholders and conforms to the interest of NARS in assessing the performance of hybrids. It was also mentioned that there was need to re-assess the balance between hybrid yield trials and collaborative research in TAMNET. However, the demands appear to be for white materials, QPM, drought tolerant and early maturing materials. Several NARS leaders and Private sector representatives who had participated in the activities of TAMNET desired that the network be revived. It was decided that a small group consisting of participants from FAO, APSA, APAARI, and CIMMYT should meet separately and deliberate on how the network could be made functional again.

GoFAR: Dr. M.V.Gupta, Coordinator Asia-Pacific Group of Fisheries and Aquaculture Research (GoFAR), WFC, presented the activity status report. It was mentioned that world's total fish production in 2000 was 137mt. of which Asia-Pacific region contributed 91% through aquaculture and 49% of capture fisheries production. The sector forms one of the largest export commodities in many countries of the region.

The aquatic products provide about 30-70% of animal protein in diet of population in the Asia-Pacific region and over 56 million people in the region are dependent on fisheries as source of livelihood. The important findings of concern were: depletion of over 2/3 of fish stocks, over fished or fully exploited; lack of information to arrest stress on aquatic resources and increasing production on sustainable basis, and development of systems' approach (to include agriculture, fisheries, livestock and forestry). He desired that collaborative research partnerships among country NARS and private sector are needed to address regional concerns.

PGR: Dr. Paul Quek, Scientist, Documentation Information, IPGRI-APO presented the activities and achievements of PGR Networks in Asia, the Pacific and Oceania Region promoted /managed by IPGRI. The four sub-regional PGR networks operational are: South Asia Network on PGR (SANPGR); Regional Network for Conservation and Utilization of PGR in East Asia (EA-PGR); Regional Co-operation in Southeast Asia for PGR (RECSEA-PGR); and Pacific Agricultural Genetic Resources Network (PAPGREN). He stressed on collaboration with APAARI in strengthening networking, by initiating joint programmes, training, promoting sustainable networks through assistance in improving coordination and conduct benchmark survey and monitoring for effective networking. He pointed out the need for linking InfoBase activities with APARIS and FAO – WIEWS so as to lead to a vision of bringing crop networks under the sub-regional networks and then the possibility of initiating a Pan Pacific PGR Network by bringing together sub-regional networks.

COGENT: Dr. Pons Batugal, Coordinator International Coconut Genetic Resources Network presented the report. COGENT operates in 39 countries across the world with

the goal to increase income of farmers in developing countries through the improved cultivation of the coconut and efficient utilization of its products. The various activities of the network are: coordination and capacity building, documentation, communication and publications, collecting and conservation, characterization, evaluation and use, germplasm health, and socio-economics and development aspects. COGENT's 3-pronged Strategy for the Poverty Reduction Project aims to: increase yields by deploying high-yielding and adapted varieties and hybrids; increase incomes through the production and marketing of high-value products made from the kernel, husk, shell, water, wood and leaves; and increase farm productivity through intercropping and livestock/fodder production. He informed that COGENT's Expansion to Global Coconut Research for Development Programme (PROCORD) has been done to create a platform for wider coconut R&D related problems and opportunities in global/regional research, Commodity chains (Production to consumption) and Subsidiarity. The main components of PROCORD with their defined roles are *COGENT*: Genetic resources and improvement and Socio-economics and policy support; *BUROTROP*: Agronomy and coconut-based farming systems and Crop protection and *APCC*: Processing and Marketing.

During the brief discussion, a suggestion was made with regard to inclusion of pest-risk analysis as part of the germplasm exchange programme considering that the coconut is grown across the continents and the germplasm exchange is a regular activity. It was further suggested that under the IPGRI-APAARI MOU umbrella, establishment of Centres of Excellence could be considered for HRD to address diverse areas of PGR.

INIBAP/BAPNET: The International Network for the Improvement of Banana and Plantain (INIBAP) was established in 1985 in recognition of the need to accelerate *Musa* improvement research and introduce an international perspective into such work. With headquarters located in Montpellier, France, INIBAP operates through regional offices, one in each of the four major banana growing regions: Asia and the Pacific, Latin America and the Caribbean, Eastern and Southern Africa and West and Central Africa. The Programme has four specific objectives: organise and coordinate a global research effort; promote and strengthen collaboration and partnerships; strengthen the NARS capability, and to coordinate, facilitate and support the production, collection and exchange of information and documentation related to banana and plantain. INIBAP will continue to enhance and support this regional initiative as enhancing regional collaboration in its programme area. With the re-launched Banana Asia Pacific Network (BAPNET), the collaboration is expected to promote a more coherent research strategy based on the needs and priorities of the participating countries. The re-launching of BAPNET was to strengthen a sustainable network that is responsive to the needs of the region working within the framework of the MOU for collaboration signed by IPGRI (INIBAP)-APAARI in 1998. The programme areas identified were: sustainable crop management; genetic diversity management, development and utilization; supply chain management; human resource development; and information development and exchange. BAPNET may link and make use of the global programmes of INIBAP. These are: The International *Musa* Testing Programme (IMTP). The *Musa* Germplasm Information System (MGIS). PROMUSA. The Global Programme for *Musa* Improvement (PROMUSA) and *Musa* Information and Documentation.

Session III: Private Sector, NGOs and ARIs in ARD Networks

Chair : Dr. T. Inoue
Co-chair : Dr. P.S. Faylon

In this session, the presentations from the private sector were made by APISA and Monsanto representatives and on ICBA by Prof. Faisal Taha.

APISA: Dr. J.S.Sindhu, Director, informed that APISA provided forum for formulation of recommendations on seed policy issues and stimulate technical and economic co-operation among seed enterprises in the region. A systematic interchange of information on various aspects of seed (breeding, production, conditioning, quality control and marketing) is a regular activity and over the years APISA had developed a functional relationship with FAO, FIS, ISTA, UPOV, and others. The country membership now has risen to 58. Of the 310 APISA members, 200 have got their own R&D with about 2300 scientists engaged in research on crop improvement, agronomy and seed technology to improve production and trade of quality seed and planting material of agricultural and horticultural crops. He drew the attention of participants towards the present state of TAMNET and called for its revival. He informed that the CLVNET (AVRDC/APISA) and International Hybrid Rice Trials (IRRI/APISA) had entered in the second phase.

Monsanto: Dr. Eric Johnson presented the R&D programme of Monsanto. He mentioned that the organization is committed to working with both private and public sector institutions in bringing new technologies to growers and invests \$1 million per day in research. The Vision set for the organization is *abundant food and a healthy environment*. The company adopts an integrated approach to solving agricultural problems. In joint projects, it shares fundamental scientific data; technology, including genes and traits; know-how to move proven technology into crops important for small scale farmers; consultation on environmental stewardship and information on food safety and licenses to patented technologies. Dr. Johnson informed that Monsanto produced the first “draft sequence” of the rice genome, to support internal research and development programmes and the Monsanto Draft Rice Genome sequences are being shared with public researchers. He suggested two possible research networks related to Maize market development and Regional Agricultural Biotechnology Safety Assessment Centre.

ICBA: Dr. Faisal Taha, Director (Technical), Centre for International Biosaline Agriculture highlighted the Centre’s research programmes and linkages. ICBA is mandated to develop sustainable management systems to irrigate food and forage crops, greening plants with saline water and to provide resources of salt-tolerant plants for socio-economic development in the arid, semi-arid and salt-affected areas of the Islamic World and elsewhere. The Centre over the years has emerged as a focal point for bio-saline agriculture. ICBA networks focus and align efforts on Information sharing among those with common interest in biosalinity and Information resource. Established in 2002 by the Islamic Development Bank/COMSTECH to stimulate and coordinate research and development towards productive use of saline water, the network is coordinated by ICBA. Network provides mechanism for coordinating research, share information on database of scientists, NGOs; provide expertise; train human resources; facilitates exchange of scientists and work with other international agencies and donors.

Session IV: Round Table Discussion on Developing New Research Networks and Cooperation in Asia - Pacific

Chair : Dr. Mohan Saxena

Co-Chair : Dr. R.D. Ghodake

In this session, there were three presentations pertaining to new proposals for networks on Water Management, Inter-Regional Cotton Network and on Asia-Pacific Consortium on Agricultural Biotechnology.

IWMI: A new proposal for collaborative research Challenge Programme (CP) on Water and Food was presented by Dr. Christopher Scott, Regional Director, IWMI. The challenge is to catalyse effective and efficient improvement of water productivity in food production in a way that is pro-poor, gender-equitable and environmentally sustainable. It was emphasized that in river basins, water productivity needs to be understood in the widest possible sense, including crop, livestock and fishery yields, social impacts such as health, together with the systems of resource governance that ensure equitable distribution of these benefits. The project aims to link with the global climate change research agenda to build on and contribute, through ARI partners, and Dr. Scott apprised the participants about proposed structure, its governance and collaborating organizations, funding, implementation schedule, milestones and monitoring mechanism. The project will be developed on *shared decision-making* through the Consortium of IARCs, NARES, ARIs and NGOs and will have 5 CGIAR centres: IWMI (lead), IRRI, IFPRI, CIAT and ICLARM each with clearly defined roles.

Inter-Regional Network on Sustainable Cotton Production System In Asia and CWANA: The proposal on establishment of cotton research network was presented by Dr. R.S.Paroda and was based on the outcome of an Inter-Regional Workshop on Cotton held at AREO, Tehran during October 2002. It was mentioned that cotton is not just a fibre, but provides food (oil) and fuel for many poor resource farmers in about 70 countries in 5 continents. Keeping in view the overall cotton production scenario, a wide range of research priorities have been identified for sustainable cotton production system in Asia and CWANA. These are water management, development of early maturing varieties tolerant to abiotic and biotic stresses; nutrient (both micro and macro) management; integrated pest management to reduce pesticides applications; cotton quality and technology; growth regulators; hybrid and transgenic cotton; mechanization and farm management; increasing crop productivity and intensity of cropping system and economics and commerce. The network partners identified are AARINENA, APAARI, CAC, GFAR, ICARDA and AREO and the Facilitation and Coordination Unit will be located at Cotton Research Institute of AREO, Tehran, Iran.

Asia-Pacific Consortium on Agricultural Biotechnology (APCoAB): A draft concept note on the proposal, was presented by Dr. A.K.Bawa, Scientific Officer, APAARI. It was informed that the establishment of APCoAB was agreed to by the participants of the FAO-APAARI Expert Consultation on the Status of Biotechnology in Agriculture in Asia and the Pacific held at FAO-RAP from 21-23 March, 2002 in Bangkok. It was mentioned that in the years ahead, the escalated food demand would call for increased productivity, improved food and nutritional qualities, enhanced resistance to biotic and abiotic stresses, wider adaptation range, efficient use of nutrients and tolerance to deficiency and toxicity in plants/species, bioremediation and improvement of environment, diagnosis and disease management. These issues would require to be resolved in a much shorter span than the conventional technologies could deliver. In this context, the agro-biotechnology interventions are considered crucial. At the same time, it was also recognized that the various NARS in the region, that are the main national technology generators, are at various levels of development and may not be able to use biotechnological approaches in providing the solutions to enhance

agricultural productivity within the desirable time frame. Thus, there is a need to formulate collaborative research among NARS-NARS; NARS-CGIAR/IARCs, and NARS-CGIAR-Private sector. With several interlinked and important issues influencing the promotion of biotechnological applications for agricultural development, it was considered desirable to bring together all regional research agencies at a common platform by formation of a consortium so as to facilitate sharing of knowledge, capacity building, enhance policy formulations and disseminate transfer of technology.

Session V: Strengthening Information and Communication Technology for Research Networks

Chair : Dr. Jean Francois Giovannetti
Co-chair : Dr. Gajendra Singh

In this session, five presentations were made. These related to ICT activities of APARIS, ASTI, GFAR, CABI and ISNAR.

Asia Pacific Agricultural Research Information System (APARIS): A Report on Asia Pacific Agricultural Research Information System (APARIS) was presented by Dr. Sahdev Singh, Consultant, APAARI. He mentioned that a preliminary ICT Need-Assessment exercise is initiated with the help of National Information Nodal Points (NINPs) to get information on ICT Infrastructure in NARS, ICT Skills Level, Publications of Interest and Expectations from APAARI Web Site. The Gateway function of APARIS will provide a portal to RRNs, NARS Institutions in AP region, web-enabled information on key ARD topics and Intelligent Gateway. Dr. Singh informed that the Second ICT Expert Consultation held in October 2002 reviewed the Progress of APARIS Phase I, an APARIS Steering Committee was formed and an action Plan for APARIS Phase-II was prepared. Emphasis was placed on enhanced involvement of NARS, capacity building, access to publications, thematic forums, providing intelligent Gateway/Portal Facility, identifying other bodies involved in similar activities and design and develop promotional materials for APARIS. The Steering Committee will develop monitoring procedures and also represent APAARI in meetings/conferences in their region.

GFAR: Dr. Jean F. Giovannetti, Executive Secretary, GFAR gave an overview of the important and improvised features of GFAR website, e-GFAR, that has been restructured.

CABI: Mr. E. Cagampang, CABI representative outlined the CABI Gateway function support to APAARI. In order to define the areas and nature of support to APARIS Gateway, it was decided that a separate meeting among GFAR, ISNAR, CABI and APAARI be held for further deliberations.

ISNAR: Dr. Stein Bie, DG, ISNAR presented ISNAR's priorities in the Asia Pacific region on ICT for research networks. He mentioned that biotechnology and information technology will form the backbone of new agricultural science and that the farmers and the emerging private sector will be important partners in generating new relevant knowledge responding to social concerns. Highlighting the ISNAR association with APAARI, he informed that ISNAR since last meeting had become part of the planning for the build-up of APARIS and also provided training to NARS staff from the region in the use of intranet and internet (venues in India, Vietnam). Further, ISNAR had prepared course in Planning, Monitoring and Evaluation for staff from Bhutan and a course in writing a convincing proposal for PFU-ICARDA staff from Uzbekistan. Referring to recent ISNAR review, he informed that a restructuring team will be assisting

ISNAR to find new modus operandi to support NARS and thus, a closer association with national, sub-regional and regional organizations in support of networks is expected.

ASTI: Ms Nienke Beintema, Coordinator, informed that ASTI is an inter centre activity of IFPRI-ISNAR that was launched with the objective to provide internationally comparable information on the investment and institutional environment surrounding agricultural R&D, thereby informing and improving research policy decisions around the world. The Initiative provides information on trends in public and private agricultural R&D investments, institutional structures, and funding sources at the national, (sub-) regional and global levels. It adopts a Network approach having strong links with NARS, regional, and other organizations. The main activities include completion of ASTI survey rounds in more than 25 sub-Saharan African countries and country reports on survey results. It has also established alliances with regional organizations such as: APAARI, ASARECA, CORAF, and others. For the Asia round of survey, a schedule of activities was presented and an endorsement of ASTI - APAARI MOU to implement survey in more than 20 Asian countries was solicited.

Plenary Session: Technical Session Presentations/Recommendations

Chair : Dr. Stein Bie
Co-Chair : Dr. Meryl Williams

The Chairpersons of respective technical sessions, based on the report and the discussions, presented the following suggestions/recommendations that were endorsed during the Expert Consultation.

Technical Session - I: Status of Regional Research Networks - Gap Analysis (Prof. Emil Q. Javier)

1. The APAARI Expert Consultation on ARD priority setting (2001) has identified common areas and cross cutting issues for research at sub regional and regional level that are similar but not identical. These need to be synthesized into regional information adopting a common format.
2. In order to conduct a more systematic analysis of research gaps between perceived priorities or needs, a more detailed survey of existing networks including all those active in the region, with or without association of APAARI, must be undertaken. Such a survey of networks should indicate minimum set of priorities, such as: a) Specific Objectives b) Facilitation / Coordination Unit c) Network Budget and d) Member Contributions in cash and in kind.
3. Three suggestions were offered in organizing APAARI networks in the future : a) NARS must serve as network hubs, b) Engaging development organizations as partners in the APAARI research networks, and c) Sunset clauses for networks
4. Gaps Analysis specifically identified that ARD efforts need to be strengthened in: a) Biotechnology, b) Post-harvest Technology, c) IPRs, and d) Food Legume and Minor Fruits/Vegetables. The need to bring these concerns in the regional priorities was highlighted. It was felt that APAARI could take up initiatives such as in PHT considering the relatively low investment by NARS and CG Centres in post harvest research.

5. It was felt desirable to have an indepth gap analysis of the research networks adopting a uniform approach for the three sub-regions. It was suggested that in future ICAR-ICRISAT; PCARRD-IRRI and ACIAR-PNG could undertake this exercise for S&W Asia, SE Asia and Pacific regions, respectively.

Technical Session - II: Network Reports (Dr. William Dar)

6. *CLAN*: The network, in the region, has effectively coordinated research and provided technical backstopping and support to NARS in capacity building and made a visible impact on the farmers' fields. The suggestions made to enlarge the activities of CLAN were: a) Small expert group to revisit the mandate b) Include more legumes, particularly mungbean, lentil and soybean c) Involve ICARDA, AVRDC, RDA, COA, JIRCAS and d) APAARI to provide need - based support, if needed.
7. *CORRA* programme has so far been supported by NARS and IRRI. It was felt that in future an active involvement of private sector as partners is needed for rice research.
8. RWC is a prime case study of success of NARS-led consortia, with support from IARCs and donors wherein the member countries have benefited immensely. Mention was made of the development of resource conservation technologies as zero tillage, bed planting, improving water use efficiency, energy saving (less tillage) etc. that have brought a revolution in rice-wheat areas of South Asia. It was suggested that China, a leading rice and growing country in the region may also be involved in the consortium.
9. *TAMNET*: Concern was expressed over the withdrawal of support by CIMMYT. However, there was a consensus among the members to revive the network. A group comprising of APAARI, CIMMYT, FAO and APSA representatives separately discussed the ways and means to revive TAMNET and suggest further action by APAARI. The following recommendations were made to revitalize and sustain TAMNET:
 - a) Explore possibility of an alternative facilitation unit in DOA , Thailand or with APSA, b) Carry out need assessment and interest of private sector in a month by APSA, c) APSA to release funds and FAO and APAARI to provide need - based support, d) Trials to start from the next cropping season during 2003
10. *GoFAR*: The network needs to be strengthened to coordinate activities of aquatic resources research in Asia-Pacific. The network is active now but is faced with funding constraint. ICLARM to continue its support to the Network and APAARI may provide partial support to promote its activities, if required.
11. *PGR networks*: Four sub-regional (South Asia, SE Asia, East Asia, and Pacific) PGR networks are successfully operating in Asia-Pacific region with technical and financial support from IPGRI. An MOU between APAARI and IPGRI is in existence and a work plan needs to be developed to address PGR issues such as collection, conservation, evaluation and characterization, documentation and capacity building. In this context, it was suggested that Centres of Excellence in the region could be supported under the APAARI-IPGRI MOU, for which the modalities need to be worked out.

12. *BAPNET*: The network was cited as an example of NARS-led and NARS-based network, dealing with *Musa* (banana and plantain) improvement in the Asia-Pacific. In view of the good progress that BAPNET has made under the PCARRD-IPGRI MoU and priorities identified for future work in the region, it was recommended that members need to continue extending their cooperation and support.
13. It was stressed that NARS financial support and active involvement are both needed and are critical for the networks to be effective and sustainable. There is a need to establish partnerships with others, especially the private sector (e.g., APSA, etc.), civil society organizations and development institutions. Future networks should have NARS as hubs for ownership by the stakeholders for their long-term sustainability.

Technical Session – III: Strengthening Collaboration with Private Sector, NGO's in ARD Networks (Dr. Takahiro Inoue)

14. Monsanto presented its SHARE (Linkages) programme designed to support farmers with small land holdings. Two programmes were proposed for possible cooperation with APAARI and/ or its member-NARS. These are: (i) Maize Development Programme designed to support the continuation/ expansion of TAMNET, and (ii) Regional Agriculture Biotech Regulatory Science Centre, designed to address the priority concern of the biotech to enhance its role in the company's vision of abundant food and good environment.
15. APSA proposed collaboration with APAARI on: (i) Database to post where seeds are needed or are in demand, and (ii) Development of hybrid rice through the leadership of IRRI in collaboration with NARS. The participation of Private Sector was appreciated and it was considered appropriate to prepare suitable mechanism and sustain this partnership.
16. It was suggested that collaboration between International Centre for Bio-saline Agriculture and APAARI and its members could be established to share information and technology on bio-saline agriculture including also the training component.

Technical Session - IV: Round Table Discussion on Developing New Research Networks and Cooperation in Asia-Pacific (Dr. Mohan C. Saxena)

17. *CGIAR Challenge Programme on Water and Food*: The CGIAR Challenge Programme (CP) proposal from IWMI was endorsed by APAARI members. Since the programme implementation would be in a consortium mode, the experience of APAARI was considered to be useful. The discussion therefore, focused on the partnership with APAARI and the meeting recommended the following:
- IWMI to consider effective involvement of APAARI in the operation and management of CP
 - Collaborative role of other CG Centres operating in dry areas (ICRISAT, ICARDA, CIMMYT etc.) to be defined
 - More active involvement of NARS in Asia-Pacific region for research partnership to be worked out

18. *Asia- Pacific Consortium on Agricultural Biotechnology (APCoAB)*: The meeting endorsed the need to establish an Asia-Pacific Consortium to promote adoption of agricultural biotechnologies in the region. It was suggested that the proposal should be further reviewed to sharpen focus of activities and priorities. Involvement of private sector and major input from stronger NARS in the region was considered essential for the success of the consortium. The meeting recommended that:
- APAARI revisit the mandate of the consortium to address issues of policy, IPRs, capacity building, partnerships
 - APAARI to facilitate inception of consortium in partnership with FAO and ISNAR and with active Involvement of private sector
19. *Inter-Regional Research Network on Cotton*: There was strong endorsement of the proposal and the meeting recommended that APAARI should take further steps in moving forward with this proposal. The terms of reference of the Network, funding and coordination mechanism should be clearly defined, and possibility of inclusion of African NARES should be explored. It was decided that besides APAARI and the network members, ICARDA and CIMMYT will extend support for Wheat-Cotton systems on the lines that CIMMYT is doing for RWC. An initial contribution of US\$ 5,000/ from APAARI was also agreed to start this network.
20. Enhancing the efficacy and effectiveness of UTFANET was discussed. Philippines NARS (PCARRD), that had served as the hub for this network, as also Sri Lanka NARS, which deals with three important underutilized fruit crops, emphasized the need for more funding support for its activities by APAARI. It was recommended that possibility of linking the network either with the Tropical Fruits network of FAO (TF net) or the IPGRI global network on under-utilized crops should be explored. The following suggestions were put forth for UTFANET:
- Facilitation unit to continue at PCARRD
 - A review meeting be convened
 - Link with German Govt./IPGRI initiative on underutilized plants be established
 - APAARI to extend need based partial support after the review meeting recommendations are made available
21. Dr. F. Taha of ICBA emphasized need for APAARI to launch a global network for 'Biosaline Agriculture'. It was agreed that ICBA would take lead and develop such a proposal for further consideration by APAARI members. Sharing salinity- tolerant germplasm and their testing by member NARS should be an essential component of such a network.
22. Dr. R. D. Ghodake drew attention to the report on 'gap-analysis' done for the Pacific Region, and emphasized the need for a network/ consortium that could deal with analysis of 'Demand Markets' and 'Post-harvest Needs and Innovations'. It was agreed that Dr. Ghodake would develop a proposal on the subject for consideration by APAARI.

Technical Session - V: Strengthening Information and Communication Technology for Research Networks (Dr. Jean F Giovannetti)

23. There was a general consensus on the importance of information and communication for the success of the research networks and the need for a commitment of the NARS leaders was well recognized. The role of neutral platform provided by APAARI through APARIS for launching a dialogue and further exchange of information was fully endorsed and expected to be strengthened for the benefit of the stakeholders. The participation and support of members was identified as crucial for the success of the programme.
24. A technical meeting involving APAARI secretariat, CABI, ASTI, AIT, ISNAR and GFAR be organized to determine future development of APARIS.
25. The APARIS initiative of APAARI received appreciation of the participants and the support for its activities in APARIS phase –II. These were: enhanced involvement of NARS, capacity building, access to publications, thematic forums, providing intelligent Gateway/Portal Facility, and to develop promotional materials for APARIS
26. GFAR and CABI will support APARIS website development activities (development of regional gateway, technical backstopping, technical workshop, specific expertise)
27. The meeting appreciated the signing of ASTI - APAARI MOU to undertake Asia round of survey. Accordingly, the schedule of activities prepared to implement survey in more than 20 Asian countries, was endorsed.

Dr. R.S Paroda in his closing remarks expressed satisfaction over the outcome of the deliberations. He thanked all the Chair and Co-chairpersons for able conduct of the various sessions and also the participants for their valuable inputs that led to the success of this Expert Consultation. He appreciated the teamwork of officials from WFC, Penang and APAARI secretariat who worked hard to ensure the success of the meeting. Dr. Paroda also requested all concerned for their full support to various decisions taken in the meeting for future success of important research networks on ARD in the Asia-Pacific region.



The Seventh General Assembly of APAARI and Expert Consultation on Strengthening of Research Partnerships Through Networks and Consortia

**2-4 December 2002,
Penang, Malaysia**

Programme

December 2, 2002 (Monday)

0800 – 0900	Registration	
	Inaugural Session	
	Chair	: Dr. R.N.Sapkota
	Co-Chair	: Dr. S.H. Anang
0900 – 0910	Welcome Address	Dr. M.V.Gupta ICLARM
0910-0925		
0925 – 0945	Objectives of the Expert Consultation and Introduction of Participants	Dr. R.S. Paroda Executive Secretary
0945 – 1000	Chairman's Address	Dr. R.N.Sapkota
1000 – 1010	Message from Datuk (Dr.) Effendi Norwawi Hon'ble Min.of Agriculture	Dr. S.H. Anang
1010 – 1020	Release of Publications	Dr. R.N. Sapkota
1020 - 1025	Vote of Thanks	Mr. P.K. Saha
1025 – 1030	Group Photograph	
1030 - 1100	Tea Break	

Expert Consultation on Strengthening of Agricultural Research Networks in the Region.

Technical Session I : Status of Regional Research Networks : Gap Analysis

Chair : Prof. Emil Javier
Co-Chair : Dr. (Mrs.) Prapaisri Pitakpaiwan

December 3, 2002 (Tuesday)

Technical Session IV : Round Table Discussion on Developing New Research Networks and Cooperation in Asia - Pacific

Chair : Dr. Mohan Saxena
Co-Chair : Dr. R.D. Ghodake

(Each presentation is for 15 minutes)

0830 – 1100

- IWMI Challenge Program Proposal : Dr. Chris Scott
- Asia-Pacific Consortium on Agricultural Biotechnology (APCoAB) : Dr. A.K. Bawa
- Inter-Regional Research Network on Cotton : Dr. R.S. Paroda
- Discussion & finalization of recommendations

1100 – 1130	Tea Break
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Technical Session V : Strengthening Information and Communication Technology for Research Networks

1130 – 1300

Chair : Dr. Jean Francois Giovannetti
Co-chair : Dr. Gajendra Singh

1130 – 1200 A report on APARIS Dr. Sahdev Singh

(Each presentation is for 15 minutes)

1200-1300 - GFAR-EGFAR Dr. Jean Francois Giovannetti
- CABI Mr. Felmer E. Cagampa
- ISNAR Dr. Stein Bie
- ASTI Ms. N. Bientema

1300 – 1400	Lunch
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Plenary Session

Chair : Dr. Stein Bie
Co-Chair : Dr. Merryl Williams

1400 – 1700 Technical Session Presentations/Recommendations by Chairpersons

1600 – 1620	Tea Break
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1730 – 1900 Executive Committee Meeting of APAARI

2000	Dinner hosted by APAARI
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December 4, 2002 (Wednesday)

The Seventh General Assembly of APAARI

Chairman : Dr.R.N.Sapkota

Executive Secretary : Dr. R.S. Paroda

0900 – 1030
Welcome and

General Assembly Meeting

Introduction to Agenda Dr. R.S. Paroda

Chairman's Address Dr.R.N.Sapkota

Discussion on Agenda Items

1030 – 1100

Tea Break

1100 –1300

Discussion on Agenda Items

Vote of Thanks

Dr. R.S.Paroda

1300 – 1400

Lunch

1430 – 1700

Visit to ICLARM Research Facilities



**The Seventh General Assembly of APAARI
and
Expert Consultation on Strengthening of Research Partnerships Through Networks and
Consortia
The World Fish Centre, Penang, Malaysia
2-4 December 2002**

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