



**ASIA-PACIFIC CONSORTIUM
ON
AGRICULTURAL BIOTECHNOLOGY AND BIORESOURCES (APCoAB)
XXI STEERING COMMITTEE MEETING (2020)**

**July 7, 2020; at ICT 10:30 h to 13:40 h (Bangkok Time)
(Virtual)**

PROCEEDINGS

The XXI Steering Committee (SC) Meeting of the Asia-Pacific Consortium on Agricultural Biotechnology and Bioresources (APCoAB) was held on July 7, 2020 virtually. The meeting was attended by 21 participants, comprising the Chairman, Vice Chairman, Members of the SC, Special Invitee and observers including APAARI Secretariat Staff (Annex I).

Due to the COVID-19 pandemic, the SC Meeting was organized virtually. Ms Martina Spisiakova, KM Coordinator, APAARI, acted as Moderator for Virtual Meeting. Before starting of the meeting, Ms Spisiakova briefly apprised the participants about the guidelines for using the online platform for effective participation in the meeting. Thereafter, meeting was started as per schedule.



Virtual View of participants of XXI Steering Committee Meeting of APCoAB

Agenda Item 1: Welcome and Introduction

Dr Ravi Khetarpal, Executive Secretary, APAARI, welcomed and introduced the Chairman, Vice Chairman, Members of the SC meeting. He also welcomed Special Invitee, Observers and APAARI staff for attending the SC meeting. Dr Khetarpal mentioned that the present Steering Committee is very effective comprising of renowned scientists, science managers and administrators from governments, CG centre and private sector investment department. He briefly mentioned about the APCoAB that it is almost 18 years old programme which was initially to be associated with some NARS of any member country or CG centre. In early phase, APCoAB was associated with ICRISAT for long time but later on it was decided to shift it in APAARI Secretariat to mainstreaming the activities with strategic plan of APAARI. He thanked Council of Agriculture (COA), as major funding partner, and Australian Centre for International Agricultural Research (ACIAR) for their generous support to APCoAB.

Agenda Item 2: Opening Remarks

Dr Peter Horne, Chairman of the SC expressed his pleasure to Chair the SC meeting and he welcomed all the participants. He appreciated the organization of SC meeting, under unusual circumstances due to COVID-19 pandemic, to review the achievements of APCoAB. He mentioned that pandemic has exposed the vulnerability of food system at global level affecting the adequate and equitable food supply which is critical for social stability, therefore, there is a need to develop a more resilient food system at local, national, regional and global level. Although, the current situation has not yet become a major food crisis but we need to take precautions and there is no room for complacency. According to World Health Organization the worst stage of pandemic is yet to come which is most worrying situation. Dr Horne mentioned that in given pandemic situation, agri-biotechnology has great potential and an opportunity to contribute in food system resilience in developing countries.

Dr Horne briefly mentioned about the role of SC and urged the SC for reviewing, commenting, endorsing, suggesting the changes, if necessary, identify and reorganizing the future activities of APCoAB. He thanked the previous Executive Committee (EC) who made substantial statements and recommendations regarding APCoAB.

Finally, Dr Horne thanked the Vice Chairman and all the Members to attend SC meeting. He appreciated COA for ongoing financial support to APCoAB and hoped that this cooperation will be continued in future also.

Before moving to the Agenda items, the Chair invited Mr Vincent Lin, Vice Chairman for his remarks.

Agenda Item 3: Remarks by COA

Mr Vincent Lin, Vice Chairman of the SC, expressed his pleasure to participate in the SC meeting. He extended his sincere appreciation to Dr Ravi Khetarpal and his capable staff at APAARI for organizing this important event during this critical juncture of the COVID-19 pandemic. Mr Lin expressed his concerns about dramatic changes in the world due to disease and thereby decreasing, agricultural supply chains and food security at global level which will become increasingly important in the near future

Mr Lin reiterated that APAARI has been playing a key role in strengthening Agri-food Research and Innovation Systems in the Asia-Pacific region, while APCoAB is becoming as

indispensable forum sharing and enhancing the benefits of biotechnologies and bioresources for sustainable agricultural development in the Asia-Pacific region. The Council of Agriculture (COA) believes that investment in agricultural research is the key to solving current and future problems. COA is, therefore, of the view that biotechnology, novel materials, big data and the internet of things (IoT) have great potential in addressing such challenges. In view of these facts, Taiwan government has implemented several special projects related to food security to cope with the severe condition of COVID-19. Mr Lin informed that COA will be happy to share their experiences with all members in the future.

While discussing the partnership of COA with APAARI, he mentioned that COA has been a member of the APAARI family since 1999. Taiwan government through COA has been supporting the APCoAB Program of APAARI since 2008 in light of its substantial outcomes. In addition, the COA is going to sign a Memorandum of Understanding with APAARI for the APCoAB programme in the coming days to further enhance our cooperation under this meaningful programme. He assured that Taiwan government is looking forward to continuous cooperation with APAARI in the implementation of APCoAB programme for 2019-2022 and will continue our funding to the APCoAB programme to benefit the members of APAARI and the entire Asia-Pacific region. Mr Lin thanked the Chairman for giving opportunity to share his views and the Members for their participation in the SC meeting. Mr Lin wished the SC meeting a great success.

Agenda Item 4: Final Approval of Minutes of XX SC Meeting

The Agenda for the XXI SC meeting was approved by SC (Annex II).

SC was informed that the Proceedings of the XX Steering Committee Meeting held on June 12, 2019 in Bangkok, Thailand, were circulated to all the Steering Committee members and other participants of the meeting. Chairperson made some corrections/modifications which were included in final version. This version was again sent to all the members. No further comments were received. The proceedings were placed before the Steering Committee for final approval (Annex III).

The SC approved the Proceedings of XX Steering Committee Meeting held on June 12, 2019.

Agenda Item 5: APCoAB Program – Background and Status, Action Taken Report and Progress

Background and Status

Dr Rishi Tyagi made a brief presentation on the mandate, programme, progress and current status of APCoAB (Annex IV). He briefly mentioned about the genesis of APCoAB, which was established in 2004 with the recommendation of 7th APAARI EC Meeting, in response to the need expressed during jointly organized APAARI-FAO meetings during March (Expert Consultation on the Status of Biotechnology in the Asia-Pacific Region) and December 2002 (Expert Consultation on Strengthening of Research Partnerships through Networks and Consortia) to promote the adoption of agricultural biotechnology for the benefit of the Asia-Pacific region. In view of aligning the APCoAB programme with thematic areas of Strategic Plan of APAARI, activities on bioresources was included on recommendations of Executive Committee in November, 2017. Thereafter, it has been renamed as Asia-Pacific Consortium

on Agricultural Biotechnology and Bioresources (APCoAB). Besides APAARI, the programme has been funded, by COA, ACIAR and other public and private organizations. COA has been the major finance supporter of APCoAB since 2008.

APCoAB, in collaboration with APAARI member organizations, carries out expert consultation meetings in the areas of policy, workshops, capacity building programmes related to technological advances, benefits and concerns related to agricultural biotechnology and bioresources in its broad sense. APCoAB has brought out a large number of publications, including proceedings of expert meetings, success stories and status reports of technology adoption and regulation. The APCoAB website (www.apcoab.org; <http://www.apaari.org/web/our-projects/apcoab/>) provides up-to-date information about the programmes and its activities related to agricultural biotechnology and bioresources.

Action Taken Report

The Action Taken Report (ATR) regarding the recommendations made during the XX SC meeting was presented by Dr Tyagi (Annex V).

After presentation of ATR, Chairman invited the questions from SC.

Dr Jacqueline Hughes asked that what would be needed to facilitate for conducting online survey on gene editing sooner than later. Dr Tyagi clarified that online survey on gene editing is planned to conduct in 6 countries in Asia. A simple questionnaire has been prepared and the contact lists of the respondents of different categories and countries are under preparation. Experts from Biotechnology Consortium of India Limited (BCIL), India and Agriculture Food System Institute (AFSI), USA, are being consulted.

Dr Peter Horne wanted to clarify whether the mandate of APCoAB is sufficiently focus on function and adequately empower APCoAB. Dr Ravi Khetarpal responded that APCoAB mandate is revised in 2017 by including the activities on bioresources with the permission of EC to mainstream the APCoAB activities with APAARI Strategic Plan. Dr Rishi Tyagi supplemented that the revised objectives being full-filled in compliance with MERL Plan of APAARI and the activities can be expanded with the availability of additional funds. Dr Horne further specifically asked whether APCoAB is coordinating with other groups like UN FAO for creating public awareness or national policy development on biotech tools like gene editing. Dr Tyagi responded that about the policy development on gene editing many countries were involved for developing the recommendations which will be presented later. However, he mentioned that as per records available in APAARI, UN FAO is supposed to involve APCoAB in agricultural biotechnology programme which is supported by ACIAR also, but APCoAB has not been involved so far. This point was brought in the knowledge of SC in previous meeting held in 2018 also with a request with ACIAR for conveying a message to UN FAO so that APCoAB is involved in activities of agri-biotechnology programme. He again requested to ACIAR to look into it.

Dr Julianne Biddle suggested that the activities planned for this year need not to be pushed to next year to avoid the risk due to increased workload for next year as has been commented during previous SC meeting also. Dr Tyagi responded that we are conscious about the situation of pandemic and have been discussing this issue within secretariat and our partners to explore the possibility to complete the activities online as far as possible. Only the activities like hands-on training has to be looked into that how it can be accomplished during this year. Dr Ravi Khetarpal added that we may like to listen the views of Dr Mohapatra, as Expert Consultation on AIM to be held in collaboration with ICAR.

Dr Trilochan Mohapatra responded first to Chair's comment about the additional activities to be carried out in APCoAB. In his opinion, APCoAB has to work within the mandate and cannot take up too many activities with limited resources (financial and manpower). He added that the objective (2): "*Application of biotechnological tools for bioprospecting, conservation and sustainable use of bioresources*" which needs to be looked into as APCoAB can only facilitate partners to apply the biotechnological tools. Therefore, this objective needs to be revised or qualified otherwise. He mentioned that COVID-19 is a major bottleneck for all organizations so is the case with APCoAB also. He suggested that focus should remain that how all these activities, for example agriculturally important microorganisms, are useful for the region and beyond. As suggested earlier, Asia-Pacific region needs to capitalize on the success stories in agri-biotechnology, information flow, and country to country cross-learning experiences.

The Chair specially invited opinion of Mr Vincent Lin.

Mr Vincent Lin stated that COA has no particular opinion about the format for future activities to be accomplished. However, keeping in view the situation due to COVID-19, a realistic arrangement for activities should be worked out, either online or other suitable format ensuring the safety of the people.

Dr Ravi Khetarpal appreciated the suggestions made by Dr Mohapatra, Mr Vincent Lin and Dr Julianne Biddle. He mentioned that we will brainstorm these issues internally to look into the feasibility about the format and the activities to be undertaken which will be shared with SC.

SC endorsed the Action Taken Report.

Progress Report

Dr Rishi Tyagi presented the progress report of the work done from June 1, 2019 to May 31, 2020 (for detail report see Annex VI). The Chairman appreciated the progress made during the period under report. After presentation of the Progress Report on the events organized during the period, the Chair invited SC for the comments/questions. A summary of the key comments made by the SC is given hereunder.

Dr Trilochan Mohapatra congratulated for a successful organization of the events. He mentioned that on the basis of the feedback of the participants of the events, it is clear that participants appreciated the activities. He expressed his concerns whether the ‘Workshop on Innovations in Agribusiness for Young Entrepreneurs’ is within the mandate of APCoAB, as agribusiness is very wide areas and not related to biotechnology. In response, Dr Rishi Tyagi informed that under the Work Plan of APCoAB, we have to organize one event in a year at suggestion by COA (being the major funding organization). Therefore, this workshop on agribusiness was co-organized. Dr Ravi Khetarpal further added that COA has an MoU with APAARI to support the APCoAB. Under this MoU, COA will organize one event per year of their choice. The workshop on agribusiness was co-organized with COA under ‘Inclusive Development’ theme of APAARI in accordance with the MoU.

Dr Amit Sukal appreciated the training on *in vitro* conservation and cryopreservation of plant genetic resources on the basis of the feedback received by two scientists of SPC who attended this training. He mentioned that this will be very useful for establishing the cryopreservation set-up in SPC genebank.

Mr Vincent Lin appreciated the wonderful presentation is made by Dr Rishi Tyagi and Mr Chieh-Cheng (Jack), Lin. It is encouraging that the social media presence is increased considerably during past two months. Since APCoAB has different themes to deal with, he suggested to analyse that in which theme the visitors are more interested. Probably this information can be used as reference to identify the future strategies of APCoAB.

Dr Peter Horne asked that what drives the topic of projects submitted for funding – is it based on donors’ funding or strategic direction under APCoAB. Dr Rishi Tyagi responded that the projects which were submitted during 2018 were developed on the basis of gap analysis in capacity building identified in the Pacific countries in areas of agri-biotechnology and bioresources at suggestion of Taipei Economic and Cultural Office in Thailand, which were part of a comprehensive project submitted by APAARI to the International Cooperation and Development Fund (ICDF) through COA. Projects on gene editing submitted during 2019 were based on the recommendations made during Expert Consultation on Gene Editing for outreach and communication strategies and harmonization/alignment of regulatory policy on gene editing at regional level.

The progress report was accepted by the SC.

Agenda Item 6: APCoAB Program – Current Work Plan

Dr Rishi Tyagi presented a work plan for the period of January-December 2020 (Annex VII). This work plan was based on approved APCoAB programme (2019-2022) and implementation format is subjected to the ease in prevailing situation due to pandemic in due course of period.

Chairman invited the questions/clarifications from SC on Work Plan.

Dr Indu Bala S Jaganath informed that Asia-Pacific Economic Cooperation (APEC) has decided to hold High Level Policy Dialogue on Agricultural Biotechnology virtually, under

which the International Conference on Gene Editing is planned at MARDI, Malaysia (in collaboration with APAARI/APCoAB), during September/October 2020; exact date is yet to be decided by APEC.

Dr Ravi Khetarpal appreciated the idea of BCP and informed that a BCP will be developed after EC meeting and will be shared with EC members *via* email or online discussion for approval.

Chairman recommended that in given the circumstances of big uncertainties due to COVID-19 pandemic a brief Business Continuity Plan (BCP) should be developed around the work plan to manage the risks for delivery during implementation of the work plan.

The Work Plan was approved by the SC.

Agenda Item 7: Administrative Matters (Recruitment of Technical Associate, Intern and Extension of Coordinator, APCoAB)

Dr Rishi Tyagi informed SC that Mr Chieh-Cheng (Jack), Lin from Taiwan joined as Technical Associate in APCoAB on September 12, 2019. Ms Clara Strach from France joined as Intern and worked from September 23, 2019 to February 14, 2020 in APCoAB. The tenure (3-year) of Coordinator APCoAB (Rishi Tyagi) will be completed on August 10, 2020. An extension for three years term has been granted to him which is based on his superannuation from ICAR and re-joining APAARI for another term. Dr Tyagi briefly mentioned about the progress about his superannuation from ICAR as he submitted the 3-month notice to ICAR in April 20,2020 for superannuation, however, the progress is very slow due to lack of working staff in ICAR due to COVID-19 pandemic.

SC endorsed above administrative matters.

Agenda Item 8: Re-constitution of Steering Committee for the year 2020-2021

Dr Rishi Tyagi presented the details of re-constitution of Steering Committee of APCoAB for 2010 to 2021 (Annex VIII).

SC endorsed the re-constitution of Steering Committee of APCoAB for 2020 to 2021.

Agenda Item 9: Audited Financial Statement (January-December 2019)

Dr Rishi Tyagi informed SC that overall Audited Account Report of APAARI for January-December 2019 will be presented in the EC meeting starting from tomorrow onwards. However, he presented the Summary of Account Statement of APCoAB (January 1, 2019-December 31, 2019) for approval. Dr Tyagi mentioned that during January-December 2019 the total amount of receipt under APCoAB was USD 250,000 and payments were USD 258,072.20. In addition, USD 45,235 was contributed by the partners (ICRISAT, MARDI, SLCARP) in kind to co-organize some of the events. He also presented the Summary of Expected Income and Expected Expenditure for the APCoAB activities during January 1, 2020-December 31, 2020. The expected income was estimated at USD 270,000 and expected expenditure at USD 269,904. A summary of overall APCoAB's income and expenditure for 2019 is given in Annex IX and the expected income and expenditure for 2020 can be found in Annex X.

Dr Ravi Khetarpal further clarified that the amount presented as contribution from APAARI and partners (USD 70,000) also includes USD 15,000 contributed each year by ACIAR generously for the APCoAB under an agreement was made earlier.

Mr Vincent Lin mentioned that COA will be signing an MoU with APAARI to support APCoAB from 2019 to 2022 and COA will continue to contribute for this important programme for the benefit of the region. Further, he wanted to clarify that whether the three in-kind receipts from three international organizations were spent in workshop or other activities. Dr Tyagi explained that these in-kind receipts were utilized as partial expenditure on local travel, food, facilities (venue, audio-visual, etc.) arranged by these partners to co-organize the events in partnership.

Dr Jacqueline Hughes pointed out that what are charges for ‘facilities from secretariat’ that is APAARI. She further expressed her concern that there may be risk of double charging. Dr Tyagi explained that facilities from secretariat included the amount spent for services provided in form of part of salary of Finance and Admin staff of APAARI for spending their time for finance and other admin work related to APCoAB, stationery, telephone, photocopier, etc.

Dr Peter Horne confirmed from Dr Ravi Khetarpal that presumably the finance report of APAARI will reflect this amount as income against the cost of running of APAARI secretariat. Dr Khetarpal responded affirmatively.

Dr Jacqueline Hughes expressed her concern that it should not be double booking. She mentioned that she will be happier if it is cheaper or not charged from this group by the Secretariat. Dr Horne mentioned that he will look into the finance report of APAARI.

Dr Peter Horne asked about the new item of Technical Associate salary as reflected for current year. Dr Tyagi explained about the salary of Coordinator and Technical Associate (Jack Lin) who joined last year are mentioned separately.

The above Summaries of Account Statements were approved by the Steering Committee.

Agenda Item 10: General Discussion and Any other Matters

The Chair appreciated the clarity presentation and documentation of meeting papers done by APCoAB team. He invited the questions or comments from SC on presentation or any other matter, for both directions and upcoming risk for APCoAB.

Dr Ravi Khetarpal appreciated the work done by APCoAB team which has brought this programme on firm footing. While acknowledging that a lot of activities are being done under APCoAB, he suggested that a focus may be given to develop policy positioning with scientific rationale in key areas of biotechnology and bioresources with the help of member countries, in view of upcoming global agreements. Generic policy positioning may help the developing and least developing countries to develop the policies by their respective governments.

Dr Khetarpal also briefly mentioned about the comprehensive project was submitted to ICDF through COA, comprising components including biotechnology, ASTI, CoE on Value Chain, KM related to Higher Education under guidance of TECO, Thailand.

Dr Peter Horne invited Mr Vincent Lin for his suggestions. Mr Lin commented on second part of Dr Khetarpal's statement related to the ICDF project. He mentioned that this project was prepared very well and is very meaningful. He informed the SC that current year budget is diverted by the government to cope up with COVID-19 pandemic, therefore, there is a budget constraint in current year, nevertheless, out of six components of the project perhaps we may pick up the priority agenda like ASTI or other issues at this stage. The remaining components may be taken up subjected to availability of budget in near future. Nevertheless, I encourage to continue the discussion between APCoAB and my government which lead to useful outcomes of our cooperation for the benefit of the region.

Dr Peter Horne further clarified from Mr Lin that in addition to core function of APCoAB, whether COA support the shift in strategic intent of policy influence space in biotechnology and bioresources by working with national governments. Mr Lin responded that as has been mentioned in earlier SC meeting, there is a need to prioritize the project activities and need not to take up all activities at the same time in coming years. He assured that COA will continue to support with USD 170,000 annually to APCoAB up to year 2022. He expressed his agreement with the intervention of the Chair and APCoAB may revise the priority activities accordingly.

Dr Jacqueline Hughes commented that policy related issues are very important. Regulatory policies hold up an importance in research development environment. The Challenge, for APCoAB and APAARI as well, is that how to work with global influences who are already working in these areas so that we don't end up with area-specific policies which don't match with other countries to avoid any global trade barriers in the future. She continued that how we can have more interaction at global level to develop the policies for our partners. She suggested that we should have global view for any policy which is proposed.

Dr Rishi Tyagi appreciated suggestions provided by Dr Hughes and others related to policy issues. He responded to above comments: (i) as per advice the APCoAB activities will be prioritized for remaining period of the time of project, (ii) based on recommendations of expert consultation on gene editing, we developed a project on harmonizing the regulatory policies on gene editing which might have facilitate the trade between the countries, (iii) An active discussion is on with organizations in India (BCIL) and USA (AFIS) for developing the comprehensive policy document on gene editing and the experts in CG centres in related policy areas may be consulted, and (iv) the policy issues will be prioritized and taken up, subjected to availability of resources and expertise.

Dr Ravi Khetarpal appreciated Dr Hughes's suggestions. He added that APAARI is very fortunate to have multi-stakeholder partnership with FAO, NARS, CG centres, AIRCA institutes, which we can very profitably utilize this partnership to move forward in policy direction by having the global, regional and national interaction.

Chairman recommended that there should be due focus for developing the policy documents related to agri-biotechnology and bioresources in consultation with global and regional partners.

Release of New Publications

Dr Peter Horne, Chair, SC formally released the following new publications:

- (i) Regional Workshop on Underutilized Animal Genetic Resources and their Amelioration – Regional Status Reports and Strategic Papers
- (ii) Proceedings and Recommendations of the Satellite Symposium on Dryland Agrobiodiversity for Adaptation to Climate Change
- (iii) Regional Expert Consultation on Gene Editing and its Regulation – Proceedings and Recommendations
- (iv) Regional Workshop on Underutilized Fish and Marine Genetic Resources and their Amelioration - Proceedings and Recommendations
- (v) Banana Tissue Culture in India - A Success Story
- (vi) Training Manual on International Hands-on Training on Genome Editing Technology
- (vii) Training Manual on International Training Course on In Vitro and Cryopreservation Approaches for Conservation of Plant Genetic Resources

Dr Peter Horne appreciated the impressive publications made under APCoAB during the year.

Agenda Item 11: Concluding Remarks

The Chair appreciated the progress. In his brief comments, he thanked Dr Rishi Tyagi, Dr Ravi Khetarpal and team for preparing very comprehensive documents of SC meeting. He thanked Ms Martina Spisiakova and team for the necessary support and particularly moderating SC meeting, Ms Tarathip Sanboonkrong for strong background support, and Finance and Admin staff of APAARI Secretariat. Dr Horne thanked the SC for their participation. He mentioned that he will share his notes on observations/recommendations with SC for their comments to capture all points without missing any so that we full-fill our role as SC to guide the APCoAB programme and manage the risks under this critical pandemic time.

Agenda Item 12: Vote of Thanks

Dr Rishi Tyagi proposed a vote of thanks to the Chairman, Vice Chairman, and all the Members of the Steering Committee for their valuable guidance and suggestions. He thanked COA, ACIAR for their generous financial support. Sincere thanks were also extended to the collaborators particularly ICRISAT, MARDI, SLCARP, CRP-GLDC for co-organizing the various activities and providing part in-kind financial support. He also thanked all the special invitees, observers and APAARI staff members who participated in the meeting. Cooperation provided by Director and Secretary of Political Division, TECO, Thailand, was also gratefully acknowledged. Special thanks were extended to Ms Martina Spisiakova for effectively moderating the SC meeting.

XXI APCoAB STEERING COMMITTEE MEETING
(Virtual)
July 7, 2020
List of Participants

S. No.	Name, designation and affiliation	Email	Representation
1.	Dr Peter Horne General Manager, Country Programs and Chairman, APAARI Australian Centre for International Agricultural Research (ACIAR) 38 Thynne St Bruce GPO Box 1571 Canberra ACT 2601, Australia	peter.horne@aciar.gov.au	Chairman
2.	Mr Vincent Lin Director General International Affairs Department Council of Agriculture, 37 Nan Hai Road, Taipei, Taiwan	vincent@mail.coa.gov.tw	Vice-Chairman
3.	Dr Trilochan Mohapatra Director General and Vice Chairman, APAARI Indian Council of Agricultural Research (ICAR), Krishi Bhavan New Delhi-110001, India	dg.icar@nic.in	Member
4.	Dr Jacqueline d'Arros Hughes Director General, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru-502324, Telangana, India	J.Hughes@cgiar.org	Member
5.	Dr Indu Bala S. Jaganath Director of Strategic Planning and Innovation Management Malaysian Agricultural Research and Development Institute (MARDI) P.O. Box No. 12301, Kuala Lumpur 50774, Malaysia Representative of: Dr Mohammad Roff Bin Mohd Noor Director General Malaysian Agricultural Research and Development Institute (MARDI) P.O. Box No. 12301, Kuala Lumpur 50774, Malaysia	indu@mardi.gov.my roff@mardi.gov.my	Member
6.	Dr Huu-Sheng Lur Dean College of Bioresources and Agriculture National Taiwan University, Taipei, Taiwan	lurhs@ntu.edu.tw	Member
7.	Dr Sanjay Saxena General Manager & Head (Investment) Biotechnology Industry Research Assistance Council (BIRAC) 1st Floor, MTNL Building 9, CGO Complex, Lodhi Road	ssaxena@birac.nic.in	Member

	New Delhi – 110003, India		
8.	Dr Amit Sukal Plant Genetic Resources Centre of the Pacific Committee P.O. Box 8469, Nakasi, Fiji	amits@spc.int	Member
9.	Dr Ravi Khetarpal, Executive Secretary, Asia-Pacific Association of Agricultural Research Institutions (APAARI), FAO Annex Building, 202/1 Larn Luang Road, Bangkok 10100, Thailand	ravi.khetarpal@apaari.org	Member
10.	Dr Rishi Tyagi, Coordinator, APCoAB, APAARI, FAO Annex Building, 202/1 Larn Luang Road, Bangkok 10100, Thailand	rishi.tyagi@apaari.org	Member Secretary
11.	Dr Julianne Biddle Director Multilateral Engagement Australian Centre for International Agricultural Research (ACIAR) 38 Thynne St Bruce GPO Box 1571 Canberra ACT 2601, Australia	Julianne.Biddle@aciar.gov.au	Special Invitee
12.	Ms Tzu-Ying Yeh Agriculture Secretary, Agriculture Office Taipei Economic and Cultural Office in Thailand, 20 th Floor, Empire Tower 1, South Sathorn Road, Bangkok 10120, Thailand	tyyeh@mail.coa.gov.tw	Observer
13.	Ms Li-Tzu Nien Department of International Affairs, COA, 37 Nan Hai Road, Taipei, Taiwan	liznien@mail.coa.gov.tw	Observer
14.	Dr Norah Omot Coordinator, ASTI, APAARI FAO Annex Building, 202/1 Larn Luang Road, Bangkok 10100, Thailand	norah.omot@apaari.org	Observer
15.	Ms Martina Spisiakova Coordinator, Knowledge Management, APAARI FAO Annex Building, 202/1 Larn Luang Road, Bangkok 10100, Thailand	m.spisiakova@apaari.org	Moderator and Observer
16.	Mr Manish Rai Finance and Admin Coordinator, APAARI FAO Annex Building, 202/1 Larn Luang Road, Bangkok 10100, Thailand	Manish.rai@apaari.org	Observer
17.	Ms Celilu Bitong Knowledge Management Officer, APAARI FAO Annex Building, 202/1 Larn Luang Road, Bangkok 10100, Thailand	c.bitong@apaari.org	Observer
18.	Mr Chieh-Cheng (Jack), Lin FAO Annex Building, 202/1 Larn Luang Road, Bangkok 10100, Thailand	cc.lin@apaari.org	Observer

19.	Mr Vishwanath Kumar Sah Senior Admin Associate FAO Annex Building, 202/1 Larn Luang Road, Bangkok 10100, Thailand	vk.sah@apaari.org	Observer
20.	Ms Thansita Tanapatrujira Operation Associate FAO Annex Building, 202/1 Larn Luang Road, Bangkok 10100, Thailand	Thansita@apaari.org	Observer
21.	Ms Tarathip Sanboonkrong Executive Assistant FAO Annex Building, 202/1 Larn Luang Road, Bangkok 10100, Thailand	tarathip@apaari.org	Observer



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

**XXI STEERING COMMITTEE MEETING
(2020)**

**July 7, 2020
Bangkok, Thailand**



**ASIA-PACIFIC CONSORTIUM ON AGRICULTURAL
BIOTECHNOLOGY AND BIORESOURCES (APCoAB)
XXI STEERING COMMITTEE MEETING (2020)
(VIRTUAL)**

July 7, 2020; ICT 11:00 h to 13:40 h (Bangkok time)

Agenda

S. No.	Time	Item	Facilitation
1.	11:00-11:10	Welcome and Introduction of Steering Committee	Executive Secretary, APAARI
2.	11:10-11:20	Opening Remarks	Chairman, Steering Committee
3.	11:20-11:30	Remarks by COA	Vice Chairman, Steering Committee
4.	11:30-11:35	Final Approval of Minutes of XX SC Meeting	Chairman, Steering Committee
5.	11:35-12:25	APCoAB Program – Background, Status, Action Taken Report and Progress Report (June 1, 2019-May 31, 2020)	Rishi Tyagi, Coordinator, APCoAB, APAARI Mr Chieh-Cheng, Lin, Technical Associate
	12:25-12:40	Break Out Session	
6.	12:40-12:50	APCoAB Work Plan (January-December 2020)	Rishi Tyagi, Coordinator, APCoAB, APAARI
7.	12:50-12:55	Administrative Matters (Recruitment of Technical Associate, Intern, Extension of Coordinator, APCoAB)	
8.	12:55-13:00	Re-constitution of Steering Committee for year 2020-2021	
9.	13:00-13:05	Financial Statement (January-December 2019)	
10.	13:05-13:25	General Discussion and Any Other Matters	Members
11.	13:25-13:35	Concluding Remarks	Chairman
12.	13:35-13:40	Vote of Thanks	Rishi Tyagi, Coordinator, APCoAB, APAARI



ASIA-PACIFIC CONSORTIUM ON AGRICULTURAL BIOTECHNOLOGY AND BIORESOURCES (APCoAB)

XXI STEERING COMMITTEE MEETING (2020) (VIRTUAL)

July 7, 2020; ICT 11:00 h to 13:40 h (Bangkok Time)

ANNOTATED AGENDA

Agenda Item 1: Welcome and Introduction

Dr Ravi Khetarpal, Executive Secretary, APAARI will welcome the participants and briefly introduce the Steering Committee members.

Agenda Item 2: Opening Remarks

Chairman, Steering Committee and APAARI will deliver his opening remarks highlighting the APCoAB programme and key issues to be addressed.

Agenda Item 3: Remarks by COA

Vice Chairman, Steering Committee, Council of Agriculture, Taiwan, will give his remarks on achievements and expectations from APCoAB, being its major funding partner.

Agenda Item 4: Final Approval of Minutes of XX SC Meeting (Annex 1; Page 5)

Proceedings of the XX Steering Committee held on June 12, 2019 in Bangkok, Thailand, were circulated to all the Steering Committee members and other participants of the meeting. Chairperson made some corrections/modifications which were included in final version. This version and sent to all the members. No further comments were received.

The proceedings will be placed before the Steering Committee for formal approval.

Agenda Item 5: APCoAB Program – Background and Status (Annex 2; page 15), Action Taken Report (Annex 3; page 17) and Progress (Annex 4; page 20)

Dr Rishi Tyagi, Coordinator, APCoAB, APAARI, will make a brief presentation on mandate, programme; Action Taken Report and progress of APCoAB (June 01 2019 to May 31, 2020) before the Steering Committee for consideration and formal approval. He will also elaborate on its current status of activities.

Agenda Item 6: APCoAB Program – Current Work Plan (January-Dec. 2020) (Annex 5; page 41)

Coordinator, APCoAB, APAARI, will present the work plan for the period January-December 2020 for approval of Steering Committee.

Agenda Item 7: Administrative Matters (Recruitment of Technical Associate, Intern and Extension of Coordinator, APCoAB)

Mr Chieh-Cheng, Lin from Taiwan joined as Technical Associate in APCoAB on September 12, 2019. Ms Clara Strach from France joined as Intern and worked from September 23, 2019 to February 14, 2020 in APCoAB.

The tenure (3-year) of Coordinator APCoAB will be completed on August 10, 2020. An extension for three years term has been granted to him which is based on his superannuation from ICAR and re-joining APAARI for another term.

Coordinator, APCoAB will present above details for endorsement by the Steering Committee.

Agenda Item 8: Re-constitution of Steering Committee for the year 2020-2021 (Annex 6, page 42)

Steering Committee is re-constituted for the years 2020 and 2021 comprising: Chairperson (Ex-Officio Chairperson of APPARI); Vice Chairperson (major donor of APCoAB); and Members –one member from each sub-region of Asia-Pacific i.e. South Asia; South East Asia; the Pacific Region; One member from CGIAR Institute; Executive Secretary of APAARI (Ex-Officio); Member Secretary, Coordinator APCoAB (Ex-Officio).

Coordinator, APCoAB will present the details of Steering Committee for endorsement.

Agenda Item 9: Audited Financial Statement (January-December 2019) (Annex 7 and 8; page 44, 45)

The consolidated Audited Account statement of APAARI for January-December 2019 will be presented in the Executive Committee Meeting of APAARI. However, summary of income and expenditure for 2019 is given in Annex 6 and expected income and expenditure for 2020 are given in Annex 7, which will be presented by Coordinator, APCoAB.

Agenda Item 10: General Discussion and Any other Matters

Chairman may initiate general discussion. Members may provide the suggestions for further improvement for functioning and enhancing the budget for the activities under APCoAB.

Agenda Item 11: Concluding Remarks

The Chairperson will deliver closing remarks based on the discussions and deliberations held about the progress and future work plan of APCoAB.

Agenda Item 12: Vote of Thanks

Dr Rishi Tyagi will present a formal Vote of Thanks to the Chairperson, Vice Chairman, Members and other participants of the Steering Committee meeting for their participation and valuable guidance.



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

**XXth STEERING COMMITTEE MEETING
(2019)**

**June 12, 2019
(09:00-12:00 h)**

Ibis Styles Bangkok Ratchda Hotel, Bangkok, Thailand

PROCEEDINGS

The XXth Steering Committee (SC) Meeting of the Asia-Pacific Consortium on Agricultural Biotechnology and Bioresources (APCoAB) was held on June 12, 2019 at Ibis Styles Bangkok Ratchda Hotel, Bangkok, Thailand. The meeting was attended by 19 participants, comprising the Chairperson, Vice Chairperson, members of the SC, special invitees and observers (Annex I).



Participants of the XXth Steering Committee Meeting of APCoAB

Agenda Item 1: Welcome and Introduction

Dr Ravi Khetarpal, Executive Secretary, APAARI, welcomed the Chairperson, Vice Chairperson, members, special invitees, and observers of the SC meeting. He also welcomed the staff members of APAARI. Dr Khetarpal thanked COA for providing additional funding to APCoAB for four years i.e. 2019-2022. He also thanked the Chairperson, Vice Chairperson, the members, special invitees and all participants for attending the SC meeting, as well as the major funding partner Council of Agriculture (COA) and Australian Centre for International Agricultural Research (ACIAR) for their generous support to APCoAB. This was followed by self-introduction by each participant.

Agenda Item 2: Opening Remarks

Ms Mellissa Wood, Chairperson of the SC, welcomed all the participants and expressed her pleasure to chair the SC meeting. While emphasizing the importance of agricultural biotechnology and bioresources as a part of solution to ongoing problems of food shortage which a major issue in Asia-Pacific region (APR), she mentioned about the significant role of APCoAB for capacity building and knowledge sharing in areas of agricultural biotechnology and bioresources. Ms Wood told that national agricultural research systems (NARS) in APR have recognized the importance of biotechnology and many countries have allowed cultivation of GM crops. A total of 8 countries of APR – Australia (cotton and canola), Bangladesh (brinjal), China (cotton, papaya), India (cotton), Pakistan (cotton), Philippines (maize), Myanmar (cotton), Vietnam (maize) allowed cultivation of biotech crops which have brought benefits to the farmers. Several biotech crops are in pipeline in many Asian countries. She emphasized that the adoption of biotech crops helps towards achieving the sustainable development goals but the challenge is how to enhance the acceptance of these crops and build the trust amongst the stakeholders including consumers about the safety of the biotech products.

Ms Wood stated that through new innovations like gene editing several products have been developed globally but the issues relating to regulatory policies for adoption of such products is still being debated. Countries like Australia, USA, Japan have decided to treat some of the gene-edited products like non-GM products. To harness the benefits of this innovative technology, the regulatory policies should be in place in the countries of APR so that when the products are ready, these can be taken forward to the fields. Asia-Pacific countries should deliberate and develop policies to deal with gene-edited products. She also mentioned that in the age of the Anthropocene, agriculture is a major source of many of the environmental challenges (biggest water user, 26% GHG emissions, biggest land user *etc.*) and therefore, agriculture is a solution to these problems and the biggest lever we have to address these global challenges. The biotechnology toolkit needs, therefore, to focus not just on sufficient and nutritious food, but on food that is sustainably produced.

Ms Wood mentioned that agricultural biotechnology is beyond the GM crops which has several applications in agriculture. It also plays a significant role in bioprospecting, effective conservation and sustainable use of bioresources. She stressed that in order to harness the full potential of biotechnology, capacity building in the above-mentioned areas is imperative for effective conservation and sustainable utilization of bioresources particularly for maintenance of diversity of vegetatively propagated crops in APR.

Finally, Ms Wood thanked the Vice Chairperson and all the members to attend SC meeting. She also extended special thanks to COA for being a major donor of APCoAB and further enhancing the funding for 2019-2022. She hoped that this cooperation will be continued in future also.

Before moving to the Agenda items, the Chairperson invited the Vice Chairperson for his remarks.

Agenda Item 3: Remarks by COA

Mr Vincent Lin, Vice Chairperson of the SC, expressed his pleasure to participate in the SC meeting. On behalf of COA and on his own behalf, he congratulated Ms Mellissa Wood to accept to be Chairperson of SC and providing the leadership to APCoAB programme. Mr Lin thanked the Secretariat of APAARI and especially the Coordinator, APCoAB to carry out the activities efficiently. He mentioned that COA is pleased to extend uninterrupted financial support to APCoAB during past many years which has further been extended up to 2022. Mr Lin stressed that development in biotechnology is very important in many countries of APR. However, he emphasized that the specific issues should be focused in this programme, keeping their importance in view. There is a need to collaborate with other organizations in the region and he requested the Chairperson to provide the visionary guidance to make this programme more successful. Mr Lin expressed his satisfaction for the progress made under APCoAB programme and thanked the Chairperson for her guidance and all the members for their participation in SC meeting.

Agenda Item 4: Approval of Agenda for the XXth SC meeting and Final Approval of the Minutes of the XIXth SC Meeting

The Agenda for the XXth SC meeting was approved unanimously (Annex II). Participants were informed that the Proceedings of the XIXth Steering Committee held on May 28, 2018 in Bangkok, Thailand (Annex III) had been circulated to all the SC members and other participants of the meeting, on which no comments were received. The proceedings were placed before the Steering Committee for final approval and the same was approved unanimously.

Agenda Item 5: APCoAB Program - Background and Status, Action Taken Report and Progress Report

Background and Status

Dr Rishi Tyagi made a brief presentation on the mandate, program, progress and current status of APCoAB (Annex IV). He mentioned about the genesis of APCoAB, which was founded in 2003 in response to the need expressed during APAARI and FAO meetings for a regional initiative to promote the adoption of agricultural biotechnology for the benefit of the Asia-Pacific NARS and the farming community. The program has been funded, besides APAARI, by COA, ACIAR and other public and private organizations. COA has been the major

supporter of APCoAB since 2008. In order to work towards the strategy plan of APAARI in the context of Sustainable Development Goals (SDGs), conservation and sustainable use of bioresources for sustainability of agri-food system, bioresources were included under the APCoAB program on November 12, 2017 by endorsement of APAARI's Executive Committee. Thereafter, it has been renamed as Asia-Pacific Consortium on Agricultural Biotechnology and Bioresources (APCoAB).

APCoAB, in collaboration with APAARI member organizations, carries out expert meetings in the areas of policy, technological advances, benefits and concerns related to agricultural biotechnology in its broad sense. It also organizes training programs on a diverse range of agricultural biotechnology related topics. APCoAB has brought out a large number of publications, including proceedings of expert meetings, success stories and status reports of technology adoption and regulation. The APCoAB website (www.apcoab.org; <http://www.apaari.org/web/our-projects/apcoab/>) provides up-to-date information about the program and its activities, and global developments in agricultural biotechnology and bioresources.

Action Taken Report

The Action Taken Report (ATR) regarding the recommendations made during the XIXth SC meeting was presented by Dr Tyagi (Annex V). Ms Mellissa Wood expressed her satisfaction about the ATR in accordance with the recommendations. Dr Shivendra Bajaj mentioned that agriculturally important microorganisms (AIM) play very important role in agriculture, therefore, a workshop on AIM assumes importance. Dr Tyagi responded that it was planned initially but due to limited availability of funds it was dropped later. Chairperson mentioned that AIM are important and many global organizations are working on these aspects. She mentioned that if funds are available, the knowledge on AIM needs to be shared with other partners involving like ACIAR and CABI.

Mr Vincent Lin emphasized that there is a need to strengthen the collaboration with not only with member countries in APR but with the countries even outside the region. Dr Tyagi mentioned that it is a very good suggestion and he informed that in this year we are partner in organization of a workshop on Innovation in Agribusiness is being organized with Asian Productivity Organization (APO) in Taipei in July 2019. Similarly, possibilities can further be explored to develop partnerships with other organizations also, depending upon the common issues to be addressed in partnership mode.

Dr Zongwen Zhang mentioned the important issues on pests and diseases e.g. banana disease. He suggested to plan some activities by linking national partners to address such specific issues.

Dr Huu-Sheng Lur commented that big data analytics are 'very big' there is a need to identify the focused areas for Big Data analytics in biotechnology.

Dr Taek-Ryoun Kwon commented that it is interested to see the publication on success stories and there is need to understand the perception of the public about GMOs in order to improve

the acceptability of GMOs and public awareness. He also expressed his concern about the definition of 'biotechnology', as it is a very broad subject. Ms Mellissa Wood asked if we have clear definition of biotechnology? Dr Tyagi informed that we are using the definition of biotechnology as defined by FAO.

Dr Kingsley Bernard congratulated APAARI for excellent work. He suggested that IT tools may also be suitably integrated in the activities under APCoAB.

Progress Report

Dr Rishi Tyagi, Coordinator, presented the progress report of the work done from May 1, 2018 to May 31, 2019 (for detail report see Annex VI). A summary of the key points made by the Chairperson, Vice Chairperson and members is given hereunder.

The Chairperson greatly appreciated the enormous work done during the period under report. Following were the comments/suggestions made by the Chairperson, Vice Chairperson and other members:

- Ms Mellissa Wood suggested that APAARI needed to focus on activities that other organizations cannot do and are unique to APAARI's regional mandate.
- Dr Shivendra Bajaj mentioned that position paper on rice biotechnology is important to understand the contribution of biotechnology in rice improvement. Regarding the harmonization of regulatory processes, he mentioned that it may be possible as Australia and Canada are developing the import guidelines to streamline the imports.
- Dr Ravi Khetarpal was of the opinion that APAARI needs to develop policy briefs with scientific rationale about its stand on GMOs and bioresources. He suggested that partnership with key global biotech hubs and also with FAO needs to be strengthened. There is a risk of losing CGIAR centers as members of APAARI, we need to create mechanism to keep them as key partners in our activities.
- Dr Zongwen Zhang, while appreciating the magnitude of the work done during the year and congratulating the Coordinator, mentioned that still there is a room to enhance activities on research and policies in areas of management of plants, animals and fish genetic resources because different countries and regions have different situations. He also expressed his concern that how to ensure the implementation of the recommendations by member countries which have emerged out during the APAARI events?
- Dr Huu-Sheng Lur suggested that it is important to develop the mechanism to evaluate the impact of the biotechnologies which will help to find the support from the respective governments.
- Dr Ravi Khetarpal told that APAARI is apolitical organization. Harmonization of regulatory policies is difficult. What should be APAARI's stand on harmonization on biotech regulations may be developed as a policy brief for the use of the members countries.
- Dr Taek-Ryoun Kwon also mentioned that harmonization of regulatory process is difficult at scientists' level; it requires a policy dialogue at political level.
- Mr Vincent Lin advised that it is very difficult to take all activities at a time. Some activities need to be prioritized for a multi-year strategy in accordance with the

availability of funds. Upon clarification by Dr Tyagi to whether revise the activities again under APCoAB programme, he further suggested that in 4-year programme, already approved activities should be carried out up to 2020 and in latter two years after reviewing the progress and impacts, the activities for the year 2021 and 2022 can be refined/revised with in the available budget and human resources. Two-three themes on most important issues may be prioritized and there would always be other activities on the side issues.

- Ms Mellissa Wood also opined that the important activities should be prioritized as suggested by the Vice Chairperson to address an overly ambitious work plan with insufficient resources. Themes can be narrowed down, refined and focus could be on policy dialogues along with side events following the MERL process.

The Chairperson appreciated the progress made under the APCoAB program noting, however, that it was unsustainable and required refinement and focus, as raised by the Vice Chairperson. The progress report was accepted by the Chairperson and other members of the Steering Committee.

Agenda Item 6: APCoAB Program – Current Work Plan

Dr Rishi Tyagi presented a work plan for the period of January-December 2019 (Annex VII). This work plan was based on approved revised APCoAB programme (2019-2022), subject to the availability of additional resources *i.e.* funds and human resources.

The Chairperson and other members approved the work plan for the year 2019, and suggested a review as per intervention by Vice Chairperson to prioritize the remaining activities in 2020.

Agenda Item 7: Audited Financial Statement (January-December 2019)

Dr Rishi Tyagi attached the overall Audited Account statement of APAARI for January-December 2018 in the folder for perusal and consideration of the Steering Committee (Annex VIII). Summary of Account Statement of APCoAB (January 1, 2018-December 31, 2018) was presented for approval. Dr Tyagi mentioned that during January-December 2018 the total amount of receipt under APCoAB was USD 173,438.23 and payments were also USD 173,438.23. He also presented the Summary of Expected Income and Expected Expenditure for the APCoAB activities during January 1, 2019-December 31, 2019. The expected income was estimated at USD 175,000.00 and expected expenditure at USD 260,900.00 (USD - 85,900). Dr Tyagi mentioned that the difference of USD 85,900 will be met by additional grant as agreed by COA. A summary of overall APCoAB's income and expenditure for 2018 is given in Annex IX and the expected income and expenditure for 2019 can be found in Annex X.

- Mr Vincent Lin assured that COA will provide additional grant as USD 100,000 with effect from 2019 to 2022.
- Mr Vincent Lin suggested that Annual Progress Report of APCoAB of each year should be submitted to COA latest by end of January of the next year.

The above Summaries of Account Statements were approved by the Steering Committee.

Agenda Item 8: General Discussion

The Chairperson invited the members for their suggestions for improvisation and suggesting new initiatives to enhance the funding of APCoAB. Dr Zongwen Zhang suggested that the member countries may be invited for expert consultation on gene editing. APCoAB may be the main organizer of the activities with other suitable organizations as co-organizers.

Agenda Item 9: Review of Annual Performance, Salary Benefits and Extension of Tenure of Coordinator, APCoAB

The Chairperson asked the Coordinator, APCoAB to leave the room during discussion on these items.

(i) A performance management system needs to be established in APAARI in order to assess staff performance. The executive Secretary is taking steps to introduce such system. Following the implementation of performance management system, any salary increases must be covered in the budget and the Executive Committee (EC) needs to be confident there is money for this before agreeing.

(ii) The SC agreed to consider this issue at the next meeting, which will be scheduled at the end of the year with the EC meeting

Agenda Item 10: Any other Matters

- (i) A decision was taken by ACIAR (reference Steering Committee proceedings; October 31, 2016; Agenda Item 8(7) – “ACIAR-FAO project on regional consultation meetings on biotechnology is presently under discussion and APCoAB will also be involved in its implementation”. As such, no involvement of APCoAB is there in implementation of above project. ACIAR is expected to comment on it.

The above Agenda Item # 10(i) was not discussed.

- (ii) Steering Committee meeting held once in a year. During 2017, no meeting of Steering Committee was held because Steering Committee tenure was over in 2017 and no Steering Committee was in place. After joining Coordinator, APCoAB the new Steering Committee was constituted in November 12, 2017 and XIX Steering Committee meeting was held on May 28, 2018 (about mid of the year). It is suggested that Steering Committee may be decided to be held in the end of each calendar year; this will help to keep calendar year-wise records of Technical Progress and Financial expenditure.

In view of the above situation described under Agenda Item # 10(ii) and to avoid multi-reporting of APCoAB progress, the Chairperson decided that another SC meeting will be held in end of the year before the Executive Committee meeting rather than having SC meetings twice in a year. In this meeting we can have quick business about prioritization of the activities for the year 2020 and consideration of above Agenda Item # 9 (i & ii) related to APCoAB Coordinator. The Chairperson also decided that Executive Secretary may re-check the dates of next Executive Committee meeting as per availability of Chairperson and Vice Chairperson in the end of November or early December 2019.

(iii) Any other point of discussion shall be taken up with the permission of tenure of the Chair.

No other point was discussed.

Agenda Item 11: Concluding Remarks

In her closing remarks, Ms Mellissa Wood appreciated exceptionally ‘more work than can be done’ under the APCoAB. She suggested to (i) prioritize the activities to generate the needed information which are useful to make the decisions, (ii) increase the partnerships and involving more stakeholders, (iii) develop the strategies to enhance funding and (iv) consider M& E for impact analysis. Ms Wood cited the example of ACIAR, Canada's IDRC and FFAR who had joined forces to co-invest in a joint program on future food security. These types of partnerships serve to leverage funds, build economies of scale and access complementary skills sets. She recommended that the representatives from the Committee and APCoAB Coordinator to attend above meetings to get a range of perspectives of above programmes. She suggested to work collaboratively and not competitively with NARS of the member countries. Finally, she congratulated the APAARI team for doing excellent work and thanked Vice Chairperson and all the members for their participation and cooperation.

Agenda Item 12: Vote of Thanks

Dr Rishi Tyagi proposed a vote of thanks to the Chairperson, Vice Chairperson and all the members of the Steering Committee for their valuable guidance and suggestions. He also thanked all the special invitees, observers and APAARI staff members who participated in the meeting.

APCoAB Program - Background and Status

Introduction: The Asia-Pacific Consortium on Agricultural Biotechnology (APCoAB) was established in January 2004 under the umbrella of APAARI. Its genesis is linked to the meetings organized jointly by FAO and APAARI during 2003 to discuss the status of agricultural biotechnology in the Asia-Pacific region, and the need for a regional initiative to undertake and promote adoption of agricultural biotechnology for the benefit of NARS and the farming community. To contribute towards the revised vision of APAARI in context of Sustainable Development Goals (SDGs), conservation and sustainable use of bioresources for sustainability of agri-food system, bioresources were included under APCoAB program on November 12, 2017 by endorsement of the Executive Committee of APAARI. Thereafter, it was known as Asia-Pacific Consortium on Agricultural Biotechnology and Bioresources (APCoAB). Besides APAARI, the program is funded by Council of Agriculture, Taiwan (COA), Australian Centre for International Agricultural Research (ACIAR) and from time to time by FAO, GFAR, Mahyco and others. Since 2008, COA has been major fund supporter of APCoAB.

Mission: APCoAB's mission is "To harness the benefits of agricultural biotechnology and bioresources for human and animal welfare through the application of latest scientific technologies while safeguarding the environment for the advancement of society in the Asia-Pacific region".

Activities:

Policy Dialogues/Expert Consultations/Brain Storming Sessions: In collaboration with APAARI member organizations, APCoAB organizes expert consultation meetings on contemporary issues of policy, technological advances, benefits and concerns related to agricultural biotechnology and bioresources in its broad sense. Subjects covered so far include GM technology, biosafety, IPR, public-private partnership, molecular breeding, trans-boundary diseases, bioinformatics, food safety, regulatory issues, conservation of genetic resources and underutilized crops, animals, and fish and marine genetic resources.

Training Programs: APCoAB in collaboration with member organizations and other stakeholders organizes training programmes on a diverse range of agricultural biotechnology related topics.

Publications: APCoAB has brought out a large number of publications, including proceedings of expert consultation meetings, success stories and status reports of technology adoption and regulation.

APCoAB Website: Complete information about APCoAB and its activities is available at the website (www.apcoab.org). Besides, it hosts databases on Asia-Pacific agricultural biotechnology institutions and experts, and regulatory systems in the Asia-Pacific countries. APCoAB website is re-designed and databases are updated.

Current Status: Activities were taken up as per approved program for the year 2019 and progress up to May 2019 was presented in previous Steering Committee meeting of APCoAB on June 7, 2019 and Executive Committee Meetings of APAARI (1/2019 and 2/2019). A work plan for the period January-December 2020 has been developed which has also been presented in above meetings and before the Steering Committee for formal approval. The

progress from June 1, 2019 to May 31, 2020 and Work Plan for 2020 will be presented before the Steering Committee Meeting for approval.

Action Taken Report with reference to the decisions of XX Steering Committee

S. No.	Decision	Action taken
1.	Agriculturally important microorganisms (AIM) play very important role in agriculture, therefore, a workshop on AIM assumes importance. Chairperson mentioned that AIMS are important and many global organizations are working on these aspects. She mentioned that if funds are available, the knowledge on AIM needs to be shared with other partners involving like ACIAR and CABI.	An Expert Consultation on Agriculturally Important Microorganisms has been planned during 2020; subjected to conducive situation.
2.	Mr Vincent Lin emphasized that there is a need to strengthen the collaboration with not only with member countries in APR but with the countries even outside the region.	<p>MoUs with ISAAA, Singapore and ICGEB, Rome, Italy have been signed for collaboration in various sectors of agricultural biotechnology.</p> <p>Self-sponsored trainees from Algeria, Egypt, Kazakhstan, Kenya, Ethiopia, Madagascar, Namibia, Senegal, Ukraine, participated in capacity building programmes on gene editing and conservation of PGR, organized under APCoAB programme with other collaborators (ICAR, ICRISAT).</p> <p>A 3-year project on “Enabling coordination among selected APAC countries for alignment of regulatory policy for gene edited crops” in collaboration with ISAAA and BCIL was submitted to USAID, however, it was not approved.</p>
3.	Dr Ravi Khetarpal was of the opinion that APAARI needs to develop policy briefs with scientific rationale about its stand on GMOs and bioresources. He suggested that partnership with key global biotech hubs and also with FAO needs to be strengthened. There is a risk of losing CGIAR centres as members of APAARI, we need to create mechanism to keep them as key partners in our activities.	Policy Brief on GM Maize is in drafting stage. During the period under report, CropLife Asia, FSII, Bayer CropScience, International Seed Federation, Corteva Agriscience and other universities in the region including CG institutes i.e. ICRISAT, WorldVeg, Bioversity International have been involved in APCoAB activities/events. FAO is also represented in almost all the activities of APCoAB.
4.	Dr Zongwen Zhang, while appreciating the magnitude of the work done during the year	Under APCoAB, Expert Consultation on underutilized plant (2017), animal (2018), fish and marine genetic resources (2019)

	and congratulating the Coordinator, mentioned that still there is a room to enhance activities on research and policies in areas of management of plants, animals and fish genetic resources because different countries and regions have different situations.	<p>have been organized; Proceedings with Recommendations on research priorities & policies and country status reports were documented and printed for the benefits of NARS and other partners for implementation.</p> <p>Capacity development training on <i>in vitro</i> and cryopreservation of plant genetic resources was organized (2019).</p> <p>An Expert Consultation on Agriculturally Important Microorganisms (AIM) has been planned in 2020.</p> <p>Capacity development (trainings) have been planned for management of plants, animal, fish, AIM in subsequent years, depending upon the availability of funds.</p>
5.	Dr Ravi Khetarpal mentioned that APAARI is apolitical organization. Harmonization of regulatory policies is difficult. What should be APAARI's stand on harmonization on biotech regulations may be developed as a policy brief for the use of the member countries.	<p>An online survey on perception of gene editing is planned. The results will help to develop a comprehensive policy document on gene editing.</p> <p>An active discussion is being held with BCIL and Agriculture and Food Systems Institute (AFSI) to develop a comprehensive document on regulatory policies on new breeding techniques, inclusive of survey results.</p> <p>A project on harmonization of gene editing regulation involving 6 Asian countries was submitted to USAID, however, it was not approved. Further funding possibilities are being explored.</p> <p>FSII and CLA agreed to support a 9-month project on 'Outreach and communications on gene editing for acceptance in India'.</p>
6.	Dr Huu-Sheng Lur suggested that it is important to develop the mechanism to evaluate the impact of the biotechnologies which will help to find the support from the respective governments.	A regional workshop on impact of investment in agricultural biotechnology on livelihoods of farmers in Asia-Pacific has been planned to be held in Philippines during 2020 (PCAARRD agreed in principle); however, due to pandemic it is likely to be shifted to 2021.
7.	Mr Vincent Lin advised that it is very difficult to take all activities at a time. Some activities need to be prioritized for a multi-year strategy in accordance with the availability of funds. Upon clarification by	For the year 2020, the activities are intended to be carried out as approved earlier, with inclusion of Regional Expert Consultation on Agriculturally Important Microorganisms, as suggested by Chairperson. However, the activities

	Dr Tyagi to whether revise the activities again under APCoAB programme, he further suggested that in 4-year programme, already approved activities should be carried out up to 2020 and in latter two years after reviewing the progress and impacts, the activities for the year 2021 and 2022 can be refined/revised within the available budget and human resources. Two-three themes on most important issues may be prioritized and there would always be other activities on the side issues.	scheduled for the latter years i.e. 2021 and 2022 will be prioritized/revised accordingly.
8.	Ms Mellissa Wood also opined that the important activities should be prioritized as suggested by the Vice Chairperson to address an overly ambitious work plan with insufficient resources. Themes can be narrowed down, refined and focus could be on policy dialogues along with side events following the MERL process.	For 2020, work plan as per mentioned in the programme will be carried out (keeping the restrictions due to COVID-19), which will be presented before Steering Committee for approval. As mentioned earlier, the activities for the latter years i.e. 2021 and 2022 will be prioritized/revised accordingly.
9.	Mr Vincent Lin suggested that Annual Progress Report of APCoAB of each year should be submitted to COA latest by end of January of the next year	APCoAB Annual Progress Report of 2019 was submitted to COA on January 3, 2020.



**Asia-Pacific Association of Agricultural Research
Institutions**
and
Council of Agriculture, Taiwan
Collaborative Programme

Progress Report
(June 01, 2019 to May 31, 2020)



**Asia-Pacific Consortium on Agricultural Biotechnology and
Bioresources (APCoAB)**
2nd & 4th Floor, FAO Annex Building, 202/1 Larn Luang Road, Pomprab Sattrupai
Bangkok 10100, Thailand

Progress Report

(June 01, 2019 to May 31, 2020)

APAARI-COA collaborative program on biotechnology has been in operation since 2008 as the Asia-Pacific Consortium on Agricultural Biotechnology (APCoAB). Initially approved for three years (2008-2010) with a funding support of USD 35,000 per annum, the program was extended twice (2011-2013, 2014-2016) and funding raised to USD 50,000 per annum. In view of the excellent performance of this APAARI-COA collaboration in terms of the number and range of activities conducted and benefits brought to APAARI members and other participants by way of knowledge enhancement, development of practical experience, networking and opportunities for partnership development, it was decided by both APAARI and COA to continue the APCoAB program for another term. Therefore, the program was extended for 4 years i.e. from 2017 to 2020 with a total budget of USD 560,000 is to be shared equally (USD 280,000) by COA and APAARI and other partners. The commitment of COA to continue supporting this program was conveyed during the XVIII APCoAB Steering Committee Meeting, held on 31 October 2016 at Taichung City, Taiwan. As per recommendations of Executive Committee (EC; 2/2017) of APAARI, XIX Steering Committee of APCoAB and EC 1/2018 of APAARI, activities on conservation and sustainable use of bioresources were included. The program Asia-Pacific Consortium on Agricultural Biotechnology was renamed as 'Asia-Pacific Consortium on Agricultural Biotechnology and Bioresources' retaining the old acronym as 'APCoAB' and also the objectives of APCoAB were modified, which were approved in the meetings of XIX Steering Committee of APCoAB and EC (1/2018) of APAARI.

During XIX Steering Committee of APCoAB held on May 28, 2018 at Bangkok, COA committed to enhance the funding with effect from 2019 in view of inclusion of bioresources activities under APCoAB and suggested that a revised APAARI-COA collaborative proposal (APCoAB) should be submitted to COA. Consequently, a revised APAARI-COA proposal (2019-2022) was submitted to COA, which has been approved by COA with enhanced funding from USD 70,000 per annum to of USD 170,000 per annum for 2019-2022 with provision of salary of Technical Associate in APCoAB. With effect from 2019, COA is contributing USD 170,000 per annum for the activities including the salary of a Technical Associate under the APCoAB programme. Technical Associate, under APCoAB, has also been recruited who has joined his duties with effect from September 12, 2019.

During the period from June 01, 2019 to May 31, 2020, following activities were carried out:

A. Expert Consultation/Conference/Workshop/Training (5)

Regional Workshop on Underutilized Fish and Marine Genetic Resources and their Amelioration

The Regional Workshop on Underutilized Fish and Marine Genetic Resources (FMGR) and their Amelioration was held on July 10-12, 2019 at National Aquatic Research Agency (NARA), Sri Lanka. The workshop was organized by the APAARI under its programme on APCoAB, Sri Lanka Council of Agricultural Research and Policy (SLCARP), COA, in collaboration with National Aquatic Resource Research and Development Agency (NARA). Mr P Harison, Hon'ble Minister of Agriculture, Rural Economic Affairs, Livestock Development, Irrigation and Fisheries and Aquatic Resources Development, Government of Sri Lanka, participated as Chief Guest who inaugurated the workshop and delivered inaugural address. Mr Dilip Wedaarachchi, Hon'ble State Minister of Ministry of Agriculture, Rural Economic Affairs, Irrigation and Fisheries & Aquatic Resources Development, Government of Sri Lanka was also participated as Guest of Honour and delivered his speech. Opening remarks were presented by Dr Kingsley Bernard, Chairman, SLCARP, Sri Lanka; Er. EASK Edirisinghe, Chairman, NARA, Sri Lanka; Dr Hsin-ming Yeh, COA, Taiwan; and Dr Rishi Tyagi, Coordinator, APCOAB, APAARI, Bangkok.



Participants of Regional Workshop on Underutilized Fish and Marine Genetic Resources and their Amelioration

The objectives of the workshop were to: (i) assess the current status of underutilized FMGR at regional level and to assess R&D status of priority species those are needed to be promoted for the use in food and agriculture, (ii) discuss the knowledge gaps and way forward in defining regional priorities concerning underutilized FMGR and create awareness on the role and value of underutilized FMGR that have potential for diversification of food basket and improve the livelihoods of rural and coastal population, and (iii) formulate strategies for strengthening the institutional framework for FMGR management, and legal and policy framework to promote conservation and sustainable use of underutilized FMGR at regional level.

Expected outcomes of the workshop were: (1) The Regional Workshop will provide a platform for sharing experiences/knowledge relating to underutilized FMGR those are important for food and agriculture in Asia-Pacific, (2) Assessing the importance of most potential FMGR, status of their R&D for exploring the possibilities of their commercial use and eventual benefit to rural and coastal population of Asia-Pacific, (3) Developing a Road Map to ensure efficient management including conservation and sustainable use of underutilized FMGR, and (4) Exploring the possibilities of project formulation and establishing a regional network for knowledge sharing and other related issues at regional level.

A total of 94 participants from 12 countries in the Asia-Pacific region (Bhutan, Fiji, India, Iran, Laos, Malaysia, Nepal, Philippines, Pakistan, Sri Lanka, Taiwan and Thailand) attended

the workshop. The participants were from a number of national organizations such as research institutes, universities and research councils dealing with the management and conservation of underutilized FMGR. Out of 94, some 30% participants were women scientists/researchers.

The workshop comprised of presentations by 10 invited speakers/experts from different countries who provided the background and status of underutilized FMGR in the region as well as presently available technologies for conservation and utilization underutilized FMGR including access and benefit sharing, information system, sponges and their potential uses and non-food uses of FMGR. The presentations were delivered in three sessions: Technical Session I on Thematic Presentations, Technical Session II on Strategies for Conservation and Technical Session III on Country Status Reports followed by Technical Session IV on World Café Discussion – Regional Priorities for Underutilized FMGR in five key areas: (1) conservation, improvement and use; (2) Value Addition, Marketing and Export; (3) Biotechnology for Enhancing Utilization, (4) Partnership and Capacity Development, and (5) Regional Information Sharing System and Focal Points for the Conservation and Utilization of FMGR and Technical Session V on Panel Discussion on Legal and Policy Framework Support to Promote Utilization on Underutilized Fish and Marine Genetic Resources.

Major recommendations arising from the workshop could be summarized as follows:

Thematic Presentations on Underutilized Fish and Marine Genetic Resources :

Application of genetic tools for identification and stock assessment of marine species that subjected to over utilized; implement regulations and policies to establish species specific MSY; dissemination of knowledge on sustainable utilization FMGR among different stake holders; identify degraded fishing grounds and restoration of them; establish genome resource banks; application of biotechnological methods to promote aquaculture practices; establish partnerships among countries within the regions to share knowledge and technical support.

Value Addition, Marketing, and Export: Introduce simple and cost effective methods/technology at household levels and improve infrastructure facilities to produce alternative value added food sources; improve and promote culture based methods association with genetic tools to reduce the pressure on natural fishery resources and introduce alternative livelihoods; establish methods to gather data and data sharing within the country and among regional countries; maintain regionally accepted common standards for branding the products and initiate trade negotiations among regional countries to expand international markets.

Biotechnology for Enhancing Utilization: Establish central germplasm banks to develop better breeding programs via exchanging resources; develop captive breeding techniques in cooperating genetic tools to establish selective breeding programs; identify and establish suitable micro-propagation methods of selected seaweed types to enhance the seaweed farming; establish policies and regulations for exchange the knowledge on biotechnology, techniques and resources among countries to enhance the utilization and development of marine resources in the region.

Partnership and Capacity Building (PCB): Establish an inter-governmental/ regional cooperation body to assess the capacity building needs and gaps of the regional countries; establishment of a body to support to develop national and international work plans for PCB; create regional economic partnerships to identify potential value of resources for utilization; create regionally managed funded programs between countries to identify research capacities of regional partners; set up material transferring protocols (genetic or live samples) and repositories to facilitate safe custody of germplasm accessions and exchange for research; initiate PCB activities between countries for sharing water and genetic resources for

harmonize policies on introduction of aliens/exchange of germplasm within the region and outside the region; and implementation of access benefit sharing of programs.

Regional Information Sharing System and Focal Point: Existing commodity-wise national database to be enriched with other relevant metadata of the species including the conservation status in a standard format; mechanism to be developed for sharing the information in accordance to IPR and other national laws; a duplicate set of database should be maintained preferably in more than one country; addition of any information subjected to approval of an administrator and expert committee of the Focal Point which should be established in each country and the region; stimulate and coordinate the maintenance and further development of databases (commodity wise) at country and regional level in a standard format.

2. Workshop on Innovations in Agribusiness for Young Entrepreneurs was organized by

the Asian Productivity Organization (APO) in cooperation with the China Productivity Center (CPC) and Council of Agriculture (COA) and Asia-Pacific Association of Agricultural research Institutes (APAARI), organized a workshop on ‘Innovations in Agribusiness for Young Entrepreneurs’ on July 1-5, 2019 in Taipei, Taiwan. The main objective of workshop was to promote discussion on innovations in agribusiness which create an attractive environment for the young, digital-savvy



Participants of Workshop Workshop on Innovations in Agribusiness for Young Entrepreneurs

generation. A total 29 participants (from 13 countries) - 12 from APO members; seven from the APAARI member countries attended the workshop. Participation of seven participants from APAARI-member countries *i.e.* Fiji, India, Iran, Malaysia, Philippines, Sri Lanka, Thailand), were financially supported under COA and APAARI collaborative programme on APCoAB.

The workshop was steered by three international and three local resource persons, namely, Dr. Wynand Bodewes, Associate Professor of Entrepreneurship, Maastricht School of Management, the Netherlands; Senior Consultant Jun Chanoki, 5 Plus 2 Corporation, Ltd., Japan; Dr. Karl Behrendt, Professor, Elizabeth Creak Chair in Agri-Tech, Harper Adams University, UK; CEO Alice Hsieh, Niyu Life International Co., Ltd., ROC; Cheng-Ray Yang, Department of Farmers’ Service, COA, ROC; and Manager Ya-Yin Yang, Julia Floratech Co., Ltd., ROC. After welcome addresses by Director General Dr. Chung-Hsiu Hung of the Department of International Affairs, COA, and Executive Secretary Dr. Ravi Khetarpal of the APAARI, the resource persons spoke on various aspects of agribusiness to attract young entrepreneurs in various interactive sessions. Technical agenda included 6 Sessions on (1) Introduction to innovations, entrepreneurship, and the youth generation; (2) Agribusiness development through youth entrepreneurship; (3) Accelerating youth entrepreneurship through systemic facilitation; (4) Field visits; (5) Country paper presentations; (6) Group

discussion and presentations. These included, new business models, procuring financing for agri-entrepreneurial startups, overview of policies on youth in agribusiness, alternative food resources, and examples of support offered to young entrepreneurs by the COA were also discussed

The experts involved in the workshop appreciated extremely high level of engagement of participants in professional manner; teamwork among the speakers, organizers, and APO Secretariat staff; and enthusiasm during the interaction of participants with experts. The workshop is expected to have positive entrepreneurial outcomes once participants implement the learning experience in their respective countries.

The participants also visited the two sites - FuHsiang Cactus Garden, the manager made a presentation on its brand and business model introduction and applications of its innovative agri-tech management system and New Farmers' Market, operated by the Xinpu Town Farmers' Association, to demonstrate and provide an opportunity to realize and experience the community-based agribusinesses operations. All resources material is uploaded for the benefit of the participants on: <http://apo-net.sakura.ne.jp>

3. Regional Expert Consultation on Gene Editing and its Regulation was held on October 10-11, 2019 at International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), Hyderabad, India. The Expert Consultation was organized by Asia-Pacific Association of Agricultural Research Institutions (APAARI), under a program on Asia-Pacific Consortium on Agricultural Biotechnology and Bioresources (APCoAB), in collaboration with ICRISAT, Council of Agriculture (COA), Federation of Seed Industry of India (FSII), Research Program on Grain Legumes and Dryland Cereals (RP-GLDC). Dr Renu Swarup, Secretary, Department of Biotechnology, Government of India was the Chief Guest and delivered the inaugural address on Gene Editing in India during the of the Opening Session. Remarks were also given by Drs Peter S Carberry, Director General, ICRISAT; Kiran K Sharma, Deputy Director General (Research), ICRISAT; Ram Kaundinya, Director General, FSII; Rajeev K Varshney, RP Director, Genetic Gains. Dr Rishi K Tyagi, Coordinator, APCoAB, spoke about the rationale and expectations from the Expert consultation.

The objectives of the Expert Consultation are: (1) Review the status of regulatory policies around gene editing across the globe particularly in countries of Asia-Pacific region; (2) Provide a platform to promote adoption of science-based predictable policies for regulating gene edited crops and breeds; (3) Provide a platform to discuss the impact of regulatory hurdles, delays and associated high cost on technology adoption; and (4) Discuss on communication strategies, enabling policies for plant and animal breeding innovations.

The Expert Consultation was organized to bring about:

1. Record opinions and inputs from public and private sector regarding the regulatory framework in relation to gene edited products.
2. A white paper on recommendations for science-based, consistent, predictable regulatory policies.
3. Recommend the best regulatory path forward for India, considering its unique status and influence in the region, and other countries of Asia-Pacific region.

A total of 110 participants attended the Opening Session belonging from 9 countries (Australia, India, Japan, Philippines, Papua New Guinea, Switzerland, Taiwan, Thailand, Vietnam). Total 70 participants were present throughout 2-day meeting. Out of 70 participants, 26% were women researchers. Participants included researchers, representatives



Participants of Regional Expert Consultation on Gene Editing and its Regulation

of various public institutions and private sector; policy makers and scientists from member countries of APAARI; FAO; CGIAR centres; government departments and bodies including Department of Biotechnology, Ministry of Agriculture & Farmers' Welfare. Recognized diverse set of experts also attended and made presentations and participated in panel discussion.

The agenda of the Expert Consultation comprised of 7 invited lectures by the experts. The presentations were delivered in three sessions: Technical Session I on Status and Advances in Gene Editing, Technical Session II on Regulatory Status of Gene Editing in Asia-Pacific Region and Technical Session III on Status of Gene Editing in CG Centers and Perception of Gene Editing by Different stakeholders followed by special Session on Thematic Presentations on Gene Editing and Technical Session IV on Panel Discussion to Prioritize Research Areas, Capacity and Infrastructure Development, Regulatory Policy Development & Public Awareness, and Possible Partnerships to Achieve SDGs. Draft recommendations were presented in Plenary Session. Recommendations are being refined for circulation among all the participants for their inputs.

Final Proceedings and Recommendations have been published and shared with all the stakeholders.

4. International Hands-on Training on Genome Editing Technologies was organized on October 19-25, 2019 at ICRISAT. The training was organized by Asia-Pacific Association of Agricultural Research Institutions (APAARI), under a program on Asia-Pacific Consortium on Agricultural Biotechnology and Bioresources (APCoAB), in



Director General ICRISAT (center) inaugurated the International Hands-on Training on Gene Editing

collaboration with ICRISAT, BioNcube (DBT), and Research Program on Grain Legumes and Dryland Cereals (RP-GLDC). The training was inaugurated by Dr Peter Carberry, Director General, ICRISAT who delivered the inaugural address. Remarks were



Participants of the International Hands-on Training on Gene Editing with Chief Guest

presented by Drs Rajeev Varshney, RP Director, Genetic Gains, ICRISAT; Rajeev Gupta, ICRISAT, and Jan Debenae, ICRISAT. Dr Rishi Tyagi made a presentation about the expectation from the training programme. A total 22 participants, belonging to public (NARS) and private sectors of 11 countries (Egypt, India, Kenya, Malaysia, Namibia, Philippines, Senegal, Taiwan, Thailand, Uganda, Vietnam) attended the training. Out of 22 participants, 36% were women scientists/researchers involved in gene editing research programmes. Five trainees (from Malaysia, Philippines, Taiwan, Thailand, Vietnam) were sponsored by APAARI under APCoAB programme.

A comprehensive 2-week schedule of training comprising theory and practical sessions was designed. Five theory lectures were given by the experts on various aspects of gene editing. The trainees were exposed to laboratory practical on various aspects of gene editing - Bioinformatics tools for guide RNA designing; cloning of the guide RNA and Cas9 in to the plant transformation vector; genetic transformation; Confirmation of the recombinant clones by colony PCR; plasmid DNA isolation for the colony PCR positive colonies; Agrobacterium transformation- electroporation; bacterial transformation for the Gateway LR ligated reactions; Demo Arabidopsis/Tobacco transformation; functional characterization of gene-edited plants; surveyor assay/Nano pore sequencing for identifying the Indels in gene edited plants; surveyor assay/Nano pore sequencing data analysis. Visits to Centre for Cellular and Molecular Biology (CCMB) and ICRISAT facilities – Phenotyping Platform, and Centre of Excellence in Genomics and System Biology (CEGSB) were also arranged for the trainees. In addition to developing the capacities in gene editing research, it is also expected that interaction among the trainees and between trainees and scientists of ICRISAT will pave the path to develop the new partnerships and collaborative research programmes on gene editing at regional level.

5. International Training Course on ‘In Vitro and Cryopreservation Approaches for Conservation of Plant Genetic Resources’ was jointly organized by ICAR-National Bureau of Plant Genetic Resources (NBPGR) and Bioversity International, India Office, New Delhi in collaboration with the APAARI, Bangkok, Thailand under its program on APCoAB.

The 2-week duration course was held from November 5-19, 2019 at the Tissue Culture and Cryopreservation Unit (TCCU) of ICAR-NBPGR, New Delhi. The TCCU was established to carry out research on *in vitro* conservation and cryopreservation of difficult-to- conserve crops and species, leading to the development of techniques for their short-, medium-, and long-term germplasm conservation in the *In Vitro* Genebank (IVGB) and Cryogenebank. The TCCU has been designated as a Centre of Excellence (CoE) in 2006 under the NBPGR-Bioversity International workplan, for undertaking international training programmes on *in*

in vitro conservation and cryopreservation of PGR, to enhance the capacity of national programs especially in the developing countries.

The present training was held this year was attended by 22 trainees from 13 countries including Africa (Algeria, Madagascar, Senegal), Central Asia (Uzbekistan, Kazakhstan, Ukraine, South and East Asia (Bangladesh, India, Philippines, Taiwan) and Pacific Region (Fiji, PNG, Samoa).

The training was inaugurated on November 5, 2019 by Dr R.C. Agrawal, Deputy Director General (Education), ICAR; National Director, National Agricultural Higher Education Project (NAHEP) & Registrar General, Protection of Plant Varieties and Framers' Rights Authority (PPV&FRA) in the presence of Dr D.K. Yadava, Additional Director General (Seed), ICAR, Dr R.K. Tyagi, Coordinator, APCoAB, APAARI, Thailand and Dr J.C. Rana, National Coordinator, UN-GEF Project, Bioversity International-India.

The training was structured to cover all the aspects of *in vitro* and cryopreservation of germplasm, through 21 lectures and 14 practical sessions. Lectures were delivered by resource persons from within NBPGR along with four International faculty, namely, Dr Hugh Pritchard (Royal Botanic Gardens, Kew, UK), Dr Bart Panis (Bioversity International, Leuven, Belgium), Dr Takao Niino (Japan) and Dr Kanchit Thammasari (Mahidol University, Bangkok, Thailand). Trainees got a hands-on experience of handling vegetatively propagated crops and difficult to conserve recalcitrant plant species. In addition, lectures were also delivered by the co-organizers namely Dr R.K. Tyagi (APCoAB, APAARI, Thailand), Dr N.K. Krishna Kumar and Dr J.C. Rana (Bioversity International-India).

Apart from the lectures and practicals, trainees also visited the National Genebank and the National Herbarium of Cultivated Plants (NHCP), both housed within the ICAR-NBPGR Campus.

The training was concluded by distributing the Certificates of Successful Completion to the participants by Dr Raj S Paroda, Former Director General ICAR & Secretary DARE, Government of India and Executive



Participants of the International In vitro and Cryopreservation Training attending Lab Practical's

Secretary, APAARI during valedictory function. Trainees gave their feedback which is presented in one of the following sections. The training ended on a high note, with appreciation by the participants and opened up newer avenues for collaboration with institutes in various other countries working on similar lines or setting up their research facilities in the area of *in vitro* and cryopreservation. The training provided the opportunities for South-South Cooperation as well as North-South collaboration in capacity development in the area of biotechnology for conservation of PGR, as faculty are also drawn from other nations like Belgium, Japan, Thailand and UK.



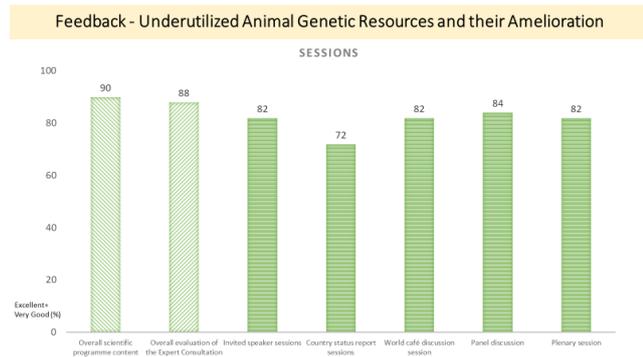
Participants and Faculty of the International In Vitro and Cryopreservation Training with Dr Raj S Paroda (center), Chief Guest of Valedictory Function

- 3. Feedback from the Participants** of Regional Workshops on Underutilized (i) Animal and (ii) Fish and Marine Genetic Resources and their Amelioration, (iii) Regional Expert Consultation on Gene Editing and its Regulation, (iv) International Hands-on Training on Genome Editing Technologies and (v) International Training Course on *In Vitro* and Cryopreservation Approaches for Conservation of Plant Genetic Resources.

A simple Evaluation Form was developed to obtain the feedback from the participants of the workshops for evaluation of the workshop regarding organization, logistics, scientific programme content, technical sessions, speakers and suggestions from participants for further improvement. Analyses of feedbacks are summarized below:

- (i) Regional Workshops on Underutilized Animal Genetic Resources and their Amelioration held in Malaysia on March 4-6, 2019**

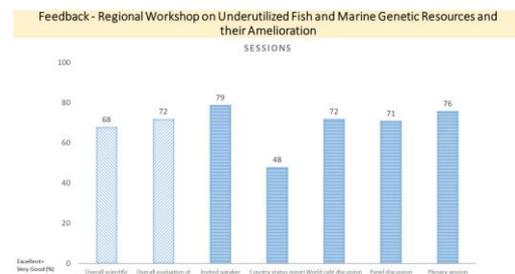
Some 80-98% participants gave the high commendation (Excellent or Very Good) for logistics, meeting venue and facilities, all technical sessions and overall scientific programme.



- Quality of invited speakers, World Café Discussion, Panel discussion, Plenary Session was rated as Excellent or Very Good by 82-84% participants.
- Country Status Report session was rated as Excellent or Very Good by 72% participants.
- Overall evaluation of the workshop was recorded as Excellent or Very Good by 88% of participants.
- In general, it was inferred by the participants that the workshop was a very good platform for networking and collaboration
- Some suggestions were also received from the participants:
 - Technical visits to farm where underutilized animals are maintained.
 - APAARI should organize the workshops/events in collaboration with member countries.
 - More time should be given for general discussion.

(ii) Regional Workshops on Underutilized Fish and Marine Genetic Resources and their Amelioration held in Sri Lanka on July 10-12, 2019

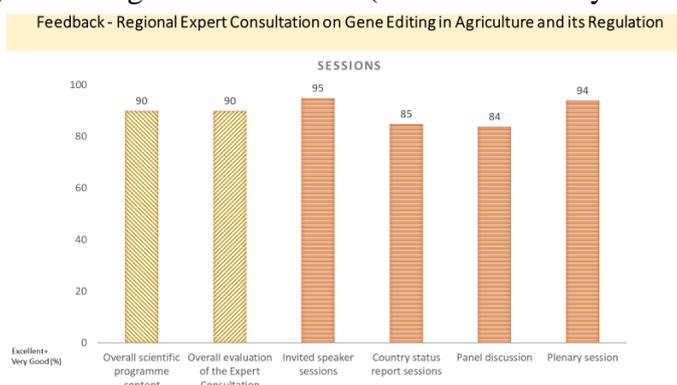
- Some 60-79% participants gave the high commendation (Excellent or Very Good) for logistics, all technical sessions and overall scientific programme.



- Quality of invited speakers, World Café Discussion, Panel discussion, Plenary Session was rated as Excellent or Very Good by 71-79% participants.
- Country Status Report session was rated as Excellent or Very Good by only 48% participants.
- Meeting venue and facilities were rated as Excellent or Very Good by 60% participants.
- Overall evaluation of the workshop was recorded as Excellent or Very Good by 72% of participants.
- In general, World café Discussion and Policy Framework session were much appreciated by all the participants.
- Some suggestions were also received from the participants:
 - Country Status Reports were not consistent by all presenters.
 - Biotechnology of marine resources should have been elaborated for discussion.
 - Scope of improvement in meeting venue facilities.

(iii) Regional Expert Consultation on Gene Editing and its Regulation

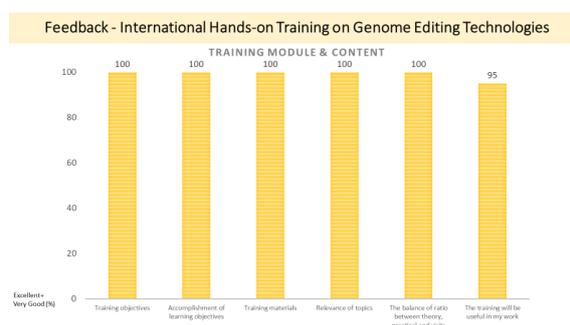
- a) Some 80%-100% participants gave the high commendation (Excellent or Very Good) for logistics, meeting venue and facilities, all technical sessions and overall scientific programme.



- b) Quality of Invited speaker sessions, Panel discussion, Plenary session was rated as Excellent or Very Good by 84%-94% of participants.
- c) Country Status Report session was rated as Excellent or Very Good by 85% of participants.
- d) Overall evaluation of the workshop was recorded as Excellent or Very Good by 90% of participants.
- e) In general, invited speaker sessions and Regulatory framework were much appreciated by all participants.
- f) Some suggestions were also received from the participants:
- More time for critical topics.
 - More case studies, especially people from the U.S.A. who has done commercialization of products.

(iv) International Hands-on Training on Genome Editing Technologies

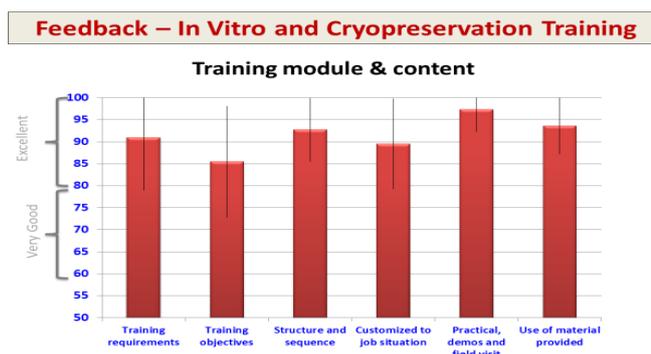
- a) Above 90% of participants gave the high commendation (Excellent or Very Good) for logistics, meeting room, laboratories and overall training programme.



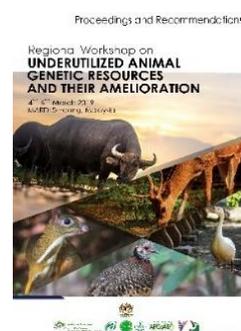
- b) The accomplishment of learning objectives was rated as Excellent or Very Good by 100% of participants.
- c) The relevance of topics was rated as Excellent or Very Good by 100% of participants.
- d) Overall, the balance of ratio between theory, practical and visits was recorded as Excellent or Very Good by 100% of participants.
- e) Some 95% of participants said this training will be useful in their work.
- f) In general, visits to core faculties and lab session were much appreciated by all participants.
- g) Some suggestions were also received from the participants:
- Wi-fi access in the conference room was limited.
 - More trainings in the future such as Usage of bioinformatic tools and data analysis, Phenotyping, Speed breeding and Genome sequencing.

(v) International Training Course on *In Vitro* and Cryopreservation Approaches for Conservation of Plant Genetic Resources

- a) Some 98% trainees rated overall training as Excellent or Very Good.
- b) The accomplishment of learning objectives was rated as Excellent or Very Good by 86% of participants.
- c) Course content was scored as excellent or very good by 93% participants.
- d) Hands-on practical and demonstration and expertise of faculty were rated as training facilities by 98% trainees rated as excellent or very good.
- e) In addition to the newly-acquired knowledge, the participants appreciated the training as a platform for opening up new ways for collaboration with other institutes in other countries.



Additionally, it was also an opportunity for South-South Cooperation, as well as North-South collaboration in capacity development on biotechnology for conservation of plant genetic resource.

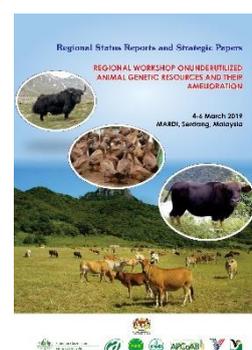


B. Publications (11)

(i) Regional Workshop on Underutilized Animal Genetic Resources and their Amelioration - Proceedings and Recommendations, held at Kuala Lumpur, Malaysia, Thailand, held on March 4-6, 2019, has been published (ISBN 978-616-7101-17-0). The publication can be accessed on http://www.apaari.org/web/wp-content/uploads/downloads/2019/Underutilized%20Animal%20Genetic-Proceedings%20&%20Recommendations_19-6-2019.pdf

M Ariff Omar, AINU Husna MS Suhaimi, Rishi Kumar Tyagi, Amie Marini Abu Bakar, Habsah Bidin, Siti Masidayu Mat Saad, Noraini Samat and Ravinder Kumar Khetarpal (2019). Regional Workshop on Underutilized Animal Genetic Resources and Their Amelioration - Proceedings and Recommendations. Asia-Pacific Association for Agricultural Research Institutions (APAARI), Bangkok, Thailand; March 4-6, 2019, xviii+64 p.

(ii) Regional Workshop on Underutilized Animal Genetic Resources and their Amelioration – Regional Status Reports and Strategic Papers, has been published (ISBN 978-616-7101-20-0). The compilation has a total of 14 chapters including strategic papers and status reports of underutilized AnGR for Food and Agriculture in South and West Asia, Southeast Asia, East Asia, the Pacific. The different chapters for each sub region bring out the status of AnGR utilization in different countries of each of the sub region, highlights the unique AnGR in the sub region and provides information on their economic and socio cultural importance, production and consumption, import and export statistics, inventorization and future thrust areas for their optimal utilization and research.



M. Ariff Omar, Rishi K. Tyagi, Amie Marini Abu Bakar, Habsah Bidin, Noraini Samat, Ainu Husna M.S. Suhaimi and Ravi K. Khetarpal (2019). Regional Workshop on Underutilized Animal Genetic Resources and their Amelioration – Regional Status Reports and Strategic Papers. Asia-Pacific Association for Agricultural Research Institutions (APAARI), Bangkok, Thailand; March 4-6, 2019, xviii+150 p.

(iii) Revised Brochure of Asia-Pacific Consortium of Agricultural Biotechnology and Bioresources (APCoAB) with updated information was published.

Brochure contains the concise information on mission, genesis, revised objectives, organization structure and steering committee, recent activities and publications and supporters and facilitators of APCoAB. The brochure was distributed to all concerned stakeholders and can be accessed on:

<http://www.apaari.org/web/wp-content/uploads/2018/08/2018-APCoAB-Brochure.pdf>



(iv) Brochure of International Hands-on Training on Genome Editing Technology was designed, developed and published.

It contains the concise information on about the course and organizers (ICRISAT, APAARI, APCoAB), objectives of training, lectures and practical sessions, eligibility criteria of applicants, and application form. The brochure was posted on APAARI/APCoAB website for the benefit of the applicants and distributed to all concerned stakeholders which can be accessed on:

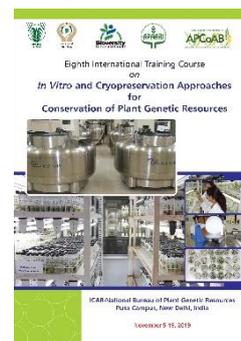
http://www.apaari.org/web/wp-content/uploads/2019/08/Genome_editing_tech_training_Brochure.pdf



(v) Brochure of International Training Course on In Vitro and Cryopreservation Approaches for Conservation of Plant Genetic Resources was developed and published.

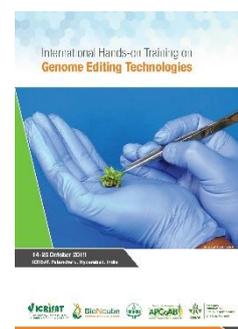
In addition to the brief description about the organizers (ICAR-NBPGR, Bioversity International, APAARI and APCoAB), the brochure contains the details of objectives and course contents (theory and practical sessions), resource persons, eligibility criteria of applicants, course fee details and application form. The brochure was posted on APAARI/APCoAB website for the benefit of the applicants and distributed to all concerned stakeholders which can be accessed on:

<http://www.apaari.org/web/wp-content/uploads/downloads/2019/CoE%20Training%20Brochure%20300519.pdf>



(vi) Training Manual on International Hands-on Training on Genome Editing Technology was published and printed.

The Manual contains a combination of lectures, discussions with hands-on laboratory instructions and technology demonstrations for helping the participants stay ahead imparting both theory and practical aspects of CRISPR based genome-editing technologies. The course covered a basic gene editing workflow, from design and cloning of target specific guide RNAs (gRNAs), delivery of gRNAs in plant cells, detection through to analysis of gene editing efficiencies. design the genome editing experiments. It is envisaged that this will help the



trainees, after completion, to design their own experimental workflows in their respective laboratories. The soft copy of manual was shared by all APAARI member countries and other stakeholders which can be accessed on: http://www.apaari.org/web/wp-content/uploads/downloads/2019/International_Hands-On%20Training_on_Genome_Editing-Practical_Manual.pdf

(vii) Training Manual on International Training Course on In Vitro and Cryopreservation Approaches for Conservation of Plant Genetic Resources was published and printed. The Manual contains the protocols involved in the development and use of in vitro and/or cryopreservation techniques for the medium- to long-term conservation of germplasm of vegetatively propagated and non-orthodox seed species. The protocols are freely available to all APAARI members and other stakeholders which can be accessed on:

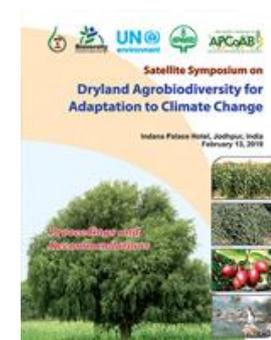
<http://www.apaari.org/web/wp->



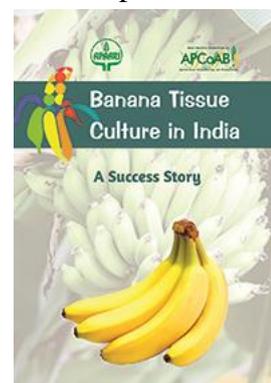
[content/uploads/downloads/2019/Laboratory_Manual_for_In_Vitro_and_Cryopreservati_on_of_PGR-2019.pdf](http://www.apaari.org/web/wp-content/uploads/downloads/2019/Laboratory_Manual_for_In_Vitro_and_Cryopreservati_on_of_PGR-2019.pdf)

(viii) Proceedings and Recommendations of the Satellite Symposium on ‘Dryland Agrobiodiversity for Adaptation to Climate Change’ was published and printed. The Proceedings and Recommendations contain the summary of keynote lectures presented by speakers/experts on agrobiodiversity management in the Indian, Central and West Asian and North African dryland regions and the required policy interventions to overcome the threats and challenges. and the key recommendations emerged out from the deliberations and discussions. The soft copy of proceedings was shared by all APAARI member countries and other stakeholders which can be accessed on:

http://www.apaari.org/web/wp-content/uploads/downloads/2019/Satellite_Symposium_2019_For_Circulation.pdf



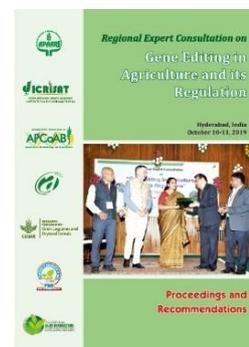
(ix) Banana Tissue Culture in India - A Success Story was published and printed. This document provides detailed information on banana, its different varieties grown across India, cultivation practices, various constraints faced in the conventional propagation of banana and how these can be overcome by the use of banana TC plants. Production of TC plants viz., mother plant selection, initiation, multiplication and hardening are briefly described. Protocols used for virus indexing and genetic fidelity testing for successful implementation of certification system has been provided in detail. The molecular and serological based methods standardized under NCS-TCP for virus indexing of the four major viruses infecting banana have been described. The various challenges encountered during certification procedure of banana TC plants have been discussed with reference to emergence of new diseases, particularly the occurrence of Fusarium wilt caused by the soilborne fungus *Fusarium oxysporum* in G9 cultivar, the production and distribution of plantlets, technology transfer for TC production and adoption of the technology by the farmers. This document is available to all APAARI members and other stakeholders which can be accessed on:



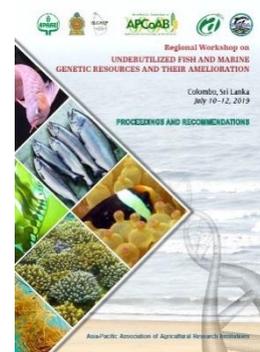
[content/uploads/downloads/2019/Banana Tissue Culture-Success Story 29-11-2019 For Circulation.pdf](http://www.apaari.org/web/wp-content/uploads/downloads/2019/Banana_Tissue_Culture-Success_Story_29-11-2019_For_Circulation.pdf)

(x) Regional Expert Consultation on Gene Editing and its Regulation – Proceedings and Recommendations, held on October 10-12, 2019, has been published. The publication can be accessed on [http://www.apaari.org/web/wp-content/uploads/downloads/2020/Gene Editing in Agriculture-Proceedings-and Recommendations_5-2-2020.pdf](http://www.apaari.org/web/wp-content/uploads/downloads/2020/Gene_Editing_in_Agriculture-Proceedings-and_Recommendations_5-2-2020.pdf)

Rishi K. Tyagi, Rajeev K. Varshney, Pooja Bhatnagar-Mathur, Shivendra Bajaj, Ratna Kumria and Ravi K. Khetarpal (2019). Regional Expert Consultation on Gene Editing and its Regulation - Proceedings and Recommendations. Asia-Pacific Association for Agricultural Research Institutions (APAARI), Bangkok, Thailand, xvii+44 p.



(xi) Regional Workshop on Underutilized Fish and Marine Genetic Resources and their Amelioration - Proceedings and Recommendations, held at Colombo, Sri Lanka, Thailand, held on July 10-12, 2019, has been published (ISBN: 978-616-7961-37-8). The publication can be accessed on: [http://www.apaari.org/web/wp-](http://www.apaari.org/web/wp-content/uploads/downloads/2020/Proceedings%20and%20Recommendations%20FINAL-%20HR%202019.pdf)



[content/uploads/downloads/2020/Proceedings%20and%20Recommendations%20FINAL-%20HR%202019.pdf](http://www.apaari.org/web/wp-content/uploads/downloads/2020/Proceedings%20and%20Recommendations%20FINAL-%20HR%202019.pdf)

Rishi K. Tyagi, D.H.N. Munasinghe, K.H.M. Ashoka Deepananda, Frank Niranjana and Ravi K. Khetarpal (2020) Regional Workshop on Underutilized Fish and Marine Genetic Resources and their Amelioration – Proceedings and Recommendations. Asia-Pacific Association for Agricultural Research Institutions (APAARI), Bangkok, Thailand, xii+53 p.

Publication in Press (1)

1. **Regional Workshop on Underutilized Fish and Marine Genetic Resources and their Amelioration – Country Status Reports** (in press).

C. Outreach and Communication Strategy for Gene Editing Acceptance in India (New Project)

A 10-month duration project was implemented with effect from March 2020 to create awareness in public and consumers *via* print/social media and other channels that gene edited organisms are distinct from genetically modified organisms, with no foreign DNA inserted in them, rather they are similar to naturally occurring mutants in a population. The Brief report, from March 1, 2020- May 31, 2020 (three months), is presented below:

(i) Media Coverage: Articles, to generate public awareness, were written by three experts and were published in English and 3 other Indian regional languages in 27 print media (lead Newspapers). An article on ‘Need for Innovative Technology in Agriculture’ by an expert was posted on 72 online media.

(ii) Infographics: Covering the aspects from general information, benefits with examples, myths, regulation of gene editing technology, 64 infographics were developed and posted on Facebook page and Twitter. Outreach through communication *via* Facebook page increased from 143 to 2,754 and *via* Twitter 63 to 568 impressions per day from March to May 2020, respectively. It helped not only to create awareness but also the visibility of the APAARI/APCoAB.

(iii) Tweets: To demystify the misinformation and acceptance about gene editing in general, 129 tweets were posted through APCoAB Twitter handle during April-May 2020, with total Tweet impressions about 17,000.

D. APCoAB Website

(i) Content management and databases updates

(a) Institutional database: 411 new institutions from 12 countries

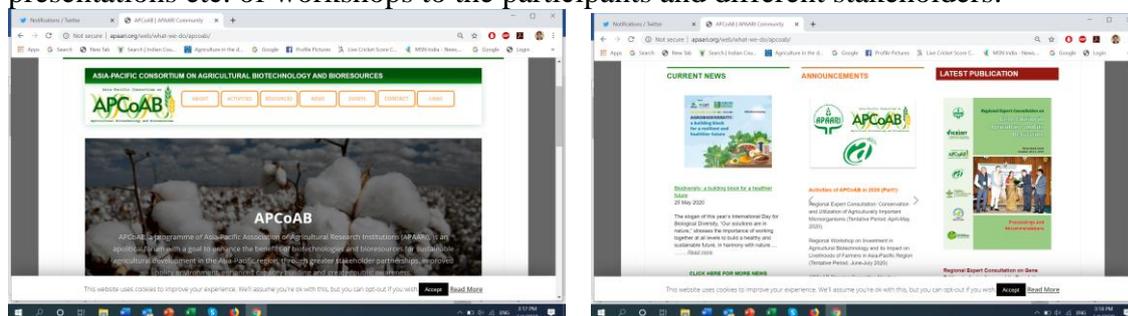
(b) Educational Institutions: 142 new institutions from 12 countries

(c) Experts database: 216 new contacts from 13 different countries

(ii) Contacts List: At total of 1971 contacts (name, organization, Email IDs), belonging to categories of researchers/scientists, academicians, policy makers, industries, journalists and others, were collected through search using internet for conducting online surveys and other communication related to biotechnology and bioresources.

(iii) Regular update

News, events, announcements, uploading of publications, event proceedings updates, etc. Distribution of resource material (proceedings, country status reports, PowerPoint presentations etc. of workshops to the participants and different stakeholders.



(iv) @Tweets: A total of 1,503 Tweets were posted by Twitter handle of Coordinator relating to the application and benefits of new innovations in agricultural biotechnology and conservation and use of bioresources. Under new project on gene editing, new Twitter handle was created for APCoAB in April 2020 and 129 Tweets were posted on Twitter handle and 64 posts on Facebook of APCoAB.

(v) Analysis of Websites of APAARI Members (NARS)

Websites are the face of any organization in current era. In agricultural research field, like in many others, if generation of information is essential, equally important is dissemination of information by using easy-to-understand techniques for a large and better outreach. Sharing of information at national level is generally easier as people share information more or less similar ways of broadcasting and presenting the information, however, international visitors' expectations may not always be the same. Use of Internet and social media is now-a-days crucial as potential partners would like to go through presentation and on-line information about research institutions through their websites for effective communication and development of networks and partnerships.

An exercise was undertaken to evaluate the websites of 20 NARS members of APAARI belonging to 20 countries (Afghanistan, Australia, Bangladesh, Bhutan, Fiji, India, Iran, Japan, Lao-PDR, Malaysia, Nepal, New Caledonia, Pakistan, Philippines, Republic of Korea, Samoa, Sri Lanka, Taiwan, Thailand and Vietnam), to identify the keys for more efficient dissemination of information at a regional or international level and thus support agricultural development through a better knowledge management. On the basis of available methods (Michael O Leavitt, Ben Shneiderman (2006) US Department of Health and Human Services. Research-Based Web Design and Usability Guidelines. https://www.usability.gov/sites/default/files/documents/guidelines_book.pdf), evaluation parameters [clarity and maintenance of the website English and other regional language; Access through digital supports (smartphone, tablets, computer); Accessibility to contact information; Presence on additional platforms (mails, social media)], were defined and scores were allotted accordingly. Out of 20 institutions, top five scorers are mentioned in following table:

Institution	Score	Facebook followers*
Australian Centre for International Agricultural Research (ACIAR)	9.0	57,000
Indian Council of Agricultural Research (ICAR)	8.0	187,000
Malaysian Agricultural Research and Development Institute (MARDI)	8.0	57,000
Bangladesh Agricultural Research Institute (BARI)	8.0	8,000
Pakistan Agricultural Research Council (PARC)	7.5	57,000

*As on January 2020; Rounded off to nearest integer

E. Co-organization of Events and Participation/Visits of Coordinator, APCoAB in Meetings Organized by Other Organizations (05)

- (i) Co-organized with COA/APO and participated in Workshop on Innovations in Agribusiness for Young Entrepreneurs, held at Taipei, July 1-5, 2019.
- (ii) Co-Organized and participated in the Regional Workshop on Underutilized Fish and Marine Genetic Resources (FMGR) and their Amelioration was held at National Aquatic Research Agency (NARA), Sri Lanka, July 10-12, 2019.

- (iii) Participated in Workshop on "Genome Editing Applications and Beyond" organized by ICGEB and European Commission and made a presentation on "Gene Editing in Agriculture – Scope, Perspectives and Policy Challenges in Asia-Pacific Region", Trieste, Italy, 19-21 November 19-21, 2019.



- (iv) Participated in Science Meeting and discussed with ICRISAT partners for active collaboration and scoping new project on empowering women and youth for scaling up the technology in dryland areas under CRP GLDC program, Nairobi, Kenya, November 25-30, 2019.
- (v) Participated in three Webinars related to biotechnology and food systems, April-May, 2020.



F. Networking and Partnerships

- (i) Discussion with official of Asian Productivity Organization for possible future collaboration in areas of agricultural biotechnology and innovations in agriculture, June 30-July 5, 2019.
- (ii) Interaction for partnership with the officials of ICAR, NARA, SLCARP for future collaboration for capacity development in areas of conservation and use of fish genetic resources, July 10-12, 2019.
- (iii) Partnership discussion with Director General, Deputy Director General (Research) and Director (Genetic Gains) of International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), Hyderabad, India, regarding organization of Expert Consultation on Gene Editing and its Regulation and International Hands-on Training on Genome Editing and future collaboration for the activities under APCoAB, July 29-30, 2019.
- (iv) Partnership discussion with Director, ICAR-National Bureau of Plant Genetic Resources (NBPGR), New Delhi, India, regarding organization, logistic arrangements, developing course content, finalizing the participants of training and publishing training manual, cost sharing with other collaborators (ICAR and Bioversity International) of *In Vitro* and Cryopreservation Approaches for Conservation of Plant Genetic Resources, August 01, 2019
- (v) Discussion with Secretary, Department of Biotechnology (DBT), India, for future collaboration in areas of agricultural biotechnology particularly in a capacity development and pursuing the BIRAC (DBT) membership of APAARI, August 02, 2019.
- (vi) Discussion with Director General, ICAR, India, to identify the areas of future collaboration between ICAR and APAARI and develop draft MoU for collaboration, August 02, 2019.
- (vii) Participated in a meeting at ICRISAT for sponsorship and finalizing the cost sharing amongst collaborators (ICRISAT, GLDC, FSII, PTCC) and logistic arrangements, finalizing the technical agenda and the participants for Expert Consultation on Gene Editing and its Regulation and International Hands-on Training on Genome Editing, September 19-20, 2019.

Memorandum of Understanding (MoU)

- (i) Draft MoU for collaboration between APAARI and ICAR was developed and submitted to ICAR, to collaborate for capacity building and knowledge management in areas of agricultural biotechnology and other agriculture sectors.
- (ii) MoU between APAARI-CropLife Asia- FSII to develop a project on Outreach and Communication Strategy for Gene Editing Acceptance in India.

APAARI Membership Secured

- (i) Biotechnology Industry Research Assistance Council (BIRAC) through Department of Biotechnology, Government of India, India (Associate Member).

G. New Project Proposals

- (i) Outreach and communication strategy for Gene Editing acceptance in India (Funded by CLA and FSII; USD 59,000) (secured).
- (ii) Enabling coordination among selected APAC countries for alignment of regulatory policy for gene edited crops (submitted to USAID; USD 3 million; not approved).

Work Plan of APCoAB for 2020

Area	Activities
Expert Consultation/ High Level Policy Dialogue	<ul style="list-style-type: none"> • Regional Expert Consultation: Conservation and utilization of agriculturally important microorganisms. Co-organizer: ICAR-NBAIM (October-November 2020)
Symposia/trainings/workshops	<ul style="list-style-type: none"> • Investment in agricultural biotechnology and its impact on livelihoods of farmers in Asia-Pacific region (postponed to 2021); Co-organizers: PCAARRD • Biotechnological tools for conservation and sustainable utilization of fish genetic resources (training) (October-November 2020); Co-organizer: ICAR • International Conference/training on Gene Editing (<i>September-October 2020</i>); Co-organizer: MARDI • International Symposium on the Practice and Benefits of Circular Agriculture in Waste Reducing and Recycling (November 2020); Co-organizer: COA and FFTC
Steering Committee of APCoAB	<ul style="list-style-type: none"> • Steering Committee Meeting of APCoAB (July 7, 2020)
Publication of proceedings/status reports/success stories	<ul style="list-style-type: none"> • Proceedings (3-4) of Expert Consultation and Workshops (January-December 2020) • One Policy Brief on GM Maize and two success stories are targeted - (Banana Tissue Culture in India, Goat and Sheep in PNG and Fiji) (January-December 2020)
APCoAB website	<ul style="list-style-type: none"> • Regular updates on agricultural biotechnology and bioresources developments, news and events of specific relevance to Asia-Pacific • Update of existing databases. Regular updates of other content and additional databases • Developing infographics and other media material for Facebook and Twitter to outreach and communication about gene editing
Additional Activities	<ul style="list-style-type: none"> • Online survey on Impact of Regional Expert Consultation on Underutilized Crops • Online survey on perception about gene editing

Annex VIII

APCoAB Steering Committee for the Biennium 2020-2021

Name	Position in Steering Committee	Address	E-mail / Phone number(s)
Dr Perter Horne 	Chairman	General Manager, Country Programs and Chairman, APAARI ACIAR, GPO Box 1571 Canberra ACT 2601, Australia	peter.horne@aciar.gov.au Tel: +61 (2) 6217 0522
Mr Vincent Lin 	Vice Chairman	Director General Department of International Affairs Council of Agriculture (COA) 37 Nanhai Road, Taipei, 10014 Taiwan	vincent@mail.coa.gov.tw Tel: +886 (2) 2312 4048 Fax: +886 (2) 2312 3827
Dr Trilochan Mohapatra 	Member	Director General and Vice Chairman, APAARI Indian Council of Agricultural Research (ICAR), Krishi Bhavan New Delhi-110001, India	dg.icar@nic.in Tel: +91 11 2338 6711 Tel: +91 11 2338 2629
Dr Jacqueline d'Arros Hughes 	Member	Director General, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru-502324, Telangana, India	J.Hughes@cgiar.org Tel: +91 40 3071 3226 Fax: +91 40 3071 3072
Dr Mohammad Roff Bin Mohd Noor 	Member	Director General Malaysian Agricultural Research and Development Institute (MARDI) P.O. Box No. 12301, Kuala Lumpur 50774, Malaysia	roff@mardi.gov.my Tel: +6019-2502104
Dr Sanjay Saxena 	Member	General Manager & Head (Investment) Biotechnology Industry Research Assistance Council (BIRAC) 1st Floor, MTNL Building	ssaxena@birac.nic.in Tel: +91 9811392248

Name	Position in Steering Committee	Address	E-mail / Phone number(s)
		9, CGO Complex, Lodhi Road New Delhi – 110003, India	
Dr Huu-Sheng Lur 	Member	Dean College of Bioresources and Agriculture National Taiwan University, Sec. 4, Roosevelt Rd. Taipei, 106 Taiwan	lurhs@ntu.edu.tw Tel: +886 (2) 3366 4773
Dr Amit Sukal 	Member	Plant Genetic Resources Center of the Pacific Committee P.O. Box 8469, Nakasi, Fiji	amits@spc.int Tel: +679 8371053
Dr Ravi Khetarpal 	Member	Executive Secretary, Asia-Pacific Association of Agricultural Research Institutions (APAARI), FAO Annex Building 202/1 Larn Luang Road Pomprab Sattrupai Bangkok 10100, Thailand	ravi.khetarpal@apaari.org Tel: +66 98784 4464
Dr Rishi Tyagi 	Member Secretary	Coordinator, Asia-Pacific Consortium on Agricultural Biotechnology and Bioresources (APCoAB), APAARI, FAO Annex Building 202/1 Larn Luang Road Pomprab Sattrupai Bangkok 10100, Thailand	rishi.tyagi@apaari.org Tel: +66 64946 9791

Table 1. Summary of Account Statement of APCoAB (January 1, 2019-December 31, 2019)

	Amount (USD)	Amount (In Kind equivalent to USD)	
Receipts		Name of Partners*	Amount in USD
COA, Taiwan	170,000.00	ICRISAT	19,000.00
APAARI and Partner Contribution	70,000.00	MARDI	15000.00,
Sponsorship	10,000.00	SLCARP	11,235.00
Total	250,000		
Payments			
Salary costs	84,033.31		
Other Direct Costs			
Meetings/Trainings/Workshop	114,895.90		
Consultancy	9,000.00		
Telephone	1,035.61		
General communication	267.05		
Computer Hardware and Software	160.02		
Sponsorship	3,000.00		
Courier	2,761.43		
Hospitality	157.92		
Publications	19,902.46		
Miscellaneous Charges	164.5		
Facilities from Secretariat	22,694.04		
Total	258,072.20		
Balance	-8072.00		

* ICRISAT – International Crop Research Institute for Semi-Arid Tropics; MARDI – Malaysian Agricultural Research and Development Institute; SLCARP – Sri Lanka Council of Agricultural Research and Policy

Table 2. Summary of Expected Income and Expected Expenditure for the APCoAB activities during January 1, 2020-December 31, 2020

	Amount (USD)
Receipts	
COA, Taiwan	170,000.00
APAARI and Partner Contribution	70,000.00
Expected Sponsorship	30,000.00
Total	270,000.00
Payments	
Coordinator Salary costs	74,904.00
Technical Associate Salary	30,000.00
Other direct costs	
Meetings/Trainings/Workshop	89,500.00
Publications/printing etc.	15,000.00
Consultancy	10,000.00
Telephone and other communication	2,000.00
Travel	20,000.00
Computer hardware and software - Laptop	2,000.00
Facilities from Secretariat	25,500.00
Miscellaneous	1,000.00
Total	269904.00