



ASIA-PACIFIC CONSORTIUM ON AGRICULTURAL BIOTECHNOLOGY (APCoAB)

XVI STEERING COMMITTEE MEETING Bangkok, Thailand 22 April 2014

PROCEEDINGS

The XVI Steering Committee Meeting of Asia-Pacific Consortium on Agricultural Biotechnology (APCoAB) was held at Royal Princess Hotel, Bangkok on 22 April 2014. The meeting was chaired by Dr. Simon Hearn, Chairman, APAARI and attended by 14 members comprising SC members or their representatives and special invitees (Annexure 1). Dr. Kueison Sheu, DG, CAO was represented by Dr. Rose, Dong-chong Hsiou, DDG, Department of International Affairs, COA and Dr. Iftikhar Ahmad, Chairman, PARC was represented by Dr. Ahmad Bakhsh Mahar, D.G. Planning & Development Division, PARC.

Agenda Item 1: Welcome Address

Dr. Raj Paroda, Executive Secretary, APAARI welcomed all the participants and expressed appreciation of their continued support to the biotechnology activities of APAARI. He recalled that APCoAB was established at the initiative of FAO-RAP which had organized an expert consultation on the need for a neutral forum on biotechnology. APAARI took upon itself the responsibility of initiating the consortium with the understanding that in due course it would stand on its own with the ownership and support of all other stakeholders, including private sector. However, APCoAB still remains an important program of APAARI and with the funding support of COA and ACIAR, it has been making significant contribution on policy advocacy, capacity development and information sharing on agricultural biotechnology. While appreciating the role of other APAARI member organizations in supporting APCoAB activities, Dr. Paroda cited JIRCAS which would be co-organizing the Expert Consultation on Food Safety in Tsukuba on 4-5 August 2014.

Agenda Item 2: Chairman's Opening Remarks

Dr. Simon Hearn welcomed all the participants. In his opening remarks, he presented his views on opportunities and challenges of adopting biotechnology in agriculture. He opined that to meet the growing needs of food and nutrition security, adoption of all available technologies, including biotechnology, is imperative. However, there are policy and capacity issues that are proving to be impediments in adoption by many countries. While precautionary principle is almost universally accepted yet adoption of technology is the sovereign right of a country. Lack of adequate capacity in safety testing of GM crops reduces

the confidence of regulators who do not permit release of such crops. The system also loses public trust. There is thus a need to develop appropriate policies, strengthen capacities along with developing effective public communication systems.

Two publications were released by the Chairman:

- Asia-Pacific Symposium on Molecular Breeding – Proceedings
- Stakeholders’ Dialogue on Biosafety Regulations in the Asia-Pacific Region – Proceedings and Recommendations

Agenda Item 3: Approval of Minutes of XV SC Meeting

The committee was informed that the Proceedings of the XV Steering Committee held on 15 April 2013 were circulated to all the members on 28 June 2013 and no comments were received. The minutes were approved by the committee through voice vote. Then the chairman moved the agenda (Annexure II) which was adopted.

Agenda Item 4: A Brief Report

Dr. J.L. Karihaloo, Coordinator, APCoAB presented Action Taken Report on the recommendations of XV Steering Committee:

Recommendations	Action Taken
1. Soft copies of new APCoAB publications should be emailed to all members for their use and sharing with other interested users.	Soft copies of all publications are being sent by email to all APAARI members and other stakeholders.
2. Strategic planning is required to enable well advanced as well as less advanced member organizations to benefit from APCoAB workshops and training programs.	During 2013, workshops/ training programs were organized on diverse biotechnology topics in which members from both advanced and less advanced NARS participated (Japan, India, Malaysia, Pakistan, Vietnam, Bangladesh, PNG, Philippines, Nepal).
3. Organize on priority training programs on GM technology, MAS and Biosafety.	Following activities organized: <ul style="list-style-type: none"> • Stakeholders' Dialogue on Biosafety Regulations in the Asia-Pacific Region organized in Bangkok. • Symposium on Molecular Breeding – AVRDC. • Genetic Engineering Workshop – ICRISAT.

4. Schedules of group meetings and training programs should be circulated well in advance to enable timely response from the member organizations.	The recommendations are being followed and timely responses are received from all invited organizations.
5. Organize an expert consultation on food safety.	To be held at JIRCAS on 4-5 August 2014
6. Organize a training program on food safety at ICRISAT.	To be held at ICRISAT during September 2014.
7. Request ICRISAT to issue separate audit certificates for the APCoAB accounts being maintained there.	In response to the request, ICRISAT informed that APAARI accounts are jointly audited with those of ICRISAT and a separate certificate cannot be issued.

A report on the following activities carried out during 2013 was presented by Dr. Karihaloo covering following items:

I. Expert Consultations/Symposia/Meetings/ Training Programs/Workshops

- APCoAB Steering Committee Meeting held in Bangkok on 15 April, 2013.
- Stakeholders' Dialogue on Biosafety Regulations in the Asia-Pacific Region held in Bangkok on 16-17 April, 2013.
- APO Asian Food and Agribusiness Conference 2013: Biotechnology and Global Competitiveness held in collaboration with COA and APO in Taipei on 15-18 July, 2013.
- Asia-Pacific Symposium on Molecular Breeding held in collaboration with AVRDC and COA at AVRDC, Tainan, 1-3 October, 2013.

Other collaborative activities:

- FAO Regional Workshop on Strengthening Regional Cooperation - National Capacity Building on Biosafety in Asia, held in Bangkok, Thailand, 17-20 June, 2013.
- Workshop on Application of genetic engineering in grain legumes and its translation, ICRISAT, India, 18-27 November, 2013.

II. Publications

- Stakeholders' Interface on Genetically Modified Crops – Proceedings and Recommendations.
- Expert Consultation on Managing Trans-boundary Diseases of Agricultural Importance in the Asia-Pacific – Proceedings and Recommendations.

- Stakeholders' Dialogue on Biosafety Regulations in the Asia-Pacific Region – Proceedings and Recommendations.
- Proceedings of Asia-Pacific Symposium on Molecular Breeding – Proceedings.

III. APCoAB Website

- Regular update of News and Events on agricultural biotechnology developments in Asia-Pacific region.
- Regular update of other contents and databases.

(For details on the above activities, please see Annexure III)

During the discussion following the presentation of ATR and Progress Report, the members made some important observations and suggestions:

- Dr. Kevin Gallagher suggested creating greater awareness about open source technologies.
- Dr. Prasanna opined that application of molecular breeding in developing NARS is often handicapped by lack of adequate expertise in data mining, analysis and other bioinformatics tools. He suggested conducting workshops/training programs on these topics.
- The importance of public communication to create greater awareness about biotechnology was discussed. Members felt that public sector organizations have in general lagged behind other interested organizations in effectively communicating the facts about biotechnology to the general public. There is a need to involve communication experts in carrying forward the message so that the public can form appropriate opinion and take decisions regarding technology adoption accordingly.
- It was also expressed that FAO should involve itself more proactively with public communication on biotechnology.
- Mr. Abdul Mazid suggested to give priority to crops grown by smallholder farmers for biotechnology based improvement.
- Dr. Paroda informed the participants about the wider dimensions of biotechnology that APCoAB has been addressing. He apprised about the expert consultations, brain storming sessions and training programs on topics like molecular breeding, post-harvest technology, biopesticides and biofertilizers, transboundary diseases, animal reproductive technologies and pesticide residues organized during the last few years. He expressed his appreciation of the support provided by member NARS and local research centres in hosting these events.

Agenda Item 5: Audited Accounts

Dr. Karihaloo presented the Audited Accounts of 2013 along with audit certificate. A total amount of US\$ 160,078.89 was available on 1.1.2013 while the amount spent during the year

was US\$ 92,565.58. He mentioned that expenditure under all the items was within the budget, and also explained that the expected expenditure under training sub-head was borne by the host organisations, COA and ICRISAT. The Audited accounts statement was approved by the Steering Committee.

Agenda Item 6: Work Plan and Budget for 2014

Dr. Karihaloo presented the Work Plan for 2014 (Annexure IV) followed by budget proposal for the same period. During the discussion on Work Plan, Dr. Rose, Dong-chong Hsiou confirmed that COA would be hosting two events, (i) International Conference on Prevention and Control of Avian Influenza, and (ii) Dairy Cattle and Goat for Milk. It was agreed that in view of the already committed program of APCoAB, these activities would be held in later part of the year, October-November 2014.

While presenting the budget for 2014, Dr. Karihaloo showed an anticipated total income of US\$ 152,513.31 and expenditure of US\$ 135,000.

The Work Plan and the Budget were approved by the Steering Committee.

Agenda Item 7: Any other business

(i) Continuing collaboration with COA:

Dr. Rose, Dong-chong Hsiou announced the continuation of COA support to APCoAB program for another term of three years (2014-2016). The announcement was welcomed by the participants with applause.

Dr. Rose also informed about the desire of COA to co-organise APAARI activities and capacity building on other topics viz., post-harvest, nutrition, family farming, farm cooperative and extension. She suggested that FFTC, a constituent of COA, could collaborate with APAARI in publication and other communication activities. Also, collaboration with AVRDC on nutrition related activities would be desirable.

Members appreciated the offer made by Dr. Rose and recommended to strengthen the collaboration with COA and its associated organizations.

(ii) APCoAB Succession Plan:

Dr. Raj Paroda, Executive Secretary, APAARI apprised the committee about the request made by Dr. Karihaloo to be relieved on personal grounds from the date of expiry of his current term. Dr. Paroda suggested to seek services of Dr. Karihaloo subsequently in an advisory capacity (about 20% of his time) while also look out for short-term alternative help to assist him to continue with on-going activities till a regular arrangement is made preferably at APAARI office in Bangkok, after the full time Executive Secretary, APAARI takes over.

Agenda Item 8: Chairman's Closing Remarks

In his closing remarks, Dr. Simon Hearn opined that to ensure the benefits of agricultural biotechnology reach the farmers, the NARS would need to develop a long-term plan of research, development, regulatory management and extension. Harmonization of regulatory and trade regimes should be a priority for regional cooperation in biotechnology.

In conclusion, he thanked all those present for their active participation and making many useful suggestions.

Agenda Item 9: Vote of Thanks

Dr. Karihaloo proposed a vote of thanks to the Chair, Vice-Chair and all the other participants for their valuable advice. He invited them to send material of Success Stories/Status Reports published by APCoAB on a regular basis.

XVI APCoAB Steering Committee Meeting
List of participants

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**ASIA-PACIFIC CONSORTIUM ON AGRICULTURAL
BIOTECHNOLOGY (APCoAB)**

XVI STEERING COMMITTEE MEETING

Hotel Royal Princess,
Bangkok, Thailand
22 April, 2014
(13:30 – 15:30 hrs)

TENTATIVE AGENDA

- | | |
|---|-----------------------|
| 1. Welcome Remarks | : Dr. Raj Paroda |
| 2. Chairman's Opening Remarks | : Dr. Simon Hearn |
| 3. Approval of Minutes of XV SC Meeting | : Dr. Simon Hearn |
| 4. A Brief Report | : Dr. J. L. Karihaloo |
| 5. Audited Accounts | : Dr. J. L. Karihaloo |
| 6. Work Plan and Budget for 2014 | : Dr. J. L. Karihaloo |
| 7. Any other Business | : Members |
| 8. Chairman's Closing Remarks | : Dr. Simon Hearn |
| 9. Vote of Thanks | : Dr. J. L. Karihaloo |

ASIA-PACIFIC CONSORTIUM ON AGRICULTURAL BIOTECHNOLOGY
(APCoAB)

XVI STEERING COMMITTEE MEETING

Hotel Royal Princess,
Bangkok, Thailand

22 April, 2014
(13:30 – 15:30hrs)

AGENDA NOTES

1. Welcome Remarks

Dr. Raj Paroda, Executive Secretary, APAARI will welcome the members, special invitees and other participants to the Steering Committee meeting.

2. Chairman's Opening Remarks

Dr. Simon Hearn, Chairman, APAARI and Chairman of APCoAB Steering Committee will deliver his Opening Remarks highlighting progress of APCoAB and key issues in agricultural biotechnology that need to be addressed.

3. Approval of Minutes of XV SC Meeting

Proceedings of the XV Steering Committee meeting held on 15 April 2013 were circulated to all the participants on 28 June 2013 (Annexure I). Acknowledgement was received from one member, whereas no other comments were received. The proceedings will be placed before the steering committee for approval.

4. A Brief Report

Dr. J. L. Karihaloo, Coordinator, APCoAB will present Action Taken Report on the recommendations of XV Steering Committee followed by a brief report on the activities carried out during 2013. These include:

- 1) Stakeholders' Dialogue on Biosafety Regulations in the Asia-Pacific Region, held at Bangkok, Thailand, 16-17 April 2013.
- 2) APO's Asian Food and Agribusiness Conference 2013: Biotechnology and Global Competitiveness, held at Taipei, 15-18 July 2013.
- 3) Asia-Pacific Symposium on Agricultural Biotechnology, held at AVRDC on 1-3 October 2013.
- 4) Other collaborative activities: i) FAO Regional Workshop on Strengthening Regional Cooperation - National Capacity Building on Biosafety in Asia, Bangkok, Thailand,

17-20 June, 2013; ii) Workshop on Application of genetic engineering in grain legumes and its translation, Hyderabad 18-27 November 2013.

5) Publications:

i) Proceedings and Recommendations of Stakeholder's Interface on Genetically Modified Crops; (ii) Proceedings and Recommendations of Expert Consultation on Managing Trans-boundary Diseases of Agricultural Importance in the Asia-Pacific; (iii) Proceedings and Recommendations of Stakeholders' Dialogue on Biosafety Regulations in the Asia-Pacific Region; (iv) Proceedings of Asia-Pacific Symposium on Molecular Breeding.

A brief report on the above activities is placed at Annexure II. Members may offer their remarks on the progress report.

5. Audited Accounts

The Audited Accounts statement for January-December 2013 is given at Annexure IIIa and IIIb. The details will be presented for consideration and approval of the Steering Committee.

6. Work Plan and Budget 2014

Work Plan (Annexure IV) and Budget for 2014 (Annexure V) will be presented to the Steering Committee for discussion and approval.

7. Any other Business

i) Continuation of collaboration with COA: APAARI has received intimation of COA approval for extension of APAARI-COA collaborative project on biotechnology by another term of three years (2014-2016) (Annexure VI). Dr. Hsiou is expected to make a formal announcement in the steering committee meeting.

ii) APCoAB succession plan: The term of Coordinator, APCoAB is completing on 31 January 2015 and Dr. Karihaloo has expressed his desire to be relieved from this date. It is proposed that SC may like to discuss a succession plan for the continuity of biotechnology program of APAARI.

iii) Any other item shall be taken up with the permission of Chair.

8. Chairman's Closing Remarks

Dr. Simon Hearn, Chairman will deliver his closing remarks.

9. Vote of Thanks

Dr. J.L. Karihaloo, Coordinator, APCoAB will propose a Vote of Thanks.

Asia-Pacific Consortium on Agricultural Biotechnology (APCoAB)
Brief Report on Activities
(January – December, 2013)

During the year 2013, APCoAB organized a number of activities comprising meetings/expert consultations, and training workshops/symposia and brought out three publications. A brief account of the achievements made during the period under report is presented here for the kind information of APAARI/APCoAB members and other stakeholders:

Meetings/Expert Consultations

1. APCoAB Steering Committee Meeting

The XV APCoAB Steering Committee Meeting was held in Bangkok on 15 April, 2013. The meeting was chaired by Dr. Simon Hearn, Chairman, APAARI and was attended by nine Steering Committee (SC) members/their representatives and special invitees. APCoAB progress report presented by the Coordinator detailed expert consultations, symposia and other meetings organized and supported by APCoAB, publications brought out and web based information dissemination carried out during 2012. The committee appreciated the progress and made the following recommendations and observations:

- Dr. Iftikhar Ahmed suggested that soft copies of new APCoAB publications should be emailed to all members for their use and sharing with other interested users.
- Dr. Raghunath Ghodake advised that strategic planning was required to enable all APAARI member organizations to benefit from these programs. These should be so tailored as to cater to the needs of less advanced NARS as well.
- Dr. Raj Paroda, Dr. Etienne Duveiller and Dr. Kiran Kumar Sharma recommended to organize on priority training programs on GM technology, MAS and biosafety.
- Dr. Masa Iwanaga advised that schedules of group meetings and training programs should be circulated well in advance to enable timely response from the member organizations.
- It was suggested to organize expert consultation on food safety in 2014 in collaboration with JIRCAS.
- A proposal was also made to organize a training program on food safety in 2014 at ICRISAT which was seconded by Dr. K. K. Sharma representing DG, ICRISAT.
- During the discussion on budget, it was recommended to request ICRISAT to issue, from 2014 onwards, audit certificates for the APCoAB accounts being maintained and operated from ICRISAT.
- Members expressed a strong need for regional cooperation to accelerate application of GM technology to address priority problems like abiotic stress.
- Public sector by and large has not delivered to the expected level towards development of GM crops aimed at meeting local agricultural R&D priorities. There is an urgent need to streamline and accelerate public sector GM crop development programs. Success of public sector in development of GM crops would also remove the perception that GM crops are a private sector monopoly. In this regard, PARC has made commendable progress by releasing a number of GM cotton varieties in Pakistan.

- Dr. Simon Hearn emphasized the need to develop consumer confidence in GM products to ensure that farmers adopt the technology. This could be achieved through creation of a robust regulatory system and vigorous public communication of facts and figures.

Following work plan was approved for implementation during 2013:

Expert Consultations/Symposia/Meetings/ Training Programs/Workshops

- APCoAB Steering Committee Meeting, Bangkok, 15 April, 2013
- Stakeholders' Dialogue on Biosafety Regulations in the Asia-Pacific Region, Bangkok, 16-17 April, 2013
- APO Asian Food and Agribusiness Conference 2013: Biotechnology and Global Competitiveness Taipei, 15-18 July, 2013 (in collaboration with COA)
- Asia-Pacific Symposium on Molecular Breeding at AVRDC, Tainan, 1-3 October, 2013 (in collaboration with COA and AVRDC)
- Training program on biotechnology in Chinese Taipei in consultation with COA

Publications

- Proceedings of "Stakeholders' Interface on Genetically Modified Crops"
- Proceedings of Expert Consultation on "Managing Trans-boundary Diseases of Agricultural Importance in the Asia-Pacific"
- Biosafety Regulations of Asia-Pacific Countries (revision)

APCoAB Website

- Regular Update of News and Events on Agricultural Biotechnology Developments in Asia-Pacific region
- Regular update of other contents and databases

New Steering Committee

Since the term of the present Steering Committee had expired, a new Steering Committee as constituted for 2013-2014 as follows:

Chairman Dr. Simon Hearn, Principal Adviser, ACIAR, Australia

Members Dr. Masa Iwanaga, President, JIRCAS, Japan

Dr. Su-San Chang, Director General, Department of International Affairs, COA, Chinese Taipei

Dr. William Dar, Director General, ICRISAT, India

Dr. Iftikhar Ahmad, Chairman, PARC, Pakistan

Dr. Raj Paroda, Executive Secretary, APAARI, India

Member Secretary Dr. J. L. Karihaloo, Coordinator, APCoAB, India

2. Stakeholders' Dialogue on Biosafety Regulations in the Asia-Pacific Region

APCoAB organized "Stakeholders' Dialogue on Biosafety Regulations in the Asia-Pacific Region" in Bangkok on 16-17 April, 2013. The meeting was inaugurated by Dr. Hiroyuki Konuma, ADG, FAO-RAP and attended by 25 participants from AP countries, including APAARI members, CG Centers, FAO, CABI and other international and local organizations. The program included presentations on overview of biotechnology and biosafety in Asia-Pacific, country status reports, key-note lectures on related topics, discussion on key issues and plenary discussion. Following recommendations were made in the meeting:

A. Biotechnology R&D priorities especially aimed at smallholders

- Countries need to adopt best technology options for GM production.
- GM technologies need to be focused to address the still unmet needs of smallholder farmers.
- Since private sector is putting most of its efforts on major crops, there is a need to give more attention by public sector organizations to niche crops, like cassava and *Bt* brassica.
- Regional prioritization of crops for GM intervention should be based on agroecology.
- There is a need to address those problems on priority for which the entire technology can be packaged into seed.
- Biosafety compliance costs can be lowered by assisting countries in implementing biosafety policies through collaboration and optimization of testing.

B. Enhancing communication for public awareness

- Enlist farmers' support for technology awareness and inputs at the field trial stage itself rather than later when the tests have been completed. To ensure their greater acceptance, it is important to make farmers a part of the product development process.
- Make use of farmer champions post-introduction for spreading the good word about the technology.
- Resources need to be allocated by research institutes/technology developers for adopting appropriate communication strategies developed through professional communicators.

C. Regional cooperation for biosafety management

- Cooperation, collaboration, linkages and networking in modern biotechnology/biosafety among the Asia-Pacific countries need to be initiated, implemented and strengthened.
- There is a need for alignment and synergies among the existing biosafety policies under different national component authorities in each Asia-Pacific country and within sub-regional or regional economic/political associations.
- There exists an acceptable resolution on the co-existence issues among conventional agriculture, organic farming and biotech crop cultivation. A settlement of this issue is urgently needed within and among Asia-Pacific countries.
- In order to accomplish these aims and make them sustainable, there is a need of an effective financial assistance mechanism at the regional level similar to the one existing under GEF.

3. Asian Food and Agribusiness Conference 2013: Biotechnology and Global Competitiveness

The Asia Productivity Organization in collaboration with the Council of Agriculture, China Productivity Center, and Food and Fertilizer Technology Center organized the Asian Food and Agribusiness Conference: Biotechnology and Global Competitiveness in Taipei on 15–18 July, 2013. Besides participation of Dr. J. L. Karihaloo, APCoAB Coordinator as a resource person, APCoAB sponsored participants from Sri Lanka and Thailand attended the conference. The conference consisted of thematic sessions, open forums, panel discussions, poster exhibition, and a visit to the Bio Taiwan 2013 exhibition. Seventy four participants from 13 Asia-Pacific countries attended and shared their expertise through thematic presentations and discussions on biotechnology related topics. APCoAB Coordinator

delivered a talk on “Promoting Safe Application of Agricultural Biotechnology in Asia and the Pacific region for Greater Global Competitiveness”, and chaired one session.

The important outcome of the conference was the widespread view among the experts and participants that biotechnology is one important tool to help Asia-Pacific countries to meet the challenges arising from climate change, natural resource constraints, food insecurity, and unsustainable development. Additionally, experts shared experience in the many varied, proven, safe, effective applications of biotechnology ranging from biopesticides and biofertilizers to genetically modified crops.

Recommendations

A. Policy/Regulatory Enablers

- Governments should put in place appropriate science based biosafety regulatory frameworks in line with international conventions. The regulatory process must be well defined with deadlines to ensure timely review and processing of applications.
- There is a need to synchronize international approvals, lower regulatory costs, and create favourable public awareness of the socioeconomic benefits of biotech products and services in order to accelerate acceptance by the public.
- Countries should learn from the experience of those that have been successful in harnessing biotechnology through using cross-national metrics to benchmark progress and through the sharing of initiatives and experiences, whether successful or unsuccessful.
- To encourage biotech innovations and commercialization, governments should provide basic support such as financial incentives, a supportive policy environment, and infrastructure.

B. Risk Management and Risk Communication

- There are risks in starting and sustaining agricultural biotech enterprises. Specialized expertise is required to identify and manage such risks. A full understanding of these risks and the stakeholders concerned is needed with reference to the entire spectrum of biosafety regulatory and commercialization requirements for biotech products.
- There are still some concerns raised by the general public on the cultivation of biotech/GM crops. Experience has shown that it is important to treat all such concerns seriously. There is a need to address those concerns directly through appropriate communication strategies including the use of risk communication tools.
- One of the leading countries in Asia to approve a GM food crop for planting by farmers was the Philippines. Considerable expertise now is available in the national system within the Philippines. This experience should be tapped to conduct communication activities aimed at both internal and external stakeholders during R&D, product development, and commercialization. Such activities should be carefully designed to recognize stakeholders' perceptions, build trust, and be flexible and effective even under high-risk situations.

C. Investment

- Many Asian countries have invested heavily in public-sector biotech R&D in anticipation of the growing demands to remain food secure. Biotechnology as a relatively new agricultural technology has seen high returns on investment. However, in order for the benefits of biotechnology to be realized fully, a key structural requirement is the existence of science based biosafety regulatory frameworks and their operational implementation.

- Agriculture requires continuous innovations to keep up with the needs of the marketplace, farmers, and consumers. But, agricultural technologies require significant investments in funding and time, especially potentially “game-changing” technologies such as biotechnology.
- There is a great need to optimize and synergize, at the country level, biotech applications emanating from both the private and public sectors and to explore ways for both sectors to work toward expediting the delivery of biotech benefits to farmers and consumers.
- Many Asian countries face common challenges in meeting food and feed security needs. Biotech applications are the solution to address both challenges. A significant barrier to the use of biotechnology is the heavy investment required, especially by governments. Asian countries need to learn from one another and share experiences as well as coordinate efforts between governments, academic communities, local private companies, and foreign investors to offer a modality to accelerate the growth of the biotech sector.

D. Biotechnology for Green Productivity/Technology Solutions

- In view of declining water, energy, labour, and land resources “Green Food Production” has become essential to grow more food to meet increasing demand. In the coming decades, countries will have to use biotechnology for green food production in order to deter food insecurity and to address the anticipated effects of climate change.
- Animal waste is a growing problem in Asia due to the increased demand for protein. Strategies to address biogas emissions such as biodesulfurization technology using bacterial biofilters as used in the Republic of China can be utilized to treat the large amounts of livestock biogas before it is used as clean energy in farming and other sectors.

E. Strategies for Sector Advances

- Non-GM biotech applications are much easier to commercialize and receive public acceptance than GM biotech applications.
- Many non-GM biotech applications, such as biofertilizers, biopesticides, and tissue culture, are already accepted in Asian countries. Countries are urged to use the experience gained from public acceptance of such non-GM applications to support GM biotech applications.
- Biotech applications are varied, with a very broad scope, such as production inputs (biofertilizers, biopesticides, and animal vaccines), technologies (bioreactors, tissue culture, GM), and target crops and animals. Countries need to prioritize biotech applications appropriately to meet their needs, as has been done by the Republic of China, and provide adequate policy, financial, and logistical support to ensure success.
- Biotechnology has considerable potential to produce additional food from declining water and land resources while mitigating climate change impact, but its commercialization is constrained by unfounded perceptions of risk. International and regional organizations, NGOs, and agribiotech companies should continue to sensitize policymakers and planners to the potential contribution biotech applications can make to ensure national food security and socioeconomic development of the farming community.

4. Asia-Pacific Symposium on Molecular Breeding

APCoAB in collaboration with Council of Agriculture, Chinese Taipei and AVRDC - The World Vegetable Center organized Asia-Pacific Symposium on Molecular Breeding on 1- 3

October 2013 at AVRDC, Tainan, Chinese Taipei. It was aimed at promoting marker-assisted selection in crop and animal breeding in the region with the purpose to enhance food security and income generation along the whole agricultural value chain. More than 60 participants involved with plant and animal breeding from ten Asia-Pacific countries attended the symposium. APAARI nominated participants from Vietnam, Japan, Malaysia, South Korea, the Philippines, Thailand, Papua New Guinea, Nepal, Pakistan and India to the symposium. The symposium program was divided into three parts: The first part provided a technical update on marker-assisted selection in breeding and on genotyping innovations. The second part reported on the status and the progress of molecular breeding in the countries represented in the symposium, while the third part comprised a workshop session designed to enhance research collaborations in marker-assisted selection in the region. The group discussions in this session led to identification of three molecular breeding networks; cereals, vegetables, and livestock with identified network partners. Steps to formalize the partnerships and initiate network activities were also identified.

I. Molecular Breeding Network: Cereals

- Organize capacity development activities
- Exchange germplasm
- Develop joint project proposals

II. Molecular Breeding Network: Vegetables

- Seek funding for network activities
- Germplasm distribution via AVRDC and other International Centers
- Trait-based marker development (in collaboration with the Asian Pacific Seed Association and similar organizations)

III. Molecular Breeding Network: Livestock

- Identify national reference labs for MAS
- Set up MAS protocols

5. Workshop on Application of Genetic Engineering in Grain Legumes and its Translation

ICRISAT with the support of Department of Biotechnology, Government of India organized the workshop at its headquarters in India on 18-27 November 2013. APCoAB nominated participants from Malaysia, Korea, Nepal, Sri Lanka, Philippines, Bangladesh, Thailand and Chinese Taipei, six of whom participated. The program comprised key note lectures on status of genetic modification technology development and adoption in Asia-Pacific and Africa; lectures and laboratory exercises on biotechnology, biosafety regulations, compliance, liability and redressal, IPR and patent issues, and translational platform; and field visits.

6. FAO Regional Workshop on Strengthening Regional Cooperation and National Capacity Building on Biosafety in Asia

APAARI was invited to participate in the FAO workshop held in Bangkok on 17-20 June, 2013. Besides making a presentation “Biosafety Regulations of Asian Countries”, Coordinator APCoAB moderated the plenary discussion and recommendations of the workshop.

Publications

1. Stakeholders’ Interface on Genetically Modified Crops – Proceedings and Recommendations

This publication is the outcome of meeting organized by APCoAB and Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) in Manila, Philippines on 27 September, 2012. It includes summaries of the presentations and recommendations made during the meeting..

2. Expert Consultation on Managing Trans-boundary Diseases of Agricultural Importance in the Asia-Pacific – Proceedings and Recommendations

The publication details the proceedings of meeting organized by APAARI in collaboration with Indian

Council of Agricultural Research (ICAR) at New Delhi on October 10-12, 2012. The contents include recommendations made in seven sessions on Status and Management of Trans-boundary Diseases (TBDs) of Plants, Animals and Fish; Issues on TBDs; and Priorities for Policies, Research and Regional Management of TBDs. The final chapter comprises proceedings of Plenary Session including recommendations on policy, research, capacity building and regional cooperation in management of TBDs.

3. Stakeholders' Dialogue on Biosafety Regulations in the Asia-Pacific Region – Proceedings and Recommendations

This publication details the proceedings of meeting organized by APCoAB in Bangkok, Thailand on

16-17 April 2013. It includes background information, program, and summaries of presentations, discussion highlights and recommendations. The latter are grouped under three subheads; i) biotechnology R&D priorities especially aimed at smallholders ii) enhancing communication for public awareness, and iii) regional cooperation for biosafety management.

All publication is available at www.apcoab.org and www.apaari.org.

APCoAB Website

APCoAB website (www.apcoab.org) provides information on APCoAB organization, objectives, activities and news and events on agricultural biotechnology. It provides access to APCoAB publications comprising success stories, status reports and proceedings of expert consultation and other group meetings. Databases of agricultural biotechnology institutions in Asia-Pacific and biosafety regulations of Asia-Pacific countries are also available at this website. These resources are updated on regular basis.

APCoAB WORK PLAN FOR 2014

Expert Consultations /Symposia	<ul style="list-style-type: none"> • Steering Committee Meeting (22 April 2014) • Expert Consultation on Assuring Food Safety in Asia-Pacific - in collaboration with JIRCAS (4-5 August 2014) • 2014 International Conference on Prevention and Control of Avian Influenza – in collaboration with COA
Training Programs	<ul style="list-style-type: none"> • Training program on <i>In Vitro</i> Conservation and Cryopreservation for Conservation of Plant Genetic Resources – in collaboration with Indian Council of Agricultural Research (17-28 February 2014) • Training program on Food Safety – in collaboration with ICRISAT • Dairy Cattle and Goat for Milk – in collaboration with COA
Publications	<ul style="list-style-type: none"> • Proceedings of APAARI-AVRDC-COA symposium on molecular breeding • Biosafety Regulations of Asia-Pacific countries • Success story/status report on application of biotechnology in Asia-Pacific countries
APCoAB Website	<ul style="list-style-type: none"> • Regular updating of News and Events on agricultural biotechnology developments in AP region • Regular update of other website contents and databases