Expert Consultation on Agricultural Innovations: Linking Farmers to Market

6-7 November 2006
National Agricultural Science Center (NASC)
Indian Council of Agricultural Research (ICAR)
New Delhi, India

PROCEEDINGS

Asia-Pacific Association of Agricultural Research Institutions (APAARI)
FAO Regional Office for Asia and the Pacific
39 Phra Atit Road, Bangkok 10200
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FOREWORD

The Asia-Pacific region is extremely diverse. Asia is the home for 60 per cent of the world population and it is projected that by 2025, Asia's population will increase by over 35 per cent, thus reaching 4.7 billion. Paradoxically, most of this population is concentrated in the rural areas facing problems of poverty, food insecurity and malnutrition.

Despite concerted efforts of the NARS in the region, the CGIAR Institutions, GFAR, FAO and other similar organizations to increase significantly the food production and productivity world over, there are still problems of access and distribution of food that we produce, alleviating poverty through enhanced income and sustainable use of natural resources. Moreover, many small hold farmers have yet to benefit from the international public goods generated by the International Research Centers and the NARS.

The need for organizing this forum was conceived as early as 2002 during which it was recognized that linking farmers to markets (LFM) is the key for increasing the income and alleviating poverty of resource poor farmers in the Asia-Pacific region. The two-day consultation on 6-7 November 2006, hosted by the Indian Council for Agricultural Research (ICAR), acknowledged that as countries in Asia-Pacific diversify their agricultural economy, they addressed marketing issues invariably. The issue is not just finding the markets but also looking at the entire value-chain and making farming a remunerative business. The need to link the farmers in the whole value-chain is duly recognized. However, there is a need to fully examine how far we want the farmers to be involved in every stage in the value-chain. It is important to consider that through partnership, farmers could be given a higher share in the value-chain, so they need not be involved in every stage. They should, however, benefit from any improvement in the value-chain through higher prices, better technology, reduced cost so that producer's share in consumer prices increases, increased profitability, market access and risk management, among others. The challenge is to ensure that the farmers benefit directly from what is added along the value-chain, and these benefits need to be quantified. While Institutional innovations, particularly contract farming, is becoming popular in many developing countries, governments need to put in place the necessary legislation and lay down rules and procedures to monitor their proper enforcement so as to protect the small farmers.

Recommendations have been offered to the policy makers and governments, NARS, APAARI and GFAR in the areas of (i) enabling policy environment to promote and accelerate LFM, (ii) partnership building and (iii) up-scaling/out-scaling of agricultural innovations.

It is APAARI's wish that the debate has sensitized research managers and other development practitioners, and that they will learn from the experiences shared among key stakeholders. Participants anticipate that all stakeholders, including GFAR, APAARI, NARS, the CSOs, FOs and the private sector take appropriate actions for linking farmers to markets.

Raj Paroda
Executive Secretary
APAARI

ACRONYMS AND ABBREVIATIONS

AARINENA	Association of Agricultural Research Institutions in the Near East and North Africa (Jordan)
ACIAR	Australian Center for International Agricultural Research
ADB	Asian Development Bank
AIS	Agricultural Innovation System
AIT	Asian Institute of Technology
ANGOC	Asian NGO Coalition for Agrarian Reform and Rural Development
APAARI	Asia-Pacific Association of Agricultural Research Institutions
APAFRI	Asia-Pacific Association for Forestry Institutions
APARIS	Asia-Pacific Agricultural Research Information System
APCoAB	Asia-Pacific Consortium on Agricultural Biotechnology
ARD	Agricultural Research for Development
AREO	Agricultural Research and Education Organization (Iran)
ASFARNET	Asian Farmers Regional Network (Indonesia)
AVRDC	Asian Vegetable Research and Development Center (World Vegetable Research Center)
BAR	Bureau of Agricultural Research (Philippines)
BARC	Bangladesh Agricultural Research Council
Bt	*Bacillus thuriengensis*
CAC	Central Asia and Caucasus
CACAARI	Central Asia and the Caucasus Association of Agricultural Research Institutions
CACP	Commission on Agricultural Costs and Prices (India)
CARDI	Cambodian Agricultural Research and Development Institute
CARP	Sri Lankan Council of Agricultural Research Policy
CEDAC	Center d'Etude et de Développement Agricole Cambodgien (Cambodia)
COA	Council of Agriculture (Chinese Taipei)
CGIAR	Consultative Group on International Agricultural Research
CIAT	Centro Internacional de Agricultura Tropical
CIMMYT	International Maize and Wheat Improvement Center
CIRAD	Centre de Coopération Internationale en Recherche Agronomique Pour le Developpement
CSOs	Civil Society Organizations
DARE	Department of Agricultural Research and Education (India)
DFID	Department for International Development (U.K.)
DOA	Department of Agriculture (Thailand)
DMC	Direct Sowing, Mulch-based System Conservation Agriculture
EO	Executive Order
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FAO- RAP	Food and Agriculture Organization – Regional Office for Asia and the Pacific
FDI	Foreign Direct Investment
FOs	Farmers' Organizations

FTAs	Free Trade Agreements
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GFAR	Global Forum on Agricultural Research
GMOs	Genetically Modified Organisms
GOI	Government of India
GPP	Global Partnership Program
HPSP	Horticultural Partnership Support Program (Indonesia)
HVCs	High Value Crops
IAC	Institut Agronomique Neo – Caledonien (New Caledonia)
IARI	Indian Agricultural Research Institute
ICAR	Indian Council of Agricultural Research
ICARDA	International Center for Agricultural Research in the Dry Areas
ICBA	International Center for Biosaline Agriculture
ICIMOD	International Center for Integrated Mountain Development
ICM	Information and Communication Management
ICRISAT	International Crops Research Institute for Semi-Arid Tropics
ICT	Information and Communication Technology
IDRC	International Development Research Center
IFAD	International Fund for Agricultural Development
IFAP	International Federation of Agricultural Producers
IFPRI	International Food Policy Research Institute
ILRI	International Livestock Research Institute
IPGRI	International Plant Genetic Resources Institute
IPR	Intellectual Property Rights
IRRI	International Rice Research Institute
IST	International Support Team (PROLINNOVA)
JIRCAS	Japan International Research Center for Agricultural Sciences
LFM	Linking Farmers to Markets
M&E	Monitoring and Evaluation
MAFF	Koroniva Research Station, Ministry of Agriculture, Forestry and Fishery
MARD	Ministry of Agriculture and Rural Development
MARDI	Malaysian Agricultural Research and Development Institute
MIS	Market Intervention Scheme
MAS	Marker-Assisted Selection
MCFF	Ministry of Agriculture, Forests, Fisheries and Meteorology
MDGs	Millennium Development Goals
NAIF	National Innovation Foundation
NAIP	National Agricultural Innovation Project
NARC	Nepal Agricultural Research Council
NARI	National Agricultural Research Institute
NARIs	National Agricultural Research Institutions
NARS	National Agricultural Research System
NASC	National Agriculture Science Centre

NCAP	National Center for Agricultural Economics and Policy Research
NGOs	Non-Governmental Organizations
NRI	Natural Resources International Ltd.
NRM	Natural Resource Management
NSC	National Steering Committee (PROLINNOVA)
OECD	Organization for Economic Cooperation and Development
PARC	Pakistan Agricultural Research Council
PDS	Public Distribution System
PhT	Post-harvest Technology
PID	Participatory Innovation Development
POG	PROLINNOVA Oversight Group
PPP	Public-Private Partnership
PROLINNOVA	Promoting Local Innovation in Ecologically-oriented Agriculture and Natural Resource Management
PTD	Participatory Technology Development
R&D	Research and Development
RDA	Rural Development Administration (Republic of Korea)
RIU	Research into Use Program of (DFID-funded)
RWG	Regional Working Group
SEA	Southeast Asia
SEZ	Special Economic Zones
SHGs	Self-help Groups
SMEs	Small and Medium Entrepreneurs
SPS	Sanitary and Phyto-sanitary Standards
TRIPS	Trade-Related Aspects of Intellectual Property
UNITECH	University of Technology (Papua New Guinea)
WB	World Bank
WTO	World Trade Organization
YP	Young Professionals
YPARD	Young Professionals Platform for Agricultural Research for Development

BACKGROUND

The issue of linking farmers to markets (LFM) is currently a major agenda for both developed and developing countries. Despite advances in technology and increases in trade flows, many are still poor in the developed countries. Many farmers worldwide are facing difficulty coping with the rapidly changing market environment. The challenge is how to reduce the cost of doing business so that farmers and producers mutually benefit from the process. Farmers need to be empowered and integrated in the value-chain. Government should institute policy reforms conducive to innovations, enterprise development and investment.

The Asia-Pacific region is extremely diverse. Asia is the home for 60 per cent of the world population. It is projected that by 2025, Asia's population will increase by over 35 per cent, thus reaching 4.7 billion. Paradoxically, most of this population is concentrated in the rural areas facing problems of poverty, food insecurity and malnutrition.

Despite concerted efforts of the NARS in the region, the CGIAR Institutions, GFAR, FAO and other similar organizations to increase significantly the food production and productivity world over, there are still problems of access and distribution of food that we produce, alleviating poverty through enhanced income and sustainable use of natural resources. Moreover, many small hold farmers have yet to benefit from the international public goods (IPGs) generated by the International Research Centers and the NARS.

Considering above scenario, overall emphasis is needed for intensive and diversified agriculture for higher yields and greater profitability. It is in this context that the science of post-harvest technology (PhT) and management offers tremendous opportunities for increasing both on-farm and off-farm incomes – for which we must find ways of linking the farmers to markets. Low cost rural based PhTs shall not only help in increasing the shelf-life and value-addition, but would empower the resource poor farmers to have higher income and better livelihood opportunities. To achieve this objective, farmers should be provided access to appropriate technologies, knowledge and enabling policy environment. These key issues were recognized during the *ad hoc* Regional Working Group (RWG) on LFM meeting jointly convened by APAARI and GFAR on 6-7 June 2006.

The RWG acknowledged the need to focus on enhancing the income of the rural poor through the development of sustainable demand – driven and equitable LFM interventions in the Asia and the Pacific region. They did acknowledge that specific strategies will have to be adopted based on the development stage in each sub-region. For example, the least developed and geographically fragmented Pacific Island could aim for building capacities to identify and access opportunities, while South Asia which is predominantly a vast production area goes for market- driven agribusiness development, i.e. agro- based processing, organized marketing and distribution. On the other hand, Southeast Asia, hopes for a better quality of life for its agricultural producers in terms of quality assurance and market access keeping in view the growing regional markets. Similarly, East Asia targets income enhancement for its farmers through technology driven and quality enhancing strategies.

This Expert Consultation revisited and debated on these key issues and recommended appropriate actions to be addressed by the key stakeholders.

INAUGURAL SESSION

The Inaugural Session was opened with the lighting of the lamp by Dr. Adel El-Beltagy, Chairman of GFAR, Professor H.P.M. Gunasena, APAARI Chairman, Dr. Mangala Rai, Secretary DARE and Director General, ICAR and Dr. Raj Paroda, APAARI Executive Secretary.

Dr. Mangala Rai welcomed all participants on behalf of host institution. He recounted the early years of APAARI and praised the way it has grown during the last decade. He recognized that the research priorities earlier identified contributed greatly to the region's agricultural research and development. He acknowledged the role of APAARI, the NARS and the CGIAR centers in this respect. He expressed the happiness of the Government of India (GOI) and ICAR in hosting this expert consultation on linking farmers to market, a very relevant and timely topic. He recognized the need for farmers to diversify and innovate to be able to compete in today's global market. He expected that the recommendations from this consultation will be path-breaking, providing a road map and identifying alternative strategies to set things in motion.

Dr. Paroda in his welcome remarks expressed grateful appreciation to all APAARI members present, the CGIAR and other NARS leaders, donor representatives, private sector, the NGOs, FO's and the youth. He was pleased that more stakeholders were actively participating and the association is growing in terms of membership. He specified that this expert consultation has its roots from earlier meetings jointly conducted with FAO and GFAR, specifically in the area of post-harvest technology. He referred to the recently conducted meeting of an *ad hoc* Regional Working Group in June 2006 to ensure APAARI's participation in the Global Partnership Program (GPP) facilitated by GFAR. He recognized that the region is very diverse and agriculturally dynamic. It is also the home of Green Revolution and many technological innovations and that many institutions at the national, regional and international levels have played very significant role. He expressed optimism that the expert consultation would address relevant key issues to enhance farmers' linkages with the growing markets in order to enable them to improve their livelihood and increase their income.

Professor H.P.M. Gunasena, in his opening remarks, thanked the Government of India and ICAR for hosting the consultation and APAARI General Assembly. He acknowledged the unwavering support of all members during his two-year term as APAARI Chairman. He highlighted valuable contributions of APAARI towards agricultural research for development in the region through activities such as priority setting and a number of good initiatives. He also recognized the excellent leadership of Dr. Raj Paroda and wished that he will continue to be a trailblazer in various areas, not only in ICT and biotechnology but also in linking farmers to markets and other priority areas. He expressed his confidence that APAARI will remain a vibrant regional forum and stand out among others in terms of its vision and mission. He reaffirmed that the theme of this consultation is extremely important in the light of the diversity of the farmers/producers in the region and many serious challenges are being faced by them as a result of globalization and decline in production in view of dwindling natural resources. He also shared his experiences in linking farmers to markets and underlined the key role of the private sector. He specified that many countries, however, lack the legal framework to enhance public-private partnership. For instance, in many developing countries the IPR policy is non-existent or rather weak and thus hampers the possibility of such partnership. He hoped that this consultation will (a) address many important issues such as value-addition and food safety and (b) suggest ways to linking farmers to markets in order to enhance their income.

Dr. Adel El-Beltagy, made special remarks and shared the great interest of global research community in APAARI, which he believed has evolved tremendously since its inception. The unique diversity in

APAARI as reflected in stages of economic and scientific development among countries in the region, has contributed to its growth. He especially recognized APAARI for its trailblazing initiatives in the areas of ICT and biotechnology and mainstreaming civil society participation in its activities and decision-making. He mentioned that GFAR and APAARI would continue working together in priority research areas and wished to sustain the gains through existing partnership.

Chairman Professor Gunasena presented mementoes to Dr. Adel El-Beltagy, Chairman, GFAR; Dr. Mangala Rai, Secretary DARE and Director General, ICAR and through him to Hon'ble Agriculture Minister Shri Sharad Pawar for hosting this consultation and General Assembly.

The following new APAARI publications were released by Dr. Mangala Rai and distributed to all participants:

Print: Fifteen Years of APAARI – A Retrospective (2006), Selected Success Stories on Agricultural Information System (2006), Proceedings of High Level Policy Dialogue on Biotechnology (2005), APAARI Brochure (2006), APCoAB Brochure (2006).

CD's: APAARI on CD (2006), Proceedings of the Meeting of the Regional *ad hoc* Working Group on Linking Farmers to Markets (2006), Proceedings of the Workshop on Regional Synthesis of Research Needs (2006).

The inaugural address of Hon'ble Shri Sharad Pawar, Union Minister of Agriculture, Consumer Affairs, Food and Public Distribution, Government of India, who could not be present due to some exigency, was read by Dr. Mangala Rai. The Minister highlighted the following issues:

- A joint Delhi Declaration was signed by Ministerial Counterparts of some Asian countries for further strengthening cooperation in rice research and development during the recently concluded 2nd International Rice Congress held in New Delhi.
- Growth in agriculture is key to alleviating poverty and improving the livelihood of resource poor farmers.
- Level of agricultural research and development varies among countries in the Asia-Pacific region.
- The region faces many challenges including natural resource depletion, declining productivity and globalization.
- There is a need to move from current less remunerative practices to those of innovative farming and better income generating options. These will require scientific planning, adoption of new technologies and agricultural diversification.
- In some countries in the region, well supported and stronger NARS are able to contribute effectively to meet the MDG's of food security, poverty reduction, knowledge empowerment, sustainability, gender equity and overall well-being of farmers.
- The case of ICAR was mentioned in terms of its contribution to advances in the production and productivity of food grains, vegetables and fruits, milk, fish and eggs, among others.
- The National Agricultural Innovation Project (NAIP) with support from the World Bank was launched in India in July 2006, primarily to look at research on production to consumption system (market), sustainable livelihood security in disadvantaged areas (poverty) and basic and strategic research at the frontiers of science (productivity). NAIP

is an initiative in transforming Indian agriculture into a commercial venture with enhanced on- and off- farm employment, profitability and livelihood security.

- Following improvements are necessary to make farming more remunerative:

  market reforms to bring efficiency and equity, improving quality and competitiveness of products, providing cold storage and cold chain facilities, value-addition and processing, credit provision patterned after the Grameen Bank.

- There is a need to increase awareness regarding WTO provisions, TRIPS and other similar market-based systems.
- We also need to strengthen the bargaining position of the farmers in the Asia-Pacific region through support for improving facilities, technical skill, provision of capital and fostering entrepreneurial capability.
- Access to information, organizing major stakeholders for establishing partnerships and capacity building of farmers are overarching priorities that need to be addressed.
- Unless agriculture becomes economically rewarding, it will be very difficult to attract or retain youth in farming.

Mr. P.K. Saha proposed a vote of thanks. He expressed appreciation to all key dignitaries who served as pillars of APAARI from the beginning. He especially thanked Hon'ble Agriculture Minister and Dr. Mangala Rai for hosting this event. He thanked Dr. El-Beltagy for his support during his ICARDA days and currently as Chairman of GFAR. He also recognized the efforts of Dr. J. Karihaloo, APCoAB Coordinator for his support in making various logistic arrangements. He thanked the APAARI members and all stakeholders for their continuing interest in APAARI activities.

SESSION I: ENABLING POLICY FRAMEWORK FOR AGRICULTURAL INNOVATIONS TO LFM

Chairperson: *Dr. Mangala Rai, ICAR*
Co-chairperson: *Professor Shinobu Inanaga, JIRCAS*
Rapporteur: *Dr. Sahdev Singh, AIT*

Dr. R.B. Singh, in his keynote lecture elaborated on the Indian experience, particularly as it relates to some development in the work of the National Farmers' Commission under the able guidance of Dr. M.S. Swaminathan. He briefly mentioned the status of the Indian farmers, the total rural economy, farmers' profile and various innovations in the knowledge system which could be seen along with the need for the present system of social engineering. In the eleventh plan of the Government of India, there is a major policy change to achieve faster growth which must be inclusive. He cited the agrarian crisis which posed many challenges that should be addressed by agricultural research and innovations, namely: high incidence of hunger and poverty in India, accounting about 25 per cent of the world's hungry and poor; lowest agricultural growth rate and investment in agriculture during the last 40 years; serious yield gaps, huge post-harvest losses and collapse of the extension system; terms of trade for agriculture and farmers/landless agricultural labors worsening; rising farmers' indebtedness and farmers' suicides continue unabated; predominance and increasing number of small holdings and cost-risk-return structure of farming is becoming adverse; average total income of farmer households in different classes of land holdings up to 2 ha formed about 70 per cent of their consumption expenditure; profitability in agriculture had declined by 14.2 per cent during 1990s and growth of employment in agriculture was only 0.2 per cent per annum during 1993-1994 to 1999-2000. Moreover,

consumer prices are about three times of the farm gate prices despite little value-addition along the chain, hence if we are to link farmers to the market, this price slippage must be removed to ensure that most of what the consumers pay go to the farmers.

According to him, agricultural research and innovations must address the above challenges using a three-pronged approach as follows:

- Prioritize and intensify strategic and anticipatory research and link them with basic, applied and participatory research and technology development.
- Ensure science-policy synergy, adopt strategic programs, partnerships and convergence and synergize technological and social revolutions.
- Strengthen knowledge system, create awareness, provide human ware and facilitate information sharing, enabling mechanisms (IPR/SPS), markets, credit and timely and cost effective quality inputs, along the farm – firm – fork continuum.

The landscape of Indian agriculture and the world is composed primarily of small farmers. In the 80s and 90s, small farmers' share in the market surpluses has started coming up; noting that currently up to 50 per cent of their produce is available in the market. If smallholders will be linked with the market chain, the linkages with extension, processors and retailers, including access to market information must be considered. Public-Private Partnerships (PPP) are necessary to create linkages between different actors in the supply chain to integrate smallholders to overcome market failures at key chain bottlenecks. The possible areas for PPP involvement are: (1) Producer Associations for production, processing, marketing and credit, (2) Third-party facilitator of linkages, (3) Research consortiums in technology to create and deliver high quality varieties and other products, and (4) Certification and monitoring organizations to help in the flow of quality goods from the producers to the market.

Dr. Singh further pointed out that farmers of the 21st century are not only the individual farmers but also those organized ones such as the cooperatives, the Group Farming by self-help groups (SHGs, India), Small Holders' Estates (Malaysia, Indonesia), contract farming, farming companies and state farms, which will confer the economy and power of scale on the small producers. In order to have livelihood security in the rural areas of India, Rural Business Hubs on the lines of China's Township & Village Enterprise (TVE) will be established to increase both the on-farm and non-farm employment. Policy reforms will look at all the assets, including land and water, such as the new reform for rainfed areas to look at all possible technology options to make the land more productive. Other considerations are developments in Science and technology, ICT, Total Quality management, credit and insurance policy, extension, training and knowledge connectivity – each village to become a knowledge center, through *e-Choupals*. Farmers will be assured of price and remunerative marketing through various ways, including Calculation of Minimum Support Price (MSP) – Cost [C2] + at least 50 per cent, Procurement price (MSP + Cost escalation), Implementation of MSP throughout the country, Market Intervention Scheme (MIS), Universal Public Distribution System (PDS) and enlarge the Food Basket to include maize, jowar, bajra and millets, create a Commission on Agricultural Costs and Prices (CACP, an Autonomous, Statutory body), Price Stabilisation Fund and create an Indian Single Market**.** In the context of an uncertain international trade environment farmers can be protected from international price fluctuations by:

- A judicious mix of farmer-friendly trade and foreign policies
- Enhancement of productivity and competitiveness

- Greater attention to quality, reliability and consistency
- Promotion of domestic demand and
- Establishment of an Indian Trade Organization

He further emphasized that agriculture must be considered as knowledge and technology intensive sector and that education for agriculture in the 21st century should consider government program on Youth for Leadership in Farming to attract the youth in farming. Moreover, the media should be fully harnessed to create awareness and to educate the people. He reiterated the important commitment of the Government as articulated by the Hon'ble Prime Minister of India to integrate the domestic market for all goods and services, consider the entire country as a common or single market for agricultural products, remove internal controls and restrictions and enable direct marketing between farmers and NGOs, Cooperatives and Private Companies. He believed that the challenges of farmer-market linkage can be met provided people avoid the seven sins, as specified by Mahatma Gandhi, namely: *"wealth without work, pleasure without conscience, knowledge without character, commerce without morality, science without humanity, worship without sacrifice, and politics without principle"*.

Professor Anil K. Gupta of the Honey Bee Network and National Innovation Foundation (NAIF), India, reiterated some important points highlighted during the presentation of Dr. R.B. Singh and suggested how the work of NAIF are linked up with some of the challenges he has raised, namely, (a) that 70 per cent of the income of the farmers less than two hectares is spent on consumption which implies that production and consumption can not be easily distinguished and (b) that linking the mind to markets will require changing the way we think about farmers.

Professor Gupta stressed that farmers are not sink of our advice, assistance or support. They are also the source of solutions, which Honeybee Network and NAIF had demonstrated in the last two decades in more than 400 out of 600 districts. These 400 districts have generated tremendous amount of innovations and traditional knowledge.

He mentioned the four kinds of capital, namely natural, social, ethical and intellectual. He stressed on the need for innovations in each kind in order to link mind to markets. He argued that governments have not invested on social capital and on institutional innovations (formal or informal institutions). He also mentioned the three kinds of knowledge domains, namely, private, community and public domains, which must be considered when developing incentives for farmers.

There are challenges faced by individual farmer innovators and traditional knowledge holders in developing technologies which are malleable, modular and meaningful. These people are normally unorganized, unaided, non-professionals, having no skill to translate their ideas into business plans, but would need the users to redesign, test and fabricate and field test their products and services. He mentioned the November 2006 launching of the seven products (herbal pesticides and growth regulators) developed with private company in India by pooling best practices.

He emphasized the need to reward grass roots innovators and R&D institutions and wished for possibilities of rewarding partnerships, especially recognizing scientists who have been working with farmer innovators. Other areas for which incentives could be developed are those in the public domain or open source innovations, linkage between innovation, investment and enterprise (through venture capital fund dedicated for the agriculture sector) and establishing incubators for innovations. He believed that incentives to innovations will trigger various kinds of innovations; hence a portfolio of

incentives for both technological and institutional innovations will have to be developed, either in material or non-material form. Examples of material form of incentives are IPR, R&D grants, endowments, venture and incubation funds; non-material incentives include policy changes, recognition, honour and memorial.

Professor Gupta showed some grassroots innovations like the tree climber and seeding machine, among others, which have found global markets. NAIF has sold technologies to Turkey, Singapore, Canada, U.S., Kenya, Pakistan and Australia. He believed that grassroots innovations can indeed reach the global markets provided there is institutional support, protection of intellectual property right, equitable sharing of benefits and in some cases value-addition through modern science to make the innovation more efficient.

He concluded by emphasizing that creativity counts, knowledge matters, innovation transforms and incentives inspire.

Dr. S. Mruthyunjaya, NAIP, ICAR, presented the elements of the newly initiated research-driven innovations project supported by the World Bank which aims to: contribute to doubling agricultural growth rate, enhance profitability, sustainability and competitiveness and ensure livelihood security. The project recognized that modern science must complement grassroots innovations. It repositions the research to address the business, development and livelihood improvement objectives. The guiding principles are creative imagination, useful imitation, good experimentation, wise experience and utilization of proven traditional knowledge for which investments are required. The project adopts the production to consumption system approach, considering production-processing- marketing-consumption, including quality and safety. It uses a consortium approach of right partners, sharing their agenda and resources. About 75 per cent of the total resources of this project were allocated to competitive funding so that creativity at the grassroots level is respected.

This initiative is for six years targeting only a small number of big projects which would create real good impact on the society. Stakeholders' consultations have been conducted to create awareness about the scope and priorities, namely, gender and social, environmental auditing, monitoring and evaluation and impact assessment. The project puts emphasis also on (1) information system development, (2) knowledge management, (3) business development through setting up of business incubators in selected locations to demonstrate the research-development continuum and (4) individual and capacity building as well as institutional learning. ICAR as the catalyzing agent for management of change in the Indian agricultural system provides overarching support to research in terms of: (1) better and improved institutional efficiency, (2) production to consumption system including food chains, (3) sustainable rural livelihood with focus on disadvantaged areas and (4) basic and strategic research on the frontiers of science such as biotechnology, natural resource management, post-harvest technology and value-addition.

He also specified that the priorities at the national, sectoral and grassroots levels are harmonized. Concept notes and management processes are still being developed at this stage.

Mr. Raul Montemayor, Vice- President of IFAP, discussed issues from the perspective of the farmers' organizations he represents, with particular concerns on making markets function more efficiently, the need to empower farmers in the market, bringing markets closer to farmers, strengthening farmer organizations and some relevant regional issues impacting on the farming community.

- On making markets more efficiently: He mentioned that government policies on trade, food, taxes, fiscal expenditure, competition, etc. impact on market performance. Negative

impacts result in high transaction costs, barriers to market entry and other deficiencies and imperfections. The costs of market inefficiency are ultimately borne by farmers.

- On empowering farmers in the markets: Simply linking farmers to markets are not enough. They must benefit from market linkages and integration. They must have opportunities to move up the value-chain and must be empowered as dynamic, efficient and competitive players in the market.
- On bringing markets closer to farmers: The private sector must be provided appropriate incentives and opportunities to link up with farmers. Infrastructure must be developed and a favorable policy environment such as incentives and other support are necessary to ensure profitability and sustainable market linkages. "Free" market policies must ensure fair play and protect farmers and consumers' welfare.
- On the need for farmer organizations: Farmer organizations can advocate for their members' rights and interests. Co-operatives and similar business organizations can enhance farmer power in the market. Farmers must be allowed and encouraged to form independent, dynamic and self-reliant organizations.

Mr. Montemayor mentioned some regional issues which affect farmers' ability to participate and compete in the market to fully benefit from the process, namely:

(1) Regional FTAs/EPAs

(2) Market concentration

(3) Climate change, sustainability and water issues

(4) Food quality and safety concerns

(5) Land use policies, securing farmers land rights

(6) Limited government support for agriculture and small farmers

Dr. Adel El-Beltagy, Chairman, GFAR gave a global perspective, specifically on what GFAR's concerns are on LFM. He pointed out that there are new demands on public research institutions in response to the rapidly changing market environment and new technologies that need to be harnessed and employed. More and more research institutions have to act as knowledge generators and knowledge brokers in innovation processes. As such they have to be more market -and client-oriented through dialogues among stakeholders to understand the opportunities and challenges better, network among actors for access to new knowledge and work in partnership with other stakeholders to ensure relevance and widespread uptake of research results. The new research paradigm requires integration of technology with policy options and fostering a culture of institutional learning that will result to institutional change.

Some examples from GFAR's Global Partnership Programs (GPP) respond to these new challenges, namely (1) Underutilized Species which seeks an amendment to the EU Novel Foods Regulation, (2) Information and Communication Management for ARD which provides farmers access to market-related information and (3) Linking Farmers to Markets which will build capacity through learning and co-innovation among researchers, development service providers and farmers.

He concluded by recognizing the efforts of GFAR and the regional fora through their many activities to create awareness among policy makers on important emerging issues such as LFM so that they can respond accordingly and help achieve the MDG's.

General Discussion and Synthesis

Following are some of the key points, issues raised and insights shared:

- Issue on LFM is high up in the agenda of both developed and developing country organizations. Despite advances in technology and increases in trade flows, many are still poor even in developed countries. Many farmers worldwide faced difficulty coping with the rapidly changing market environment. The challenge is how to reduce the cost of doing business so that farmers and producers mutually benefit from the process. Farmers need to be empowered and integrated in the value-chain. Government should institute policy reforms conducive to innovations, enterprise development and investment.
- Policy design and framework should consider global health, global energy and international governance. It should also look at input supply situations (seeds, fertilizers) and incentive systems (credit, risks and insurance), among others.
- Agricultural innovations for many farm women related issues, such as water, energy requirements, transport etc. need to be addressed. Such innovations though simple may find global markets especially if made more efficient through blending with modern science.
- The proliferation of Free Trade Agreements (FTAs) is a reality where the main beneficiaries at the moment are processors and agribusiness houses. Small farmers have yet to benefit from them.
- The trend towards market concentration in few big cities, i.e. super markets, hyper market chains, must be managed in such a way so as not to compromise farmers' ability to participate and compete.

SESSION II: BEST PRACTICES OF AGRICULTURAL INNOVATIONS (FARMERS, INSTITUTIONS AND ENTREPRENEURS)

Chairperson: *Dr. William Dar, ICRISAT*
Co-chairperson: *Mr. K.P. Singh, IFAP-Asia*
Rapporteur : *Mr. P.K. Saha, APAARI*

In his introductory comments, Dr. William Dar, introduced the topic recognizing the importance of the field experiences to be presented and encouraged the NARS leaders to follow-up issues raised by the stakeholders in the previous session, synthesize the lessons and articulate the minimum parameters to help farmers access the markets. There were five cases of innovations from four countries, namely, Thailand, India, Philippines and Indonesia, which were presented by the farmers, entrepreneurs and research institutions.

Mr. Phongsak Thamrongratanasilp, Farmer leader and Secretary of Thailand Nature Farming Association, Sa Kaeo Province, Thailand made his presentation tracing the success story of organic farming of Asparagus which began in two villages in 2000 (38 acres) has and later expanded to 12 villages (526 acres) in 2006. This was a classic example of how farmers could get linked to the markets through contract farming by grouping them together and providing the technology, skills and access to markets (including export markets). The farmers' group followed the principles of good quality, required quantity and regular delivery, faithfulness and discipline. They also practice organic farming with good marketing leading to economic and social upliftment of the farmers and protection of environment. The group has been assisted on the technical and marketing aspects for the last six

years by Swiff Company Ltd., a private company. The company exports both white and green asparagus to Europe and Japan. Products are duly certified as organic asparagus and command premium price.

Dr. Parthasarathy Rao presented ICRISAT's experience in linking producers and processors for promoting sorghum and millet for poultry feed in Asia. He briefly discussed the role and importance of agricultural markets, the dynamics of utilization patterns of sorghum and pearl millet, promoting these crops for poultry feeds in Asia, specifically looking at innovation and supply chain and the lessons learned from this initiative. He mentioned that in recent years markets have become increasingly more and more important because there is a move away from subsistence agriculture and there is diversification towards horticulture, livestock, fisheries and other cash crops that require instant and immediate processing and marketing. There are also niche markets coming up for organic products like basmati rice, vegetables and others. For coarse cereals, alternative uses are increasing. Moreover, exports are becoming increasingly important and cost and quality imperatives under the globalized WTO regime are also gaining importance. Thus, markets are becoming a very important aspect of any agricultural development.

For the two important coarse cereals grown all over the world, sorghum and pearl millet, their utilization patterns are in a dynamic phase since these are important food and feed security crops grown in marginal areas by small and poor farmers. In recent years, there has been a decline in their food use leading to low market prices and low productivity of traditional cultivars making them somewhat unprofitable for several farmers. Their utilization patterns however are dynamic and the prospects for utilizing them for poultry and cattle feeds, alcohol industry and ethanol production are increasing in recent years. These non-food and industrial uses may be constrained by problems of small and scattered production, lack of and short supply, low productivity and poor quality to meet the requirements of the industry. There is a need, therefore, to link production and processors through some innovative supply chains.

ICRISAT initiated a case study by exploring the marketing opportunities for sorghum for poultry feed in India and enhancing the utilization of sorghum and pearl millet for poultry feed in Asia. The poultry feed sector in India is expanding at 10 per cent; there is growing demand for grain and the poultry industry is looking for alternatives. There is a need for a sure bulk quantity and quality of grain for use by the poultry feed industry. Commodity markets are regulated, mainly small holders with small marketed surplus, with proliferation of middlemen to whom farmers sell their produce at low price. Among the several innovations available in India, which include contract farming, direct marketing, cooperatives, farmers' association and forward and future markets, the ICRISAT project adopted the bulk marketing through farmers association as the best option. The project is implemented in four districts, with the following interventions: improved seeds, production technology and grading, bulking and scientific storage by the farmers. Various models of market and institutional linkage through innovative coalition approaches were implemented. In the production- supply chain model, all stakeholders play a key role as follows:

> the crop research institute provides technology to the farmers, association of groups through farmers federation, farmers' association is linked with the input dealers, credit linkage with banks, farmers pool their produce by bulking, grading and storing in a warehouse from where they negotiate sales with the poultry feed manufacturers and producers, and poultry nutritionists provide feedback on the use of sorghum through poultry federation. Both farmers and buyers mutually benefit from this process.

The ICRISAT project is also implemented in China and Thailand. It has provided the following benefits both from the production and marketing points of view: improved technology, reduced per unit cost

of production and ensured uniform quality, reduced marketing and transaction costs by compressing the marketing chain and looking for new institutions. Some of the lessons learned are:

- Bulk marketing will become even easier to implement if there are storage structures.
- Credit for farmers is important as informal credit is very expensive.
- There is a need to look for some formal or informal agreement between farmer groups and feed manufacturers though many times trust between parties count.
- More critical examination of the roles, rights and responsibilities of farmers association.
- Need to involve all the stakeholders who are part of the plow-to-the plate-chain.
- Need to specify the innovation in broad development terms rather than narrow scientific terms to articulate the identified problem that includes interests of both non-scientific and scientific stakeholders.

Dr. P.K. Joshi, NCAP discussed the role of innovative institutions in linking farmers with markets, mentioning the key emerging issues, problem of small holders, emergence of innovative institutions and conditions for up-scaling to ensure success. According to him, the key issues are the changing agrarian and marketing structures characterized by declining and fragmenting land holdings and market consolidation through retail chains and supermarkets. Farmer's income is declining and production environment is deteriorating, policy environment is not conducive for investment and consumption patterns are changing. Potential demand for high-value commodities is increasing tremendously, particularly in Europe, the Middle East and the U.S.A. The share of high-value commodities (HVCs) in the exports has increased from less than 20 per cent in 1990-1991 to more than 33 per cent in 2003-2004. While the HVCs are perishable in nature and labor intensive, they suit the needs of small holders in terms of high yield, quick returns, sustainability of income and availability of human labor. However, they have marketing problems associated with the perishable nature and low volume of marketable surplus, poor post-harvest infrastructure and lack of access to information on food safety issues.

In India, there is an emergence of innovative institutions through public and private sector initiatives. Examples are contract farming, dairy cooperatives, financial institutions such as Robo Bank, retail chains such as Foodworld and agri-input services, among others. Smallholders are attracted to these innovative institutions because of higher profit, access to better technology and improved marketing efficiency. However, there are problems associated, for instance in contract farming, namely, (1) breach of contract either by the farmer or the firm, (2) low bargaining power of smallholders, (3) asset specialization that restricts change in production portfolio and (4) dependency on the firm in the long-run may create monopsony so that the firm may dictate the prices and distribution of inputs. The conditions for success require that retail chains, agro-processing, export and brand name be promoted all together. For up-scaling, the following are recommended:

- Better incentives such as favorable agri-business environment so that the private sector will participate in linking farmers to both the domestic and global markets
- Strengthen institutions through market-oriented land reform, support for R&D in the areas of biotechnology, post-harvest and processing and establishment of strong financial/ insurance institutions; and
- Improvement of infrastructure such as ICT, roads and electrification.

Dr. Joshi finally concluded that innovative institutions will bring the next green revolution in India and benefit the smallholders.

Dr. Justino R. Arboleda, President, Coco Technologies Corporation and Juboken Enterprises, Philippines, a very enterprising and multi-awarded entrepreneur, shared the success of his companies for developing innovative environment-friendly coco technologies. Dr. Arboleda recounted his beginnings in the early 80s as a researcher of a small agricultural university in a coconut producing and poorest region of the country. Through hard work, passion, patience, determination and resourcefulness, he was able to get marketing assistance through the Department of Trade and Industry and policy support from the government through a Memorandum Circular No. 25 in 2003 issued by the Office of the President of the Philippines requiring the Department of Public Works and Highways and all government agencies to use coconut fiber nets and materials for erosion control. With funding support from various donors such as IDRC, Ford Foundation, GTZ and the Philippine Department of Science and Technology, he was able to diversify his products developed in his own university. He was able to commercialize his coco technologies abroad with the assistance of the trade attaché. To date his companies are helping more than 3,000 farmers earn money through processing of coconut fibers in their households and introduced bio-engineering construction in the Philippines and South East Asia, using coconut fiber materials.

Dr. Arboleda developed geo-textiles made of coconut fibers as an alternative to plastic and jute nets for erosion control. The production scheme not only utilized the coconut husk wastes but also involved the farmers, especially the women. In a survey supported by the Ford Foundation, the technology has made a great impact on the economic and social upliftment of the rural poor in that area, as well as on the environment. Specifically, the survey highlighted the following impact:

1. Farmer-households generally earn from US$ 2 to US$ 4 a day from making nets at the comfort of their houses every day if they work at least eight hrs a day. About 48 per cent of the households surveyed do this work on a full time basis and earn more than US$ 50 a month, and 52 per cent earn less than US$ 50 per month from doing this work on a part time basis.
2. 86 per cent of the people involved in twine and net making are women and old people. It has been proven that the money earned by women generally goes to food, clothing and farm or household investments. Earnings made by men also go to gambling, wine and other vices.
3. The velocity of money in the poor households is very high. US$ 5,000 money paid to a village for labor for twinning rotates in the area and the town itself at least five times before it leaves the area.
4. One small factory eliminates about 3,000 kilos or 9,000 coconut husks per day. The project not only helps in getting rid of the waste, but it reduces the amount of carbon dioxide emitted to the air by the burning of the coconut husks as wastes.
5. The coco nets are used to rehabilitate the environment in many areas in the Philippines and other countries such as Sri Lanka, India, Japan, Malaysia, Germany and China.

Currently, Dr. Arboleda has entered into research partnership with the University of Wageningen and China Ganzu Desert Research Institute. To date, many awards were received by Dr. Arboleda and his companies for pioneering on the use of coconut coir for geo-textile nets which are installed on eroded slopes and other degraded landscapes to arrest soil runoff and promote regreening by protecting

vegetative shoots. Geo-textles are made of coconut coir which degrades naturally at a rate allowing for the greening of the ground by plants. Other similar organic materials degrade too fast. The geo-textiles are products from the otherwise environmentally harmful farm wastes amounting to six billion kilos of coconut husks that constitute the bulk of the country's farm wastes. The awards received by Dr. Arboleda and his companies are: the Golden Shell Award in 2003, the World Challenge Award in 2005, the Nature's Wisdom Award and the Global 100 Eco-Tech Award in World Expo 2005.

The case of Dr. Arboleda is a good testimony that:

- There are many items existing in poverty-stricken areas which can be developed as manufactured goods which are acceptable in the world market. These are cheap raw materials which have competitive advantage in the global market.
- The general competence of farmers is production. However, they can be trained easily for skills in secondary processing.
- Existing government research institutions or universities can be strengthened to provide the necessary technologies needed to develop local products for the global market.
- Private marketing or manufacturing entrepreneurs are needed to provide the farmers the necessary capital and marketing expertise to reach the global market. Governments should provide assistance and incentives to these companies.
- The government machinery involving huge resources can be used to assist this system of linking farmers to the market without additional funds. Only proper coordination and leadership is needed.

Mr. Agusdin Pulungan, Coordinator, Asian Farmers Regional Network (ASFARNET), Indonesia presented the best LFM practices in Indonesia. He mentioned that Indonesian farmers are generally small farmers with no permanent income, a few own the land but majority are either landless, provider of labor or sharecropper and generally have no access to resources. They are faced with the challenges of globalization, such as the mushrooming of supermarket chains, compliance to food safety standards, changing consumer demands and lack of government support to protect domestic farmers.

Market access could be assured through a number of mechanisms, namely: enterprise linkage facilitation, fair trade, regulation of retail market, value-addition and processing, niche marketing and improvement of local market facilities for distribution. There is a need to increase competitiveness of small farmers through capacity building, i.e. improving their management and other skills and strengthening linkage with agribusiness by ensuring their participation in the agri-industry and super/hyper market system.

Mr. Pulungan elaborated on the two-year Horticultural Partnership Support Program Project (HPSP) supported by the European Community and the Netherlands Embassy. The HPSP is a market access initiative which aims to link small farmers with partners (private sector/NGO) so they can work together to access valuable market and develop better farming technology. The HPSP is designed to support the development of the horticulture sector at primary (farmers') level in Indonesia, which means the growing of vegetables by preferably small Indonesian farmers. The overall objective is to improve the income situation of farmers by improving quality, quantity and prices of their produce and a better access to distribution channels and retailers in the national and regional international market.

The project focuses on the following:

- Supporting already existing initiatives of private enterprises/NGO co-operating with small farmers and could, in the long-run, also foster the initiation of new partnerships
- Formalizing such partnerships with joint problem identification, development of an action plan, indication of mutual responsibilities and obligations and contributions in cash and in kind
- Improved access to financing, technical expertise, training and other services that contribute to the strengthening and expansion of the partnership
- Strengthening of training of and extension for farmers, including demonstrations of new technology/improved practices, to assist farmers in the timely supply of good quality produce, lowering cost price, improving post-harvest management and awareness raising on food safety and environmental standards
- Adaptive research in testing technology through validation trials; and
- Fostering and strengthening of farmer organizations.

HPSP offers the following facilities and services to small farmers:

- Formation of farmers' cooperatives and support in organizational structure and basic facilities
- Classroom training of farmers on topics like farming practices, post-harvest handling, co-operation and joint negotiating with buyers
- Field training and guidance on farming practices
- Testing of new technologies or improved practices in testing facilities and/or farmers' fields
- Preparation of requests for financing of new facilities to improve farming practices, quality, environment, irrigation, fertilizing, harvesting, post-harvest handling.

In conclusion, Mr. Pulungan emphasized that to ensure successful partnership between farmers and private sector/NGO, the following criteria are applied:

> partnership quality, nature of farming (organic or non-organic), market commitment, technology, market access, access to inputs, environmental sensitivity, women involvement, impact to stakeholders, and expected impact on farmer's income.

General Discussion and Synthesis

The participants appreciated the very comprehensive and informative presentation of the cases from different countries. Some comments, clarifications and insights were shared, such as:

- The need to link the farmers in the whole value chain is duly recognized. However, there is a need to fully examine how far we want the farmers to be involved stage in the value-chain. Through partnership, farmers could be given a higher share at each stage in the value-chain and they need not be involved in every stage. They should, however, benefit from any improvement in the value-chain through higher prices, better technology, reduced cost so that producer's share in consumer's price increases, increased profitability,

market access and risk management, among others. The challenge though is how to ensure that the farmers greatly benefit from what is added along the value-chain, and these benefits need to be quantified.

- Institutional innovations, particularly contract farming is becoming popular in India and elsewhere. Contract farming arrangement operates on the basis of mutual trust and often oral agreement, whereby farmers are not protected should cases of dispute arise. Governments, therefore, have a role to put legislation in place, lay down the rules and procedures and monitor enforcement.
- There are many items existing in poverty-stricken areas which can be developed as manufactured goods acceptable in the world market. These are cheap raw materials which have competitive advantage in the global market. Turning wastes into environment-friendly technologies such as the case of Philippine geo-textiles from the six billion kilos of potentially environmentally harmful coconut husks that constitute the bulk of the country's farm wastes in the Philippines, could have far reaching social, economic and environmental impact. What is needed is a strong partnership among scientists, government, private sector and the community to provide the necessary push for a breakthrough in technological and institutional innovations.
- With changing consumption patterns and demand for high-value commodities, strong collaboration among farmers and the business sector should be encouraged and government should provide the necessary infrastructure and incentives so that small farmers are strongly linked to the growth markets. There is a need for farmers to organize, build their capacity and acquire new skills in processing and value-addition as well as increase their awareness regarding the importance of compliance to food safety standards and other requirements of the market, if farmers are to compete in both domestic and global markets. For instance, organic produce such as Asparagus in Thailand exported to different markets like Japan or Germany is certified by different certifying bodies in Thailand, Japan and Germany. Farmers should be aware of these requirements so that they can manage and market their produce accordingly.

The Co-chairperson of the Session Mr. P.K. Singh, IFAP-Asia, gave a synthesis of the session, offering one basic observation that farming is a way of life in developing countries such as India. According to him, farming is synonymous to society and nation building and an important component of national security and integrity. Among the issues raised during the morning session, he emphasized two critical areas, namely (a) increasing the income of small farmers by reducing costs on inputs and bringing down the price differential between what the consumer pays and what the farmers get from 3:1 to 2:1 in favor of the farmers; and (2) the role of government to ensure legislation, laying down the rules and procedures and monitoring enforcement to protect the small farmers, as well as providing incentives and infrastructure for the benefit of small farmers.

Dr. William Dar concluded the session by reiterating the important considerations in bringing farmers into the mainstream of wealth creation to reduce poverty and ensure food security, namely the 4Ps (Public-Private-People's organization – Partnership) and the 3Is (Incentives, Institutions and Infrastructure).

SESSION III: DONORS' PERSPECTIVE ON LFM

Chairperson: *Dr. Simon Hearn, ACIAR*
Co-chairperson: *Ms. Jaya Chatterji, ADB*
Rapporteur: *Dr. P.K. Joshi, NCAP*

Dr. Simon Hearn**,** ACIAR, introduced the theme, recognizing that though the differences across countries in terms of market linkages could be substantial, a lot of the principles discussed in the earlier session are pertinent to farmers in both the developed and developing countries. The degrees of differences in market linkages will vary from country to country. The challenge for donors from the point of view of partnership is to see where the common principles are and at the same time to be pragmatic about those partnerships in terms of what is really feasible in different circumstances. The sharing of experiences will give the participants an opportunity to have a common understanding of what the stakeholders wish to achieve.

Dr. Andrew Bennett, President of Syngenta Foundation made a very clear and practical exposition on the Role of Public-Private Partnership (PPP), particularly on what makes partnership work, what makes them go wrong, how risks and liabilities are managed, how rewards are shared and what the role of donors is. He based his talk on the following assumptions:

Research produces new knowledge, insights and new technologies. Society, however, wants new products, processes and options, choices, solutions, opportunities and well-being. Consumers are increasingly interested not only on products and processes but whether they are affordable, accountable and safe and support the wider goals of development and the Millenium Development Goals (MDGs). No one goes into partnership simply because they like partners. They do so because that is the only way they can achieve a common goal. He also based his talk on some of the experiences in a few public-private partnerships either as a funding party or an engaged party in the following cases: Golden rice, sorghum and millet, marker -assisted breeding, soil and water management, the application of GIS, and some IFRI studies on CGIAR experience and commercial practice.

Dr. Bennett acknowledged the many challenges faced by agriculture, not only in production and productivity but also in environmental sustainability, increased income, population pressure, more diversity and choice of foods. Farmers are faced with challenge of producing more in less land, less water, less energy and doing less environmental damage. He emphasized, however, that there are tools for coping, namely, partnership, policies, technology, increased awareness, capacity building, infrastructure, institutions and market access.

He pointed out that though partnerships are needed, the time span could be a challenge. For instance, the development of technologies such as transgenic crops takes a long time, about 6-14 years, from bench to delivery. The stages involve different partners and the resources needed could be huge. In both public and private enterprise, management of research is a key issue. Unlike in the public sector where grants last for three years, in the private sector, the project is killed if not making any progress after six months- this is called "quick fail. " The advantage of the private sector approach though is that the researcher gets double the money for the next six months if there is progress in his work after six months- this is every researcher's dream.

He explained that partnerships work because of people who trust and support each other to achieve their common goal. Partnership should be purposeful, roles and responsibilities should be clear and communication is constant among partners. There should be incentives and rewards. The

understanding of the intellectual property is equally important. When it comes to getting the product from the bench out to the field, a different partner is needed, namely, seeds men, investor and delivery system. Beyond the seeds industry, rural services are needed including the small and medium rural enterprises which are all private sector of different sizes.

In partnerships, everyone plays a different role. Complementary skills are needed to support each other, but size matter. Public sector can be very large but often an NGO is a better partner. Partnerships by and large need a bit of formality to ensure success. People need to be held accountable, responsibilities and roles to be defined and there should be clarity on how risks will be managed and shared and how benefits will be shared. Ownership of the program is important as it relates to the important issue of accountability, responsibility and incurring liabilities if things go wrong. The real test of partnership is when risk happens. In the private sector, people are increasingly worried of their liability for entering into partnership, particularly when dealing with controversial technology like transgenics. Liability takes many forms: commercial, legal and reputational. Reputational damage is something a lot of brand managers are seriously worried about. If brand gets contaminated it costs a lot of money, so stewardship is the only solution. Stewardship though should be continuous and it can not be transferred.

Dr. Bennett shared the following lessons on Public-Private Partnership:

- Partnerships do take time but they should have a time limit
- Partnerships must be purposeful so partners support each other to achieve a common goal
- Ownership must be clear for greater accountability
- Need to build trust and responsibilities
- Need time line
- Look for complementarities of partners
- Personalities matter and relationships must be built
- Serious capacity issues must be considered, i.e. small guys in a partnership should not be overshadowed and overweighed by the large ones
- Work on the basis of consensus

Donors should recognize that Public-Private Partnership is a legitimate way of doing business. Donors, however, must acknowledge that if they behave as grantee are they emphasize credit over investment? A successful credit scheme is when you had a hundred investors and 10 borrowers. A lot of donors who established credit scheme had a hundred borrowers and one investor, which will not necessarily result to a sustainable fund. Donors should recognize that apart from infrastructure, capacity is needed in negotiating skills and empowerment.

Dr. Bennett concluded by saying that partnerships are essential; they are about people wanting to work together and agreeing what they will try to achieve and they should bring complementary not duplicatory skills. However, some procedural requirements are needed to tie people down for accountability and responsibility. Partnerships can manage risks but they can not do away with it. In any partnership, vigilance, understanding and patience are desirable virtues.

Dr. Simon Hearn, ACIAR discussed ACIAR's role in LFM and its research priorities. He briefly mentioned the challenges faced by farmers worldwide and noted that the principles and practicalities

in linking farmers to markets are the same as discussed by many speakers. He reiterated that an adequate and stable supply of agricultural commodities is the keystone of food security and economic development. He recognized that in order to succeed there is a need for adequate infrastructure, post-harvest systems and ability to produce competitive products. The challenge to the farmers to progress beyond self-sufficiency requires the capacity for reliable production and profitable marketing to consumers. Rural communities (especially small, remote and resource poor communities) need capability for social adjustment and improvement of enterprise profitability. Their progress will depend on access to markets based on a flexible financial base, efficient production, processing and distribution and marketing systems. The outcome could be tremendous transformations once farmers have gained access to markets in terms of these initiatives.

ACIAR will support research to enable improved product integrity, processing and storage, quality assurance and supply chain management. Priority will be given to high-value products such as fruits, livestock, fisheries and value-adding technologies. Policy and marketing studies shall be supported to improve infrastructure, smallholder profitability and agribusiness skills. Research studies will be undertaken on capability for compliance with WTO and SPS standards. ACIAR will also support initiatives including capacity building that improve links between markets and farms, forests and fisheries.

There are six focus areas of ACIAR, namely, (1) matching products to markets, (2) maintaining product quality after harvest, (3) development of higher value forest and cash-crop products, (4) reducing wastage from rural product processing, (5) strengthening developing country quarantine and (6) institutional and agricultural policy reform.

Dr. Hearn concluded by saying that linking farmers to market is a very important area and ACIAR will continue to work on that. Moreover, research in partnership with other countries in the region can bring about mutual benefits and that partners can learn from them and adopt them accordingly.

Ms. Jaya Chatterji, presented ADB's approach in agriculture in India over the next four years. According to her, ADB's operations in India had started 3-4 years ago and many projects are still in the process of development. Many are still in the pipeline and there are not many approved and on-going activities yet. She gave some background information about agriculture in India, noting that 70 per cent of population lives in rural areas and majority of the country's estimated 260 million poor are in rural areas. Farmers include landless laborers, shifting cultivators, pastoralists, tribals, tenants and sharecroppers, fisher folks and those involved in animal husbandry. Hence there is a wide range of stakeholders which will be linked to the markets. In the past, the agricultural sector in India was driven by the public sector and had focused mostly on food-grains. However, the changing income profile and consumer preferences are opening up opportunities for agribusiness. This is further reinforced by a paradigm shift in the approach of the government itself. For example, one of the thrusts by which agriculture growth was to be achieved in the 10th five-year plan was through diversification to high value crops and activities. This approach is expected to continue in the eleventh plan.

Linking farmers to markets means connecting farmers and rural entrepreneurs to well-functioning and profitable agribusiness markets and value-added supply and marketing chains. This will involve reorganization of agri-food production, distribution and marketing processes, linking consumer markets with rural entrepreneurs and communities, building business partnerships with private sector and civil society groups, innovative application of information and communications technology, building entrepreneurial orientation of rural communities and enhancing the supply and uptake of rural finance

to enhance the effectiveness of the agri-food sector and rural economies. This indicates that linking farmers to markets involves modernization of agriculture and agri-markets and developing both forward and backward linkages of the agri-economy. ADB's understanding is, those interventions to link farmers to markets have to be all along the value-chain and also have to be addressed simultaneously. Broadly speaking, these areas will cover knowledge, infrastructure, finance and policies including markets.

Ms. Jaya concluded by saying that ADB is hoping to support a few examples of success stories where the enabling policy conditions and environment have been created and all the components along the value-chain have been addressed, with the hope of up-scaling later on. Since a large quantum of investment funds will be required, both public and private sector participation will have to be mobilized to ensure efficiency and accountability. Lastly, monitoring and regulation will be implemented to ensure level playing field. The Government has an ambitious plan to bring about far-reaching reforms in the cooperative sector. Within this year GOI expects approval of a US$ 1 billion loan from ADB for this purpose.

Mr. David Radcliffe, DFID, raised a few points arising from the keynote presentations. He acknowledged that donors are already familiar with working in partnership either with government or with other recognized authority. He emphasized though that they need to look at new approaches or models to deliver on certain shared objectives.

DFID's overriding policy goal is poverty reduction; hence it looks at LFM initiatives from this perspective. He recognized that farmers depend on a wide variety of income generating streams to survive and there are risks associated with moving towards a more commodity-driven approach. He emphasized the need to look at opportunities to develop new markets and to create pathways out of poverty, while being aware of social safety nets for those who can not embark on these pathways or who loses out for one reason or another. Given the pressures these days within the APAARI region, in general, he pointed out that the challenges are huge and competition is greater. Hence the emphasis should be in developing innovative markets and innovative products similar to the Philippines geo-textiles reported earlier and many others developed by the CGIAR centers and other institutions. He mentioned that sometimes the markets are not aware of the products being developed such as the case of ICRISAT's innovative work on biopesticides. Such innovative products and their advantages need to be promoted before the market really develops. He thought that in the future, the developing market for carbon credits will be extremely important and the agriculture sector needs to seriously look into this as a whole. He foresees that in the future, apart from the demand for bio-fuel, there might also be a market for producing crops with lower carbon emissions. He reaffirmed the need to look for opportunities along the value-chain, not only for farmers but also for the rural population as a whole.

DFID's new Strategy for Research on Sustainable Agriculture (SRSA) includes (i) enhanced support for the CGIAR centers, DFID being the leading donor for a number of CGIAR centers, (ii) a Research into Use (RIU) program which builds on DFID's ten-year renewable natural resource research strategy identifying agricultural successes that can be scaled-up more broadly through partnerships, (iii) a series of regional research programs which are being developed for Africa (advanced stage of design) and South Asia (formulation stage), and (iv) a basic research program with UK research councils. There are also large DFID country programs in the APAARI region, with India receiving the largest budget (250M pounds/year), Bangladesh, Afghanistan, Pakistan and Nepal; and slightly smaller ones in Vietnam, Cambodia and Indonesia. In the country programs, there are rural livelihood projects which can also serve as vehicle for scaling-up some of the innovations to improve income streams both in

agriculture and off-farm activities. In India for instance, there are active livelihood projects in three states which could be scaled-up later.

Mr. Radcliffe concluded by saying that donors have a key role in promoting partnerships to link farmers to markets. They have to work at the policy level to enhance the right environment, i.e. right incentive structure, to attract the private sector into partnership on agribusiness development at all scales. Donors can provide direct funding for partnership. Donors though should be open-minded and look for new ways of working with new partners, in close dialogue particularly with the governments, traditional partners and increasingly with the private sector.

General Discussion and Synthesis:

The Chairperson Dr. Hearn summarized the presentations by indicating that there are common themes, namely (1) market access is absolutely essential to development; (2) private sector is necessary along the value-chain and (3) government has a role to play and it should maximize its responsibilities and commitments for the benefit of the small farmers.

Participants expressed their points of views, shared insights and sought clarifications on some issues, as follows:

- On the issue on how far should the farmers be involved in the value-chain: The case of the farmers using the mobile phone or ICT as a way of understanding the markets was cited. Farmers are empowered when they get access to information on prices and other market requirements such as quality and quantity. Increasingly, the next generation of farmers will become small business people.
- Deal making in case of Public-Private Partnership in the medical area though not discussed is an interesting point. Up front, private sectors explicitly say what is in it for them in the partnership.
- On the role of donors: Donor institutions offer a bridge to the countries from where they come. It is important to remember that they are not just sources of funding but conduits to exercise certain influence on the policy environment back home, particularly bilateral donors (Government or NGOs). They can be the best advocates to promote market access. In the huge debate going on in the West at the moment regarding opening up the market and having fair trade, donors, particularly the bilateral ones have a big role to play in terms of listening and conveying these messages back home.
- On the issue of what donors can do back home to push the case of agriculture and agricultural research: Opinions expressed vary as support by the Agriculture Ministers vary from country to country.
- In many developing countries, financial reforms are taking place at a very fast rate and most countries are attracting foreign direct investments (FDIs). Donors could be changing their strategies to meet this new scenario and strategies. There is not enough understanding though on how FDIs bring benefits to the rural areas.
- There are serious issues for development assistance givers and how that impacts on the private sector as well as upon internal partnerships. These issues, however, are country specific. The case of donors which tended to favor providing support to civil society and NGOs over SMEs for instance, was cited. In many countries, the SMEs are the pauper

in the formula. Throwing money on SMEs may not be a very good thing, but we need to understand how policies impact on them.

- On ADB assistance for agricultural investment: ADB follows the principles of equity and sustainability, bringing in good practices to ensure that small farmers have equal space to operate as large farmers. ADB supports large number of infrastructure in agriculture for the benefit of the rural poor.

The Co-chairperson Ms. Jaya Chatterji gave a synthesis of the presentation and discussions. She pointed out that what was clear was that market access needs to be improved and that there is a very definite role for the private sector, but the Government has to come in and deregulate the whole sector. All recognized that there is a huge challenge and that partnerships should work on the basis of trust and transparency. In the PPP, there is a need to have very clear understanding of the legalities of what was agreed upon. The role of the farmers and that of the Agriculture Ministers, which they should exactly play, must be clarified. She suggested the need to document and share the best practices as case studies/success stories for replication and up-scaling.

SESSION IV: WORKING GROUP DISCUSSIONS ON LFM

There were three working groups designated to address the following important themes, namely, (1) Enabling Policy Environment, (2) Stakeholders' Partnership and (3) Up-scaling/Out-scaling of Agricultural Innovations for LFM. Each working group was requested to discuss and recommend the following:

Group I: **Enabling Policy Environment** (participants included NARS, CGIAR, FAO, IFAP, NGOs, donors, other stakeholders)

- 2-3 major recommendations for policy makers/governments to accelerate LFM
- 2-3 critical policy issues for retooling the NARS to address LFM
- 2-3 major roles expected of/recommended to GFAR, APAARI, IFPRI-ISNAR, FAO, other organizations and the NARS to address issues relating to LFM
- 2-3 next steps by CSOs and private sector groups to move forward

Group II: **Stakeholders' Partnership Building** (participants were all stakeholder groups including the youth, NGOs, FOs, private sector, donors)

- 2-3 critical recommendations essential for partnership building for LFM
- 2-3 recommended specific LFM areas for inter-regional collaboration (such as LFM Regional Network, Knowledge Network for Livestock, PROLINNOVA, etc.), and potential key partners
- 2-3 recommended next steps to move forward LFM inter-regional collaboration (such as GPP)

Group III: **Up-scaling/Out-scaling of Agricultural Innovations for LFM** (participants included all stakeholder groups including the youth, NGOs, FOs, private sector, donors)

- 2-3 critical recommendations for up-scaling innovations for LFM

- 2-3 major recommendations for out-scaling innovations relating to LFM
- 2-3 specific innovation areas for LFM to be up-scaled/out-scaled (within the Asia-Pacific region) – example: technology related (ICT, biotechnology, post harvest etc.)
- 2-3 important next steps to move forward for impact

Group I: Enabling Policy Environment

Chairperson: *Dr. Ashok Gulati, IFPRI*
Co-chairperson: *Dr. Teodoro Solsoloy, BAR*
Rapporteur: *Dr. R.D. Ghodake, NARI*

The Co-chairperson, Dr. Teodoro Solsoloy, BAR, Philippines, introduced the topic, emphasizing that a country needs to promote innovations by creating an enabling policy environment which can be characterized by the opportunities, the linking systems, specific technical support services and creative financial mechanisms, among others. The government is the key player in creating a favorable investment climate needed.

The discussant Dr. Wilberforce Kisamba-Murgewa, ISNAR-IFPRI emphasized the need for change and policy orientation and agricultural investment. He briefly mentioned the evolution in National Agricultural Research Systems (NARS) of which the farmer is a part. He explained the framework for agricultural research for development, agricultural innovation system (AIS), value-chain and enabling environment and some policy Implications.

Dr. Mugerwa pointed out that there is an on-going transformation in ARD, especially in Asia where research has done some impact by increasing production through the green revolution. In many countries, the challenge to the NARS is to contribute to poverty reduction. Public funding of research has declined worldwide, particularly in many developing countries, way below the World Bank recommendation of 2 per cent of the Agricultural GDP. Brain drain is a growing reality in the farming and science community with the increase in the aging population of both researchers and farmers. The need for impact orientation is acknowledged and required by many donors. Meaningful partnership with the private sector and other stakeholders offers cost-effective opportunities for realizing common goals, such as enhancing farmers' competitiveness for food security and enhanced income.

The purpose for the NARS has evolved from merely planning for agricultural research, technology development and transfer, to one that calls for innovation throughout the production and marketing system, also known as the agricultural innovation system (AIS). In the AIS, there are now more and diverse stakeholders and high degree of market integration to consider. Outcomes are not merely technologies but a combination of technological and institutional innovations throughout the production, marketing, policy and enterprise domains. Policies are needed to provide an enabling environment, namely:

- Policies related to NARS internal efficiency
- Policies related to attitudinal and cultural changes at all levels (changes in mind set)
- National policies on IPR, biotechnology, bio-safety
- Standards and quality improvement and sustainability
- Trade and market Infrastructures (communication, storage)

- Producer organizations and collective action
- Regional approach and information sharing

Following were some of the key points, concerns and observations raised, experiences and insights shared during the group discussion:

- Small holders in Asia or Africa are not very inefficient. They are perhaps as efficient as the big holders if they have access to modern inputs. What needs to be done is to create a scale at the level at which they are producing so that aggregation of the small surpluses is economically viable to transport, process or market. The role of the different players in the value-chain needs to be clarified and the bottlenecks identified.
- While many policies are in place in the number of developing countries, many need to be reviewed and refined. For instance on the farmers' organizations and contract farming in India, the legal aspects on the rules of decision-making, dispute settlements and others are oftentimes not very clear which make it difficult for these groups to deliver. There is also a need for some recognition based on certain norms by other stakeholders like credit or input institutions, processing industry and others. There has to be a policy that these organizations can be registered much simpler than the existing cumbersome process. Legislative reforms are, therefore, needed consistent with the new situation.
- On cooperatives: It was cited that a successful model of cooperative in the Asia-Pacific region is Vietnam, where 10 years ago cooperatives were discredited as they had not been successful. In the last few years, the government has changed its laws and introduced a system with new rules. The government is now giving incentives to farmers to create new cooperatives. These incentives include credit, free training from national extension services and better protection of property rights, among others. What is new in the system is that the legislative system recognizes cooperatives as companies, i.e. as producer companies. As cooperatives they are on a higher standard than as groups and it is easier for them to get loans from banks. When farmers group themselves to form cooperatives, they are given legal entitlements which allow them to issue VAT papers, meaning they can actually sell to supermarkets and processors who want VAT tax/invoice. The government though does not give capital to the cooperatives; the farmer groups are the ones who organize all the assets with possible loans from the banks.
- On competitiveness of small farmers compared with bigger ones: It was explained that specificity has a role to play for small farmers. If a small farmers' group has product which is specific because it comes from the small farmers group, maybe there are consumers who will want to buy that rather than something cheaper coming from a bigger organization. There is the whole issue of fair trade or farmers' brand or farmers' market, such that some people are willing to pay more because they know where the product comes from and who produced it. These product attributes need to be known by the consumers in order to ensure their willingness to pay more. Hence, small farmers could also be competitive because they do have specific characteristics that others don't.
- On WTO issues: It was suggested that Brazil, Argentina, India, Thailand are already quite competitive in agricultural markets, and when the whole trade is liberalized, they will be the net gainers. On the other hand, studies by OECD have shown that Africa, Caribbean and Pacific countries will be the net losers if there is trade liberalization, since current OECD policies are favorable only for some products and for some countries.

- On vertical industry organization: It was mentioned that in India there are organizations at producer, processor, distribution and consumer levels. In France and in countries which have been influenced by France, there often is strong vertical organization which exists throughout the industry and which are actually fora for discussion between producers, distributors, agro-processors and government throughout an industry. Such fora are successful in resolving industry matters. FAO is working on a global survey on these kinds of institutions.
- NARS and international research institutions should document the success stories on LFM and share them with others. FAO currently is gathering information on LFM private sector-led initiatives. Such an inventory of success stories should show how private sector has managed to link farmers with markets, whether the farmers themselves or small traders who are linking with farmers, or agro-industry linking with farmers and how these have benefited both partners. FAO can also contribute to disseminate such information.
- IFPRI is very much in the business of gathering case studies on private sector-led initiatives. Last year, eight studies covering India, China, Indonesia, Vietnam and Thailand were conducted. However, IFPRI is yet to offer any answer on what works and what doesn't. While there are success stories to share, their scalability can not be ascertained because of different circumstances.
- The NARS have now to reorganize themselves and play a dual role to ensure that farmers have food security and can respond to the market. They have to be more cost-effective as governments can not fund research on a sustainable basis. Other innovative ways of financing research through levies, foundations, private sector, etc. should also be explored.
- There is a need to attract the young generation in agriculture and consider farming both as a business and a profession. In this context, the course curricula will have to be modified accordingly.

The Chairperson of the session summarized the discussions, recognizing that smallholders can not compete on their own. Different stakeholders have a role to play to make them competitive by raising their productivity. Government should provide the enabling environment in terms of increase in R&D investment and effective extension services. Partnership with private sector, marketing organizations and processors should be encouraged. NARS and other international research institutions could take up a number of case studies which can be up-scaled. The challenge is to generate a farm model tailored to a local situation in order to succeed in up-scaling under similar situations.

The final recommendations of Group I are outlined in the **Plenary Session**.

Group II: Stakeholders' Partnership Building

Chairperson: *Dr. M. Tusneem, PARC*
Co-chairperson: *Mr. Raul Montemayor, IFAP*
Rapporteur: *Dr. Betty del Rosario, APAARI*

The Chairperson Dr. M. Tusneem, PARC introduced the session emphasizing the need to appreciate the fundamentals of partnership which will be presented by Dr. Ola Smith, GFAR and some of the experiences on the ground to be presented by Mr. Or Thy, CEDAC.

Dr. Ola Smith mentioned that GFAR aims to provide a space for various stakeholders to work on agricultural problems they have collectively identified, particularly in the areas of food security, alleviation of poverty and natural resource management. The GPP was conceptualized when GFAR was founded in 1996. GFAR recognizes that partnership is an alliance among individuals or groups working together to achieve a common goal. A GPP is a tool used to carry out many of the programs in GFAR. In the most recent review of GFAR, the GPP is given a new definition- a collaborative effort addressing strategic ARD issues of global relevance. While inclusiveness is a crucial part of partnership, not all stakeholders are expected to participate. Only strategic alliances are important, especially with those who are committed and are willing to contribute to the partnership.

The on-going GPP portfolio includes the following: PROMUSA focuses on banana; PROLINNOVA focuses on participatory innovation; Direct Sowing, Mulch-based System Conservation Agriculture (DMC) aims to strengthen capacity of stakeholders to develop that particular conservation system which minimizes environmental degradation; and the one on Underutilized crops looks at the neglected species for food security. The newest GPP in the pipeline is on linking farmers to markets (LFM).

GFAR adopts the following guiding principles for GPP, namely:

(1) complementarity or building on what is already known; (2) additionality; (3) involvement of diverse stakeholders and strategic alliances; and (4) subsidiarity which means that GPP should be developed at most appropriate level to get desired results.

Partnership takes time. However there are success factors that we should be careful about such as:

- long-term commitment of partners based on shared vision
- clarity of roles and expected benefits
- complementarity in skills and resources
- effective coordination with financial support
- effective communication for sharing information among partners
- flexibility
- capacity building
- consultative decision-making
- shared governance
- a champion and lead institution

Mr. Or Thy, PROLINNOVA-Cambodia, introduced PROLINNOVA in general and shared the experience of Cambodia country program. PROLINNOVA is an NGO-led GPP which was conceptualized in 1999 and finally took off in 2003, initially in three countries: Uganda, Ethiopia and Ghana. Today there are nine countries, two of which are in Asia, namely, Cambodia and Nepal. Its overall objective is to strengthen and institutionalize methodologies and partnerships that promote processes of local innovation in environmentally-sound use of natural resources. It focuses not only on research but also on processes, partnerships and institutional arrangements. Partnerships are at different levels: (1) At the local level, the key partners are *ARD* individuals/organizations which focus on implementation of Participatory Innovation Development (PID); (2) At the national/sub-national level, key ARD organizations focus on governing PROLINNOVA in country and jointly implementing PID in country

(working group); (3) At the international level, international support group (IST) and donors focus on learning and exchange and governance.

Some of the PROLINNOVA partnership development achievements internationally are:

- Ownership and commitment at country partner level
- New PROLINNOVA Oversight Group (POG) which is southern dominated, taking responsibility for setting policies and guiding the program
- Fund raising and use of own resources by partners internationally and in each country. Burden for fund raising is gradually shared
- Learning, exchange of experiences, mutual support through annual meetings, Yahoo discussion group, web site, backstopping visits (IST), country to country mentoring, and participation in international meetings.

Some of the partnership building challenges are:

- Strengthening South-South learning
- Resources for partnership facilitation and management always extremely limited (but there are some supportive donors that support key events on *ad hoc* basis)
- Limited number of intervention options in case of slow progress in countries or partners
- Handling M&E in partnership mode: Joint ownership of M&E for learning versus enforcing requirement of donors
- There is no single recognizable technical research focus or expected outcome
- Mechanisms of regular international ARD donors do not allow funding through NGOs
- Limited time for focused fund raising
- Increasing management complexity through multi-donors, i.e. different partners acting as conduit of resources, various reporting formats

PROLINNOVA – Cambodia started in 2004 with three members led by CEDAC. Today, there are 20 members: NGOs (4), local governments (9), government departments (2), educational institutions (3), and farmer institutions (2). It is governed by a National Steering Committee. Its activities include capacity building in PID and PTD for development practitioners, researchers and farmers, documentation of farmers' experiences, joint experimentation on local innovation and indigenous knowledge, sharing of experiences through annual workshops and field visits. Based on CEDAC's experience, a multi-stakeholder process can be further strengthened through: (1) identifying the champion in the institution who will play a key role; (2) team work and empowering the team; (3) accountability and transparency in management and finance; and (4) participatory planning, monitoring and backstopping at national and field levels; (5) capacity building of all partners; (6) proactive fund raising; and (7) effective communication and information exchange.

Mr. Or Thy concluded by recognizing the important challenges faced by the country program, namely:

- To build and institutionalize a national-level learning platform for promoting local innovation
- Develop PID/PTD curriculum for the universities

Following are some of the key discussion points shared by the participants:

- Within the Asian context, participants recognized that partnership have always been built on trust. However, there is a need to protect the farmers through some kind of contract or formality which will bind the partners should disputes arise in the future. It could be a legal framework that will be binding or it could be contractual which will be respected by both parties. In new partnerships, some preferred rather simpler instruments such as Memorandum of Understanding. In public-private partnership, private sector would prefer more formal and legal instruments related to IPR and confidentiality agreement, code of conduct and some form of transparency process, among others.
- Public sector research orientation towards right product in the market, or product development and multiplication is very weak. Private sector on the other hand has everything under one umbrella and has proven record in research, product development, product multiplication, marketing and LFM. NARS, in general, have no mechanism to commercialize varieties developed from public funding. There must be a mechanism so that NARS could enter into contract with the private sector guided by appropriate IPR policy.
- One interesting aspect of partnership is sustainability. Some are self-sustaining as a result of the partners themselves meeting fully the costs of working together. Others like GFAR and most networks depend on external funding to keep the processes of coordination and dialogue going. Some regional fora are collecting membership fees to support coordination efforts or the building of partnerships but the implementation of the partnership activities are externally funded. To date, we have yet to see a truly self-sustaining organization from the point of view of funding.
- In PROLINNOVA, sustainability is shown by sharing among partners the burden of funding and fund raising for specific activities even at the farmers' level. In Cambodia, for instance, the technology of rice intensification was promoted and now integrated in the national development plan for government support. Farmers network were capacitated to raise their own funds and work on their priority areas.
- While inclusiveness is a critical factor, not everyone could be a committed partner. Partners should be tolerant and flexible enough that some partners will back out from the partnership. The case of developing partnership in marketing quality food grains by small farmers in the Philippines illustrated the need to start small before scaling-up. This marketing project did not take off at the start when too many interested farmers failed to meet the requirement for quality rice. When participation was limited to only five committed small groups, the project succeeded and expanded to accommodate the weaker and smaller groups.
- In participatory value-chains, partners are involved in the design and successful implementation of options mutually agreed upon by them. However, there is a role for some institutions having market-oriented extension services or market development service providers, which help facilitate the linkages required to establish relationship among key players. Sometimes, the private sectors do that if they see that they become champion of that particular value-chain. But before that happens, an external facilitator such as public extension services is needed to facilitate and provide additional service to support the farmers. As the farmer organizations become stronger they too can start to play that

role. There is a need to retool both public and private extension services to be able to effectively facilitate market linkages.

- As recommended by the Asia-Pacific *ad hoc* working group on LFM, inter-regional collaboration may be in the following areas:

  policy and institutions, information sharing, capacity building, understanding markets and value-chain analysis**.** There is a need to look at lessons learned form different legislative initiatives in each country and translating them into proposals on policy reforms and legislation. There is a need for capacity building including awareness on SPS, good agricultural practices (GAP) and food safety regulations so farmers can cope and compete. There is a need to identify and share best practices in other areas such as bio-fuels.

The Chairperson concluded by emphasizing that though there are different types of multi-stakeholder partnerships, the fundamentals are the same such as: (a) common goals and objectives; (b) equitable distribution of responsibilities; (c) information, cost and benefits; (d) building of trusts; and (e) additional investment in resources and time. He pointed out that the do's and dont's in partnership building, as discussed, earlier should be applied as appropriate. He acknowledged that there are bottlenecks and limits to partnership and it is better to start small with committed partners and let it evolve over time. Retooling of both public and private extension services will be needed to facilitate market linkages. Best practices should be documented and shared by APAARI. APAARI should conduct an expert consultation on partnership for LFM and identify a champion to drive the process forward.

The specific recommendations as refined are outlined in the **Plenary Session**.

Group III: Up-scaling/Out-scaling of Agricultural Innovations for LFM

Chairperson: *Dr. Jafar Khalghani, AREO*
Co-chairperson: *Dr. Mohammad Al-Attar, ICBA*
Rapporteur: *Dr. C.L.L. Gowda, ICRISAT*

The discussant Dr. N.G. Hegde, BAIF Development Research Foundation, shared BAIF's experience in up-scaling/out-scaling. BAIF is a Public Charitable Trust Research Institution. Its mission is *"to create opportunities of gainful self-employment for the rural families, especially disadvantaged sections, ensuring sustainable livelihood, enriched environment, improved quality of life and good human values."* This mission is being achieved through development, research, effective use of local resources, extension of appropriate technologies and upgrading of skills and capabilities with community participation. BAIF programs benefits 2.25 million families and 40,000 villages in 12 states of India. It uses the following approach to sustainable agriculture, namely:

(1) Self-help groups (SGHs) of homogeneous socio-economic status, (2) identification of needs and opportunities, (3) capacity building and mentoring, (4) resource mobilization, (5) establishment of common facilities and services, (5) market linkages, and (6) direct interaction with consumers. BAIF has a record of success in (1) livestock development specifically on cross-breds which benefited many landless rural women, (2) orchards on dry lands for tribal rehabilitation, (3) agri-horti-forestry on hilly terrains, and (4) conservation of nature with poverty alleviation. In all these programs, BAIF's approach is to start with the farmer himself and later with the community.

Based on the BAIF's successful interventions, the following are the critical inputs for out-scaling production by small farmers:

- Capacity building: awareness raising, proper motivation, women empowerment through health care, development of self-help groups, and one-on- one-training
- Production and supply of inputs: seeds and planting materials, organic nutrients and plant protection inputs, agro-chemicals, equipment and machinery, storage facilities, crop insurance and finance and credit
- Post-production support and marketing: information on demand/supply, commodity prices, harvesting and storage facilities, processing and value-addition, linkages with wholesalers/ bulk consumers, direct marketing, and interaction with consumers.

Dr. Hegde concluded by emphasizing that out-scaling agricultural production by small farmers can ensure production by masses, social justice, food security, biodiversity and prosperity.

Following were the concerns and issues shared by the participants:

- On increasing competitiveness of farmers: As each market is different, farmers need to understand the system and plan his production and marketing strategy accordingly. They should organize to reduce transaction costs (transport cost, etc.). Compliance to marketing standards is important. Consumers and farmers need to agree on standards and research institutions should help in developing them and in capacity building.
- On enhancing linkage to markets: There are good examples which can be adopted such as SHGs with provision of micro-credit, formation of farmers club at the village level, networking of farmers club through ICT so that they get access to agricultural information and market, more participation by other stakeholders such as the private sector and processors and facilitation by NGO, more market integration, technical and input services, value-addition and processing, removing restrictions to get access to markets and infrastructure development.
- Among Asian countries, inter-regional trade could be developed: The challenge is how to make a breakthrough so that we can produce and sell to our neighboring countries in the region. The sporadic successes in the region need to be documented and shared.
- The case of organic products demanded by the world market was cited where government intervention in terms of incentives, market linkaging and investments are necessary for farmers to be able to compete.
- Specific innovation areas for up-scaling/out-scaling may include technologies which are already tested and found successful elsewhere, such as quality seeds and precision agriculture, common service facilitation centers such as storage, processing, bulking and farmers outlets (India's Safal model) for direct marketing**,** village level centers or *e-Choupal*, which can benefit others.
- The DFID-funded Research Into Use program (RIU) was cited for the case of up-scaling (vertical-institutions and policy) and out-scaling (horizontal-wider spread nationally and regionally) agricultural innovations. It will concentrate on capacity strengthening to improve stakeholder participation and ownership in the agricultural innovation system (AIS). It will also broker communication and information markets; examine policies and partnerships for harmonization of initiatives; facilitate innovation platforms to stimulate

the uptake of technologies, policies and processes and emphasize monitoring and learning to assess what has been achieved and share lessons more widely.

- On addressing the problem of the youth: There is a need to modify the school curricula or change the educational system to encourage the youth to consider farming as a business and a profession. The cases of China and Iran were cited where the youth are trained to be entrepreneurs, or marketing experts. Young agriculture graduates must be given the opportunity to work in a farming or private sector environment so that they learn the rudiments of the agri-industry.

The Co-chairperson Dr. Mohammad Al-Attar, ICBA, concluded the discussions by reiterating that the available information and knowledge on specific innovations should be documented and disseminated to the small farmers so they can apply them under their own circumstances. Government should provide favorable policy environment, training and capacity building for farmers and other stakeholders in the entire agricultural innovation system. Investment by both the government and private sector will also be needed.

The specific recommendations were discussed and refined as outlined in **Plenary Session**.

SESSION V: THE ROLE OF EMERGING TECHNOLOGIES (Biotechnology, ICT, Post-harvest Technology) in LFM

Chairperson: *Dr. Mahmoud Solh, ICARDA*
Co-chairperson: *Dr. Masa Iwanaga, CIMMYT*
Rapporteur : *Dr. J.L. Karihaloo, APCoAB*

The Session Chairperson Dr. Mahmoud Solh, ICARDA, introduced the topic pointing out that linking farmers to market is just a means, not an end by itself in order to improve the income and the livelihood of the resource poor farmers. Farmers need to be empowered with various types of technologies so that they can be competitive and efficient in making use of the options to achieve their goals. There is a wide range of technological innovations that should be made available to them, namely ICT, business management and biotechnologies, among various others.

Dr. J.L. Karihaloo, APCoAB presented the impacts of agricultural biotechnology on the production systems and the marketing options of the farmers. From the production point of view, there are three types of agricultural biotechnologies that have impacted on the farmers' life, namely (1) tissue culture propagated planting materials, (2) improved varieties that have been developed through marker-aided selection which are now available in the markets and (3) improved varieties which are developed through genetic engineering.

Tissue culture has resulted in production of uniform, high quality disease-free planting materials, i.e. tuber crops, fruits, forest trees and ornamentals, which are now widely commercialized. No bio-safety issues are involved in this technology. The issues faced by farmers when adopting tissue culture technology include: (1) the need to ensure good quality and uniformity of planting materials by standardizing mass propagation techniques in many crops to be able to benefit the farmers without any loss, (2) technology transfer package that includes field management and integrated pest management to safeguard the health of the plantlets and (3) provision of credit to farmers. Marker-aided selection (MAS) is a highly efficient technology for transfer of complex traits, like biotic resistance and yield from related crop species. This technology cuts breeding efforts by 60 per cent and the products are safe and acceptable as conventionally-bred varieties.

Introduction of genes through recombinant DNA technology has made possible the development of crop varieties with new and desirable traits otherwise not possible through conventional breeding. There are bio-safety and ethical issues involved in the GM technology which impact our options, large scale cultivation and trade in GM crops. GM technology, however, has been adopted widely in nearly 90 million hectares worldwide during the last 10 years (1996-2005). There is currently faster adoption of GM technology in the developing countries than in the industrialized countries. In Asia-Pacific, several countries like China, India, Australia, Philippines and Iran have adopted the GM technology mostly for disease résistance purposes. Farmers are growing Bt cotton in China, India and Australia, Bt maize in India and Philippines and Bt rice in Iran. The impacts of these GM technologies include reduced risks associated with pest and diseases and higher yields and higher income. Studies on Bt cotton in India showed that there may not be that much reduction in cost of cultivation because of the high seed cost, but the incomes are increased because of higher yields associated with pest resistance. Despite the high cost of seeds, seed availability is a problem because of much higher demand for seeds. Cases of "spurious seeds" of Bt cotton in the market exist, about one third in India, which need to be regulated. Also mostly the farmers are saving seeds for next planting but the yield performance is not the same due to segregation. Farmers need to be given correct information and advise while growing GM crops. For instance, farmers need to know that for each transgenic crop field about 10 per cent of the area along the border must be left for the refuge crop. They need to know that the crops are resistant to particular but not all pests and diseases. There are potential marketing risks associated with GM crops. In some countries, the genetically modified material may need to be segregated from the conventionally raised material, hence may incur additional cost. Some countries may accept GM crops, some do not. Consumer preferences for non-GM crops will determine the price the farmers get from his GM products. National and regional policies on cultivation and trans-boundary movement of GM crops may also put the farmers at some risk.

Dr. Karihaloo emphasized the need to have following policies so that farmers reap full benefits from the biotechnology revolution:

- Maintain and strengthen public research and educational system
- Encourage private sector participation in basic and strategic research
- Maintain and strengthen an extension system that delivers biotechnology information and products to all potential users
- Develop a regulatory system that adequately protects the interest of public and provides clear guidelines to the industry
- Assist developing nations and establish mechanisms to foster broad-based understanding of social and ethical aspects.

In conclusion, Dr. Karihaloo mentioned that APAARI through one of its major programs, APCoAB being a neutral forum, aims to address these research, policy and capacity building issues on agricultural biotechnology in the region.

Dr. Sahdev Singh, AIT, discussed the issues involved in empowering farmers with the new ICT tools, both modern and traditional and the progress made through the Asia-Pacific Agricultural Research Information System (APARIS). Dr. Sahdev pointed out that the farmer should be considered an entrepreneur who needs important agriculture-related information, i.e. technology, weather, prices, markets, etc, for sound decision-making. Information dissemination in agriculture, however, is faced with issues such as: (1) declining support for technology transfer, (2) ineffectiveness of the traditional

extension system, and (3) information dynamics in which the rate of change in ICT is so high that many NARS are unable to cope. There are also capacity issues since most farmers are not educated and lack of capacity to digest and make use of the information. However, the rural infrastructure is becoming less of an issue with the advent of wireless technology. In general, the new ICT technology has yet to be fully exploited for the benefit of small farmers.

ARD institutions in APAARI have a big role to play as knowledge producers. There exists traditional knowledge in the rural areas that need to be documented and shared with others. Policy makers need to be convinced to support ICT initiatives and technologies which are becoming cheaper and simpler these days. Capacity building is needed for both researchers and farmers so that they can use these tools to attain their goals.

APARIS initially focus on the needs of researchers, sharing information and strengthening their capacity on ICT/ICM. During the last six years, APARIS works on ICT/ICM with different networks, mainly with GFAR and other institutions at the global, regional and national levels, on four themes, namely: (1) advocacy, (2) capacity building, (3) integration of information resources and (4) inter-regional collaboration. To date, many NARS have developed their web sites and national information nodal points have agreed to develop a web ring to share information with others. More recently, APARIS has paid attention to the needs of small farmers. Two success stories on ICT/ICM showcased tremendous transformation and benefits to farmers who were empowered by providing access to information on markets, prices, technology and others. The case of *e-Choupals* in India, a private sector-led initiative on information centers linked to the Internet, represents an approach to seamlessly connect subsistence farmers with global markets. It has helped link the largest labor force to the international markets as well as the final consumer at much reduced transaction costs. ICT facilitates disintermediation through the creation of an alternative development paradigm that skips the formation of cooperatives and self-help groups and replaces them with the network society. It exemplifies the fact ICT could be and is an enabler in developmental goals. The *e-Choupal* project thus brings out the concept of profitable rural development. Today, there are 3,300 *e-Choupals* in five states of India covering 20,000 villages servicing 1.8 million farmers.

Dr. Sahdev Singh concluded by saying that the new information and communication technologies are used to empower the rural poor with up-to date agricultural and market information, consumer preferences, financing and weather and climate conditions. APAARI wishes to intensify its efforts to document best practices so that others may benefit equally well.

Dr. Rupert Best, GFAR, presented the progress towards establishing a Global Partnership Program on Linking Farmers to Market (GPP-LFM) being facilitated by GFAR and highlighted the Asia-Pacific Region's active participation in its development. The GPP is a development-oriented collaborative effort which addresses agricultural research for development (ARD) issues of global relevance, that builds on and adds value to on-going activities at different levels (local, national, global), jointly developed, carried out and owned by a set of diverse stakeholders and is a priority for more than one of GFAR's regions. The GPP-LFM which has its beginnings in 2001-2002 during the FAO-GFAR regional consultations on post-harvest technology and marketing aims to address the following issues: (1) smallholder farmers need to produce food and generate income and (2) rapidly changing market environment where there are new opportunities and many obstacles. Farmers and rural entrepreneurs need to capture new opportunities through: (1) orientation, facilitation and mentoring, (2) market-oriented extension, research and business services and (3) an enabling environment. Common areas of interest among regions have been explored, namely:

- Self-sufficient, subsistence farming or the 'family agriculture' sector not adequately supported by R&D
- Market orientation and access is vital for income generation and resource conservation
- Adding value, differentiation and diversification are important strategies
- Demand-oriented extension and market facilitation services lacking
- Biophysical and post-production research has to become more market and enterprise oriented
- Engagement and partnership with the private sector is key
- Moving from subsistence to greater commercial orientation

Regional proposals have been developed by the *ad hoc* working groups since 2005. In 2006, the Asia-Pacific region formulated its strategic plan whose vision is: *"enhanced livelihoods of farming communities by providing opportunities of choice for market integration through responsive research and development."* The program components are: (1) policies and institutions, (2) information sharing, (3) understanding markets and market chain analysis and (4) capacity building.

In summary, the Global Partnership Program on Linking Farmers to Markets should:

- be a product of a series of consultation and updating and takes into account regional trends and scenarios
- build on activities already on the ground and capitalize on existing institutional capacities/ expertise
- have a plan by phases for 'do-ability' (short, medium & long-term)
- be anchored on regional partnerships (voluntary & collaborative)
- build in monitoring and evaluation mechanism through the Regional Fora

General Discussion and Synthesis

Following are some of the key issues shared:

- On biotechnologies for small farmers and how they will cope with the risks: Some of the risk management strategies that could be adopted at the farmer level include provision of crop yield and revenue insurance, production and marketing contract, and access to market information. At the macro-level, there is a need for efficient testing and certification system, uniform global policy on labeling of GM crops and uniform global agreements on health and bio-safety standards to facilitate trans-boundary movements of products.
- The need for capacity building on risk assessment and risk management is well recognized by APAARI and has done so through APCoAB. Recognizing that small farmers should benefit from biotechnologies (both conventional and modern), APAARI, FAO and GFAR jointly conducted policy dialogue in 2005 sensitizing and increasing awareness of policy makers on the potential benefits for food security and poverty alleviation.
- Linking farmers to markets should consider not only the output side but the input side as well such as technologies, ICT and innovative linking mechanisms. However, in the value-chain approach, the initial interventions may not necessarily be technological but

social or institutional such as organizing the farmers or facilitating the linkages by market-oriented extension service providers, NGOs, private sector or farmers' organization.

- As we move along the value-chain, more updated information and knowledge are critical. There is a need to empower the small farmers and other key players by providing them ICT tools so that they can achieve their common goals. The necessary infrastructure and capacity building required could be jointly undertaken through public and private sector initiatives.

The Co-chairperson, Dr. Masa Iwanaga, CIMMYT summarized the discussion emphasizing the need to look at both the input and output sides of the value-chain, which is complex, and the importance of policies to support technology development and adoption. He pointed out that in a rapidly growing technology such as GMO, policies lag behind and people are not comfortable with that. He reiterated the need to convey strong wish that policy and capacity building, particularly on GMO, and ICT should be subjects of major concern of APAARI and its members. Policy makers and NARS have to be sensitized to address these issues as a matter of priority.

PLENARY SESSION: RECOMMENDATIONS AND CONCLUSION

Chairperson: Prof. H.P.M. Gunasena, CARP
Co-chairperson: Dr. Raj Paroda, APAARI

The Working Group recommendations were presented by Dr. Ashok Gulati (IFPRI), Mr. Raul Montemayor (IFAP) and Dr. Jafar Khalghani (AREO) on the following areas: Enabling Policy Environment, Stakeholder's Partnership Building and Up-scaling/Out-scaling of Agricultural Innovations for LFM, respectively. Participants expressed their points of view and insights and offered a few additional suggestions which were included in the final list of recommendations outlined below:

Participants acknowledged that as countries in the Asia-Pacific diversify their agricultural economy, they need to address marketing issues invariably. The issue is not just finding the markets but also looking at the entire value-chain and making farming a remunerative business through appropriate enabling environment. Recommendations were, therefore, made for consideration of the policy makers and governments, APAARI and GFAR in three areas: (1) enabling policy environment to promote and accelerate LFM; (2) partnership building: (3) and up-scaling/out-scaling of agricultural innovations for LFM.

1. Enabling Policy Environment

For Policy makers and Governments, participants made a strong call for:

- Legislative review and refinement of policies for formation of effective and innovative partnership groups for efficient horizontal and vertical integration to cover production, processing, trading and consumption areas.
- Development of policies and legal aspects to encourage formation of producer companies, preferred to the producer cooperatives so as to have effective involvement and ownership of the smallholder producers.
- Governments to negotiate effectively with developed countries in the on-going WTO debates to streamline subsidies to agricultural producers so as to create level field competitive environment for the smallholder farmers in the developing countries.

- Government policies to encourage and provide free exchange and access to market and marketing information to various stakeholders involved in making the smallholder sector more efficient through public-private partnership (PPP) or other similar effective means.
- Favorable policies to help private extension agencies and make their provisions more attractive and effective.
- Favorable policies in place on credit, risks and insurance, as well as agricultural inputs (seeds, fertilizers etc.) and appropriate incentive systems.
- Consider proper implementation of International Conventions/Treaties through proper policy and institutional framework.
- Enhance regional cooperation and trade to expand market access to the small scale farmers.

The NARS will have to be retooled or reorganized for them to become much more efficient and effective in conducting and applying innovative research for development. They will have to adopt innovative and creative approaches and strategies to develop and implement appropriate training and educational program for youths and women and others so that they can effectively contribute towards agricultural development. The youths can be provided on the job-training in agri-business areas and the women farmers need to be provided opportunities for empowerment so that they are fully involved in the value-chain system.

In collaboration with NARS, the regional organization like *APAARI* and international organizations such as *GFAR* need to assess different models of successes in various regions, countries and agro-ecological settings so as to create knowledge banks for sharing the information with all stakeholders.

It was recommended that the *CSOs and the Private sector Stakeholders:* (1) Consolidate at all levels i.e. at production, processing, retailing and consumers in an innovative way so as to integrate vertically all concerned; (2) Make special efforts to specify value attributes for the products coming from smallholders and fragmented sectors such as organic produce, underprivileged people, etc. for niche markets so as to attract better prices from consumers both for competitive and comparative advantages. The obvious challenge, therefore, is competitiveness, inclusiveness, scalability and sustainability.

2. Partnership Building

The participants recommended the following:

- Develop partnerships for LFM based on trust which may be either through a contractual or legal framework that is binding on and readily understood by all parties
- Demonstrate the interest and commitment by bringing appropriate contributions based on the guiding principle of equity (mutual respect and mutual benefits for concerned parties and
- Adopt participatory value-chain management with strong involvement of all stakeholders.

Facilitating market linkages would also require retooling both the public and private extension services.

The *priority areas for inter-regional collaboration* suggested were in knowledge and information sharing and capacity building. Specifically, the participants recommended knowledge and information sharing on good agricultural practices (or GAP) such as SPS, food safety, biosafety and quality improvement.

Capacity building on GAP for all actors in the value-chain including women will have to be accelerated. *APAARI* should share "best practices" in technological and institutional innovations, put up knowledge bank on case studies of value-chain, good agricultural practices and evidence-based policy relevant "best practices". It is hope that *APAARI and GFAR* will jointly convene expert consultation on GAP and policy relevant "best practices" as well as on emerging areas such as bio-fuels but with focus on LFM and how farmers will benefit from such initiatives.

3. Up-scaling/Out-scaling

The participants opined that as farmers have invariably lost confidence in the existing extension system, there is need for exploring alternative institutional arrangements (involving Private Sector, Cooperatives, NGOs, CSOs, establishment of "Agri-Chinies", training of youth as technology agents etc.) to effectively communicate technological innovations to the farming community. They emphasized that LFM process should be holistic and include a continuum of 'before, during and after production' so that the farmers are involved in the whole chain of production to consumers. They recognized that the following areas are critical when considering the entire market-processing-consumption continuum: (1) Capacity building of stakeholders in technologies, (2) Supply of appropriate inputs for production and (3) Infrastructural and policy support in marketing.

Specific areas that were recommended for up-scaling included the following:

- Self-help groups (SHGs) approach, with provision of micro credit
- Use of ICT to disseminate most relevant information and to help networking of farmers (including radio, newspapers, T.V., mobile phones, internet based systems such as *e-Choupal*, village information centers, etc.)
- Providing timely technical services to farmers (based on several models such as BAIF, Iran wheat revolution etc.)
- Enabled infrastructure and policy support to ease restriction and enable marketing.

It was also felt the following areas will have to be strengthened in many developing countries in Asia-Pacific:

- Farmer-participatory research and development (the term farmer to include all stakeholders, farmers, traders, processors and consumers)
- Product standards to be agreed and followed to encourage market access to poor farmers,
- Match demand and supply to avoid wide fluctuations in prices and ensure profitability to producers and saving to consumers
- Enhance farmer outlets (Retail Market) and linking them with Corporate Supermarkets (for example: ITC, ShriRam, Reliance, etc. in India)
- Effective and efficient "Seed Production and Delivery System" to ensure that farmers get the quality seed at the right time and at reasonable price.

It was recommended that jointly NARS, *APAARI and the GFAR* should:

- Document and disseminate success stories of innovations in technology that enhance LFM.

- Involve youth in disseminating technology by promoting vocational training to youth including young farmers, with an aim of making agriculture an attractive profession.
- Catalyze policy makers to create enabling environment for LFM.

In his concluding remarks, Professor H.P.M. Gunasena summarized the very rich discussion, noting the many rich and diverse points of views, appreciating the wealth of information shared, challenging the governments and NARS to pay more careful attention to these key recommendations and emphasizing the role of APAARI, GFAR and key stakeholders to move the agenda forward. He thanked everyone for sharing their rich experiences, insights and wisdom during the two-day deliberations. He also appreciated the leadership of Dr. Raj Paroda, Executive Secretary, APAARI for putting up an excellent agenda for the Expert Consultation and inviting the key people from all stakeholder groups for the success of this meeting.

Dr. Paroda concluded by proposing a vote of thanks, appreciating the efforts and contributions of everyone, especially Dr. Mangala Rai and the staff of ICAR, staff of APAARI Secretariat and the participants for their active participation that made this expert consultation a great success. He further expressed appreciation to all APAARI members and GFAR for their continuing support to APAARI activities. He reiterated that each partner has a role to play to contribute meaningfully to the mission of APAARI to benefit the small farmers in the region by linking science to society and especially by linking farmers to markets (LFM) so as to achieve the Millennium Development Goal 1 of eradicating poverty, while ensuring agricultural prosperity in the Asia-Pacific region.

Annex I

Expert Consultation on Agricultural Innovations: Linking Farmers to Market

6-7 November 2006
National Agricultural Science Cente
Indian Council of Agricultural Research
New Delhi, India

Agenda

6 November 2006 (Monday)

8:00-9:00 Registration

Session I: Enabling Policy Framework for Agricultural Innovations to LFM

Chairperson: *Dr. Mangala Rai, Director General, ICAR*

Co-chairperson: *Professor Shinobu Inanaga, President, JIRCAS*

Rapporteur: *Dr. Sahdev Singh, AIT*

9:00-9:20 Policies to Promote Agricultural Innovations

Keynote Speaker: Dr. R.B. Singh, Member
Farmers' Commission, Government of India

9:20-10:00 Discussants (10 minutes each)

National Professor Anil Gupta, National Innovation Foundation (NIF)

Dr. S. Mruthyunjaya, Director, NAIP, ICAR

Regional Mr. Raul Montemayor, IFAP

Global Dr. Adel El-Beltagy, GFAR

10:00-10:20 General Discussion and Synthesis

Inaugural Session

10:30-10:35 **Lighting the Lamp**

10:35-10:45 **Welcome Addresses**

- Dr. Mangala Rai, Secretary, DARE and Director General, ICAR
- Dr. Raj Paroda, Executive Secretary, APAARI

10:45-10:52 **Opening Remarks**

Professor H.P.M. Gunasena, Chairman, APAARI

10:52-11:00 **Special Remarks**

Dr. Adel El-Beltagy, Chairman, GFAR

11:00-11:05 Release of publications and presentation of memento

11:05-11:25 **Inaugural Address**

Hon'ble Shri Sharad Pawar, Union Minister of Agriculture, Consumer Affairs, Food and Public Distribution, Government of India

11:25-11:30 **Vote of Thanks**

Mr. P.K. Saha, Liaison Officer, APAARI

11:30-12:00 Coffee break and Group Photo

Session II: Best Practices of Agricultural Innovations (Farmers, Institutions and Entrepreneurs)

Chairperson: *Dr. William Dar, Director General, ICRISAT*

Co-chairperson: *Mr. K.P. Singh, Chairman, IFAP-Asia*

Rapporteur: *Mr. P.K. Saha, APAARI*

12:00-13:15 Farmer's Experiences/Best Practices/Lessons Learned (15 minutes each)

Thailand	"LFM initiatives in Thailand" by Mr. Phongsak Thamrongratanasilp
India	"Linking producers and processors: sorghum and pearl millet for poultry feed in Asia" by Dr. P. Parthasarathy Rao, ICRISAT
	"Linking farmers with the markets: Role of Innovative Institutions" by Dr. P.K. Joshi, NCAP
Philippines	"LFM achievement in Philippines" by Mr. Justino R. Arboleda, President, Coco Technologies Corporation
Indonesia	"Best LFM practices in Indonesia" by Mr. Augusdin Pulungan, Coordinator, ASFARNET

13:15-13:30 General Discussion and Synthesis

13:30-14:30 Lunch Break

Session III: Donors' Perspective on LFM

Chairperson: *Dr. Simon Hearn, ACIAR*

Co-chairperson: *Dr. Pratima Dayal, ADB*

Rapporteur: *Dr. P.K. Joshi, NCAP*

14:30-14:50 Role of Public-Private Partnership — Dr. Andrew Bennett, Syngenta Foundation

14:50-15:30 Discussants (10 minutes each)

ACIAR	Dr. Simon Hearn
ADB	Ms. Jaya Chetteriji
DFID	Mr. David Radcliff

15:30-15:40 General Discussion and Synthesis

15:40-16:00 Coffee Break

16:00-18:00 ***Session IV: Working Group Discussions on LFM***

Three working groups: namely, (i) Enabling Policy Environment; (ii) Stakeholders' Partnership; and (iii) Up-scaling/Out-scaling of Agricultural Innovations for LFM

Group I: Enabling Policy Environment

Chairperson: *Dr. Ashok Gulati, IFPRI*

Co-chairperson: *Dr. Teodoro Solsoloy, BAR*

Rapporteur: *Dr. R.D. Ghodake, NARI*

Discussants (10 minutes each)

Policies for Retooling NARS — Dr. Wilberforce Kisamba-Murgewa, Director, ISNAR-IFPRI Program

Group II: Stakeholders' Partnership Building

Chairperson: *Dr. M. Tusneem, PARC*

Co-chairperson: *Mr. Raul Montemayor, IFAP*

Rapporteur: *Dr. Betty del Rosario, APAARI*

Discussants (10 minutes each)

Partnership through GPPs — Dr. Ola Smith, Executive Secretary, GFAR

PROLINNOVA Experience — Mr. Or Thy, PROLINNOVA Coordinator

Group III: Up-scaling/Out-scaling of Agricultural Innovations for LFM

Chairperson: *Dr. Jafar Khalghani, AREO*

Co-chairperson: *Dr. Mohammad Al-Attar, ICBA*

Rapporteur: *Dr. C.L.L. Gowda, ICRISAT*

Discussants (10 minutes each)

Government Perspective — Dr. N.B. Singh, Agriculture Commissioner

NGO Perspective — Dr. N.G. Hegde, BAIF

20:00 Reception Dinner Hosted by Hon'ble Minister of Agriculture

7 November 2006 (Tuesday)

Session V: The Role of Emerging Technologies (Biotechnology, ICT, Post-Harvest Technology) in LFM

Chairperson: *Dr. Mahmoud Solh, ICARDA*

Co-chairperson: *Dr. Masa Iwanaga, CIMMYT*

Rapporteur: *Dr. J.L. Karihaloo, APCoAB*

9:00-9:20	APCoAB	Dr. J.L. Karihaloo, APCoAB Coordinator
9:20-9:40	ICT	Dr. Sahdev Singh, APARIS Coordinator
9:40-10:00	LFM	Dr. Rupert Best, GFAR/Dr. Betty Del Rosario, APAARI
10:00-10:30	General Discussion and Synthesis	
10:30-10:50	Coffee Break	

10:50-12:30 ***Plenary Session: Recommendations and Conclusion***

Chairperson: *Professor H.P.M. Gunasena, Chairman, APAARI*

Co-chairperson: *Dr. Raj Paroda, Executive Secretary, APAARI*

Group Recommendations (20 minutes each)

Group I: Enabling Policy Environment

Group II: Stakeholders' Partnership Building

Group III: Up-scaling/Out-scaling of Agricultural Innovations

General Discussion and Synthesis

Chairman's Concluding Remarks — Professor H.P.M. Gunasena

Vote of Thanks — Dr. Raj Paroda

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