



APAARI

Newsletter

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Agricultural Research Institutions

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Pathways to strengthened agri-food research and innovation systems in Asia and the Pacific

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EDITORIAL

Dear APAARI Members, Partners and Stakeholders,

Agricultural innovation is at the forefront of APAARI's mission. Through its programmes, projects, activities and knowledge partnerships, the Association is dedicated to strengthening agricultural innovation systems (AIS) in the Asia-Pacific region.

One key initiative of this effort is the scaling up of the Tropical Agricultural Platform (TAP) Framework on Capacity Development for AIS. This framework is guiding APAARI in developing and enhancing the technical and functional capacities of its members and partners for innovation, enabling them to better support stakeholders in their innovation processes that are strengthening agri-food systems.

With the integration of the TAP Common Framework at the centre, APAARI works closely with the Asia-Pacific Islands Rural Advisory Services Network (APIRAS) to document good practices in AIS, and help the members reduce research-extension gap through capacity enhancement. Capacities for innovation have also been actively promoted through Working Groups led by the Asia-Pacific Consortium on Agricultural Biotechnology and Bioresources (APCoAB), as well as in the project on Asia Pesticide Residue Mitigation, the Agroecology and Safe food System Transitions (ASSET) project in South and Southeast Asia, and the project on Improving Phytosanitary compliances for enhancing trade in Bangladesh.

All these engagements demonstrate APAARI's commitment to drive collaboration, build capacity and a strong network, and advocate for issues of critical importance to Asia-Pacific that lead to the region's sustainability. APAARI makes efforts to blend both technical and functional capacities in our training programmes.

Furthermore, the Association is also committed to building stronger partnerships and mobilizing resources through regular networking, joint events and collective actions. By holding quarterly meetings with members, APAARI aims to foster their greater engagement and participation in APAARI's activities, while driving momentum towards the strengthening of AIS across the region.

In this newsletter, we invite you to discover the various initiatives that APAARI is undertaking to innovate and promote sustainable agri-food systems through innovation. We also bring you news and research articles from our members across the Asia-Pacific region, to give you a glimpse of what is happening within our dynamic community.

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EDITORIAL TEAM

- Ms. Pooja Mathur
- Ms. Martina Spisiakova
- Dr. Peter Horne
- Dr. Ravi Khetarpal

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APAARI is proud of the collective strength of its members and will continue to drive collaboration, build capacity, and advocate for issues of critical importance to the Asia-Pacific region. We encourage all to join us in our efforts to create a more sustainable and innovative future for agriculture in the region.



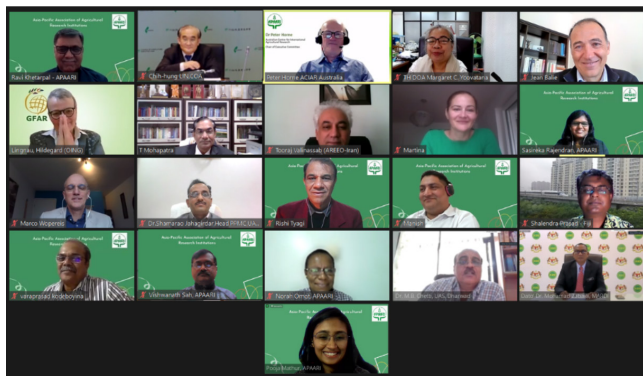
Dr. Ravi Khetarpal

Executive Secretary, APAARI

HIGHLIGHTS FROM THE APAARI SECRETARIAT

APAARI's Executive Committee convenes for its first meeting in 2022

The APAARI Executive Committee Meeting (ECM) of 2022, held via Zoom on 25-26 January 2022, brought together members, staff and consultants to discuss key strategic issues and propose recommendations for the smooth functioning of the Association.



Participants in the ECM, 25-26 January 2022

The first APAARI Executive Committee Meeting (ECM) for 2022 was held on 25-26 January 2022. The meeting was presided over by Dr. Peter Horne, General Manager, Country Partnerships, Australian Centre for International Agricultural Research (ACIAR), Australia, who is also the Chair of the APAARI Executive Committee (EC). Twelve members of the EC, as well as APAARI Secretariat and project staff, attended the meeting.

The key strategic items discussed in the EC included: (i) the legal status; (ii) management standards; (iii)

the extension of the current Strategic Plan, and the preparation of a new one.

The Committee recognised the strategic importance of these issues and expanded on them in the context of the following points:

- Action-taken report and recommendations of the last EC meeting
- Highlights of strategic and technical developments
- Legal status
- Management standards
- Risk register
- ACIAR's proposal for strategic support to APAARI
- Membership portfolio
- Administrative matters and finance updates
- Mid-term Review of the implementation of the current Strategic Plan and preparation for next Strategic Plan 2023-2028
- Technical progress report (March-December 2021) following the Monitoring, Evaluation, Reporting and Learning system of the Association
- Biennial Work Plan (2021-2022)
- Status of projects and partnerships

The Committee proposed recommendations for each of the above agenda items for the benefit of the Association's operations. The meeting concluded with heartfelt appreciation for all members, particularly the Chair, Dr. Peter Horne, for his unwavering support and active involvement with APAARI and its community. The Committee also acknowledged the dedication of the staff and praised their role in creating a dynamic and engaging work environment.

Dr. Ravi Khetarpal appointed as a new Chair of the Global Forum on Agricultural Research and Innovation (GFAR)

Dr. Ravi Khetarpal, Executive Secretary of APAARI, has been named the new Chair of the Global Forum on Agricultural Research and Innovation (GFAR) for a three-year term beginning 11 November 2021.

APAARI is pleased to announce that its Executive Secretary, Dr. Ravi Khetarpal, has been appointed as the Chair of GFAR effective from 11 November 2021 for a three-year tenure.

GFAR's vision is to make agri-food research and innovation systems effective, responsive, and equitable towards achieving the Sustainable Development Goals (SDGs). It is a global network of "networks" with 659 partners in the Global South representing 13 different constituencies. The

organization's mission is to shape a new future for food and agriculture, as well as the partnerships that need to be mobilized for collective action.

In his role, Dr. Khetarpal will oversee the next phase of the ongoing transformation of GFAR. His wealth of experience and leadership will undoubtedly strengthen GFAR's mission and help to bring about a more sustainable future for food and agriculture. He is well-versed in the challenges facing the agricultural sector and has a deep understanding of the importance of research and innovation in addressing these challenges.



5th Working Group Meeting of CGIAR's Germplasm Health Units: Review, progress, and future plans

APAARI hosted a meeting of the CGIAR's Germplasm Health Units to discuss progress, future plans and strategies for increasing efficiency and germplasm exchange. A work plan for 2022-2024 was also developed.

APAARI hosted the 5th Working Group Meeting of the CGIAR's Germplasm Health Units (GHUs) from 19-24 April 2022. CGIAR International Institute of Tropical Agriculture (IITA) organized the event as part of the CGIAR Genebank Platform, managed by the CROP TRUST. Twenty-five participants attended the event, including the Heads of the Units and the key actors of GHUs of the eleven CGIAR Institutes.

The deliberations revolved around review and progress of work in the GHUs, transition from CGIAR Platform to One CGIAR Genebanks Initiative, increasing its efficiency by cross-center exchange of innovations and technology, enhancing cost recovery mechanisms, and facilitating the germplasm exchange by formalizing the GreenPass mechanism with the International Plant Protection Convention (IPPC) led by FAO.

Recommendations were made to strengthen cross-center collaborations, develop a Communication and Partnership Strategy for enhancing the visibility of Germplasm Science, as well as advocacy, sensitization, and capacity building of national plant protection organizations (NPPOs) in handling germplasm during exchange quarantine. The Strategy will be important for the One CGIAR programme that engages with diverse stakeholders, especially NPPOs, to deliver its mission of ensuring the safe exchange of germplasm for safeguarding food security.

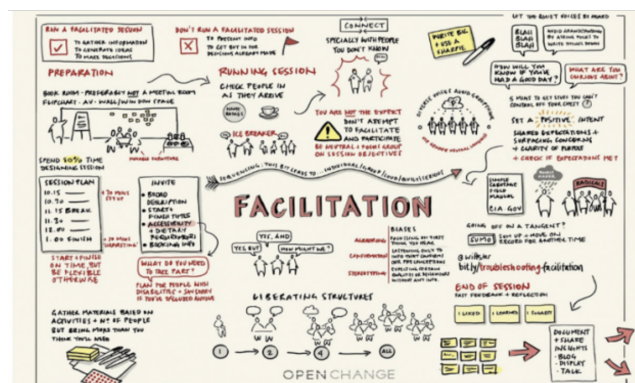
The participants developed a Work Plan for 2022-

2024 during this meeting, which also helped the establishment of linkages between APPARI and the Asia-Pacific Seed Association (APSA).



Building facilitation skills for innovation in Africa

In March 2022, APAARI conducted two training activities. The Training of Trainers (ToT) on Strengthening Agricultural Innovation Systems (AIS) for Biopesticide Development in Africa trained facilitators of the Southern African Development Community (SADC) Biopesticide Development Project. The focus was on the approach of blending functional and technical capacity development to deliver impact. Consequently, APAARI contributed to a FAO/TAP-led regional ToT to strengthen AIS in Africa.



Based on the Training of Trainers (ToT) that APAARI delivered together with the Tropical Agriculture Platform (TAP)/FAO and Asia-Pacific Islands Rural Advisory Services Network (APIRAS) in October 2021, and its experience of blending technical and functional capacities in pesticide residue mitigation projects, APAARI developed a tailored ToT on Strengthening Agricultural Innovation Systems for Biopesticide Development in Africa through Capacity Enhancement that was conducted from 9-10 March 2022.

This is in the context of APAARI's collaboration with the International Centre for Genetic Engineering and Biotechnology (ICGEB) in Africa, namely the SADC Biopesticide Development Project funded by the Standards and Trade Development Facility (STDF) in which APAARI provides technical backstopping on the integration of functional capacities.

Furthermore, from 23-25 March 2022, APAARI delivered a session on effective facilitation of functional capacity development during the regional ToT "Integrating the TAP Common Framework into African research and extension organizations". Both

ToTs emphasized the importance of facilitation in delivering learning-oriented meetings and engaging multi-actors for practice-led innovation.

The session provided a theoretical background of andragogy (adults learning) implying that adults learn best when they are involved in diagnosing, planning, implementing, and evaluating their own learning. Knowledge Management (KM) is also crucial in facilitation, as it helps to bring out the tacit knowledge based on experience, which is difficult to codify, but is crucial for agricultural innovation.

The ideal competencies of a trainer/facilitator, as agreed upon by the ToT participants, include a broader understanding of the subject, knowledge of KM processes and tools, language proficiency, and the ability to support technical teams in developing and refining learning objectives, conduct training needs assessments, and develop training agendas. Furthermore, a trainer/facilitator should foster synergies that link people and resources, enhancing their ability to make collective decisions, ensure strong implementation, and influence change. [Read more](#)



Good practices on strengthening AIS in Asia-Pacific now available

APAARI and APIRAS scoped the agricultural innovation environment in Asia-Pacific and identified and documented initiatives that are strengthening AIS in the region. This resulted in six Good Practice Notes to strengthen capacities for innovation. A regional webinar was held to present and discuss the results.

A joint APIRAS-APAARI call for good practices on strengthening AIS in Asia and the Pacific was launched on 25 December 2021. It was based on the outcomes of the Joint Rapid Appraisal (JRA) that APAARI and APIRAS conducted in 2020 to scope the innovation environment and identify and document initiatives aimed at strengthening AIS in the region.

The JRA revealed three main barriers that constrain development of an effective AIS in Asia-Pacific, which are: lack of sufficient partnerships among AIS actors; inadequate investments and lack of policies that could steer the research and extension agencies to engage with other AIS actors; and lack of sufficient capacity development initiatives aimed at enhancing functional capacities of AIS actors.

This call documented good practices that have

contributed to successful strengthening of capacities for innovation in line with the three focus topics. Six Good Practice Notes were published as follows:

1. [Promoting sustainable agriculture through green extension in Lao people's democratic republic](#)
2. [Strengthening capacities to innovate through north-south collaborative agricultural research in Papua New Guinea](#)
3. [Multi stakeholder approaches for enhancing command area water productivity in India](#)
4. [Enhancing organizational and functional capacities of producer organisations in India through strategic collaboration](#)
5. [Strengthening last mile service delivery to support smallholder farmers in India](#)
6. [Promoting community-driven innovations in the forested uplands of the Philippines](#)

Following the collection of these practices, a regional webinar on 'Strengthening agricultural research and extension organizations to support agriculture innovation' took place on 21 June 2022. With over 300 registered participants and over 100 live participants, the webinar generated a high-level of interest among regional stakeholders demonstrating their commitment to supporting agricultural innovation in the Asia-Pacific region.

The webinar presented the results of the online survey on research-extension challenges within the regional AIS. A joint call for good practices for strengthening the AIS in the Asia-Pacific identified multiple success stories. Four (out of six) good practices were presented to showcase how multi-stakeholder collaboration can address major issues faced by the region (see links to the Good Practice Notes above). Four presenters of good practices, who shared their challenges and experiences from India, Lao PDR and Papua New Guinea, also discussed examples of innovative approaches to address challenges and promote a sustainable agri-food systems transformation in the region. More information is available [here](#).

In case APAARI readers have more such interesting good practices, please send these outputs to Ms. Pooja Mathur, Communication Officer, APAARI (p.mathur@apaari.org).



Celebrating International Women's Day to advance gender equality in innovation

A regional webinar celebrated International Women's Day by highlighting the contributions of women in agricultural research, extension, and

policy in the Asia-Pacific region. The webinar aimed to raise awareness, share good practices and discuss solutions to challenges facing women in their innovation work.

WOMEN IN RESEARCH AND EXTENSION: ADVANCING GENDER EQUALITY IN INNOVATION

#InternationalWomensDay

Register Now

DATE: THURSDAY, 8 MARCH 2022
TIME: 14:30 - 16:00 PM (BANGKOK TIME)

SPEAKERS

 MS. CHATNAPA KHOMARWUT Director, Phrae Agricultural Research and Development Research Center, Department of Agriculture, Ministry of Agriculture and Cooperatives, Thailand.	 MS. MARTINA SPISAKOVA Knowledge Management Coordinator, APAARI (Moderator)	 MS. SAILABALA PANDA Project Lead, Land Rights and Forest-Based Livelihoods, PRADAN, India.
 MS. FLAVIA CIRIBELLO Gender and Value Chain Advisor, Pacific Organic and Ethical Trade Community (POETCom), Fiji.	 DR. MARYAM HOSSEINI CHALESHTOR Head, Rice Research Institute of Iran, Agricultural Research, Education and Extension (AREEO), Iran.	 MS. TANKA MAYA PULAMI Deputy Chief Agriculture Officer, Agriculture Research and Development Centre, Ministry of Agriculture and Forests, Bhutan.
 DR. LELE NURYATI Director, Indonesian Centre for Agricultural Training, Indonesian Agency for Agricultural Extension and Human Resource Development (IAAEHRD), Ministry of Agriculture, Indonesia.	 DR. NORAH OMOT Policy Coordinator, Asia-Pacific Association of Agricultural Research Institutions (AAPARI).	

With support of: Funded by:

On International Women's Day 2022, APAARI, APIRAS, and TAP celebrated by holding a regional webinar to advance gender equality in innovation. Women working in agricultural research, extension and policy shared their inspiring stories of success, challenges, and lessons as innovators and influencers of change in the Asia-Pacific region.

Agricultural innovation is crucial for achieving a world free from hunger and malnutrition. The role of innovation in agricultural research and extension goes beyond technology and involves multiple actors within AIS. National Agricultural Research and Extension System (NARES) working in collaboration with Higher Education Institutions (HEIs), civil society, industry, international agricultural research and regional fora, are key players in promoting innovative solutions for small agricultural producers, small entrepreneurs and the society as a whole, but they still follow conservative approaches with respect to technological innovation. However, often women's valuable contribution to the strengthening AIS may not be fully recognized or utilized due to patriarchal systems and conservative cultural environments.

NARES require institutional transformation using innovative processes and strategies that strengthen their own capacities and the enabling environment for innovation to happen. This includes capitalizing on female creativity and women's leadership, and promoting gender equality to support women in realizing their full potential in the strengthening of AIS in their countries and the region.

The webinar on "Women in research and extension: Advancing gender equality in innovation" aimed

to inspire and mobilize change for women in innovation to ensure their inclusive contribution to the transformation of agri-food systems in the Asia-Pacific region. It also aimed to raise awareness on key challenges and opportunities facing women in agricultural innovation, share their good practices and inspiring stories, and discuss what needs to be done to address their challenges.

Six women from Asia-Pacific shared their interesting insights and stories on 'Making a difference in agricultural innovation in Asia-Pacific', namely:

1. Tanka Maya Pulami, Deputy Chief Agriculture Officer, Agriculture Research and Development Centre, Department of Agriculture, Ministry of Agriculture and Forests, Bhutan
2. Sailabala Panda, Theme lead, Forest-Based Activities and Livelihoods, PRADAN NGO, Orissa, India
3. Flavia Ciribello, Gender and Value Chain Advisor, SPC Land Resources Division (LRD), Pacific Organic and Ethical Trade Community (POETCom), Fiji
4. Leli Nuryati, Director, Indonesian Centre for Agricultural Training, Indonesian Agency for Agricultural Extension and Human Resource Development (IAAEHRD), Ministry of Agriculture, Indonesia
5. Maryam Hosseini Chaleshtor, Head of Rice Research Institute of Iran, Agricultural Research, Education and Extension (AREEO), Iran
6. Chatnapa Khomarwut, Director, Phrae Agricultural Research and Development Research Center, Office of Agricultural Research and Development Region, Department of Agriculture, Ministry of Agriculture and Cooperatives, Thailand

The role of women in contributing towards food and nutritional security, as well as tackling the impact of COVID-19 and climate change in the region's agriculture and rural development, can in no way be undermined. Women's equality needs to be perceived as an enabler of innovation effectiveness.



Unlocking the potential of biopesticides through developing technical and functional capacities

APAARI has fully integrated TAP Common Framework tools and processes in its ongoing and

planned activities and projects. It has been blending technical and functional capacities in technical projects focused on pesticide mitigation and biopesticide development to meet the demands of export markets by the countries involved.

In the Southern African Development Community (SADC) Biopesticide Development Project, and the Asia Pacific Residue Mitigation Project, funded by STDF, APAARI has been developing functional capacities of the project stakeholders to enable them to better:

- (i) promote the use of biopesticides to ensure compliance with export markets' residue requirements;
- (ii) develop common standards based on reciprocal acceptance of data generated, evaluated and used for decision making; and
- (iii) mitigate residues to resolve specific MRL trade concerns.

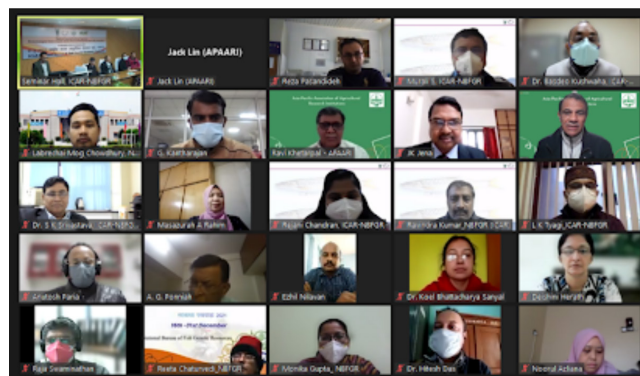
In another activity, namely the Bangladesh Phytosanitary Development Project, funded by the United States Development Agency (USDA), APAARI has been integrating functional capacity development in every technical training.

In addition to providing orientation on TAP Common Framework concepts and tools, APAARI has used these tools e.g. to strengthen collaboration among respective biopesticide actors in Bangladesh for the development of an autonomous National Plant Protection Organization (NPPO). This led to the development of a management tool for Bangladesh stakeholders providing priority technical actions with defined functional mechanisms, including capacity, collaboration among different actors, risks and ways to address them, as well as required capacities and roles for an effective functioning of the biopesticide system in the country.



Advancing aquaculture through capacity building and regional collaboration in biotechnology

Investment in capacity development for utilizing biotechnological tools for genetic resources in aquaculture can improve production and conservation through disease diagnostics and biosecurity. A series of training programmes in India brought together researchers from 13 countries to improve their competencies and foster regional collaboration in the field.



Participants of the capacity building workshop

Investing in the capacity building of modern biotechnological tools is crucial for advancing knowledge and conservation of genetic resources for aquaculture improvement. By strengthening the ability to diagnose and prevent disease, nations can improve their aquaculture production while minimizing losses and promoting 'One Health'. The utilization of genomics, in particular, offers insights into adaptive mechanisms and the identification of trait-specific germplasm.

Through collaboration with the National Bureau of Fish Genetic Resources, Indian Council of Agricultural Research (ICAR), a series of training programmes were developed to improve the understanding and technical competencies in aquatic animal disease and biosecurity (Module 2 organized on 4-12 January 2022), as well as genomics and bioinformatics (Module 3 organized on 13-21 January 2022) of genetic resources in aquaculture. A total of 44 participants, with a high percentage of female researchers, from 13 countries participated in these programmes.

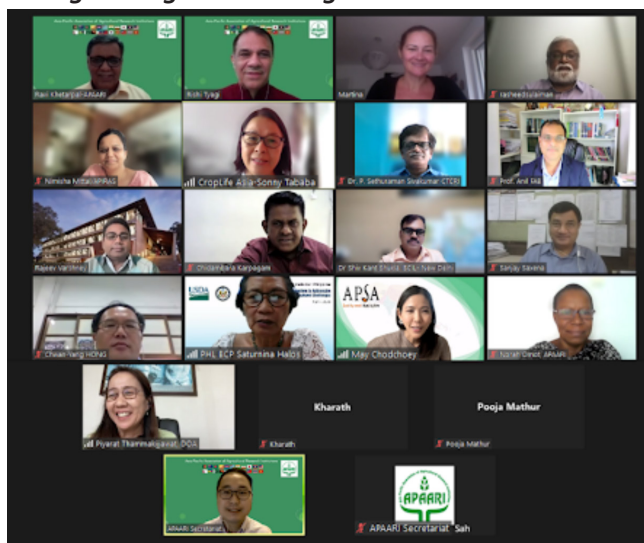
The training improved the knowledge and competencies of individual participants, and provided a platform for regional cooperation and collaboration in these areas. Training feedback showed that many participants identified areas for future collaboration with other countries and regions. An e-practical manual with contact details of experts and resources for lab demonstrations was also developed and made available through an open access (<https://e-nbfrg.nbfrg.res.in/home/index>) to benefit all researchers working on genetic resources in aquaculture.



Promoting agri-biotechnology through multi-actor working group discussions

A Working Group of experts built on previous agri-biotechnology activities led by the Asia-Pacific Consortium on Agricultural Biotechnology and

Bioresources (APCoAB) to explore agri-biotech innovations in the context of institutional capacity development, improvement of partnerships, and strengthening the enabling environment.



Participants of the working group

Imagine a future where food production and productivity are enhanced through the use of innovative agri-biotechnology solutions. From low-tech methods, such as tissue culture, biofertilizers and artificial insemination (AI), to high-tech DNA-based methodologies, such as genetic modification, genomics and gene editing. The potential for agri-biotech innovations to revolutionize the way we grow our food is immense.

To ensure that these innovations are scaled up in a sustainable and effective way, APAARI led a Working Group on agri-biotechnology comprising of 13 experts from research, extension, higher education, and policy-making backgrounds. It was organized in collaboration with APCoAB, FAO/TAP and APIRAS.

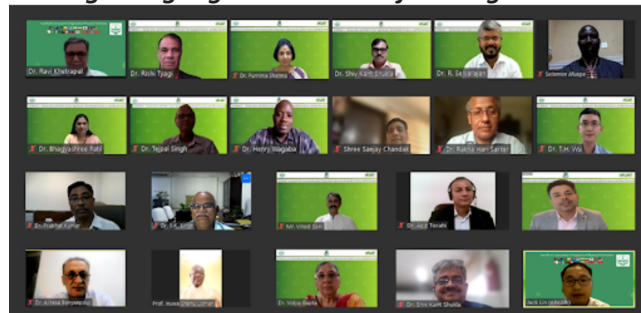
The meetings took place on 25 May and 17 June 2022 to provide strategic guidance and advice on how to support institutional capacity development, new partnerships, and national decision making related to agri-biotech innovations. The meetings' discussions built on the selected recommendations already made at past APCoAB expert consultations.

The recommendations arising from these meetings will feed into a regional position paper to support the agri-biotechnology agenda in Asia-Pacific. The paper entitled "Bridging the Gaps for Upscaling and Sustainability of the Agri-biotech Innovations" is currently being prepared to provide more information on this important topic. [Read more](#)



Webinar series for popularizing plant tissue culture in Asia-Pacific and African countries foster collaboration and capacity building

APAARI's webinar series for "Popularizing Plant Tissue Culture" brought together a diverse group of experts and fostered collaboration and knowledge-sharing. It highlighted the need for a regional



Participants of the webinar

platform for capacity building to further advance the use of tissue culture in agriculture.

The incredible advancements made in plant tissue culture technology have played a critical role in transforming the agricultural industry on a global scale. This revolutionary method allows for large-scale clonal multiplication of a wide variety of economically important plant species, greatly increasing yields and creating new opportunities for farmers and industry alike.

To further share knowledge and foster collaboration among experts, researchers, and industry professionals, a webinar series was organized to promote the use of plant tissue culture in the Asia-Pacific region and African countries. The series included four webinars, two of which were organized in partnership with Biotech Consortium India Limited (BCIL) on 31 May and 30 June 2022. The webinars covered the following topics in the context of their significance, best practices and way forward:

1. Tissue culture of banana, root and tuber crops (31 May); and
2. Tissue culture of perennial fruit/cash crops (June 30th)

The webinars were a resounding success, attracting a combined total of over 1,200 registrations from across Asia-Pacific and Africa. The participants represented a diverse range of backgrounds, including research managers, policy makers/regulators, researchers, academia, industry professionals, students, and more, from over 50 countries. Furthermore, 43-45% of the attendees were women researchers.

The knowledge and skills gained through these

webinars have been invaluable in advancing the field of tissue culture and equipping participants with the tools they need to integrate these techniques into their research and professional development. However, it was also noted that there is a need to establish a regional platform for capacity building in tissue culture across different crops to further promote trade and collaboration in the region



Engagement to promote agroecology in Southeast Asia through the ASSET project

APAARI is leading the Communication and Visibility Sub-Component in the Agroecology and Safe Food System Transitions (ASSET) project. Join our project newsletter to stay informed with the latest updates and engagement opportunities in the field of agroecology.

APAARI is one of the important players in driving agroecology and safe food system transitions in Southeast Asia through its leadership of the Communication and Visibility Sub-Component of the ASSET project. In December 2021, APAARI launched the ASSET e-newsletter, reaching out to over 280 development professionals from partner organizations.

The Association is also overseeing the website and Social Media efforts under the project, streamlining the process of collecting and disseminating information from partners. It is also leading the communication-related capacity development and outreach activities of the project.

Recently, APAARI participated in the Annual Partners Workshop and joint discussions on training needs assessment with the Institute of Technology Cambodia (ITC) and the Project Coordination Unit. Furthermore, a stakeholder mapping survey was launched within the ASSET Consortium to identify active members working in the field of agroecology. This will enable a better understanding of the project stakeholders and target the project's communication strategies to the right audiences.

APAARI invites its members and partners working in the field of agroecology to join the network by subscribing to our ASSET Project Newsletter. Please contact: Dr. Sasireka Rajendran, ASSET Project Manager, at s.rajendran@apaari.org.



The ASSET Team's successful first Annual Partners Workshop

The ASSET Team held its first Annual Partners' Workshop in April 2022 – a hybrid event that featured in-person participation of partners from Cambodia, Laos, and Vietnam, and virtual participation of partners from Europe. The workshop provided an excellent opportunity for partners to share their respective strategies and milestones in the project, increase visibility of their interventions, and plan future field activities.



Participants of the Annual Partners' Workshop in Vietnam

The ASSET Team successfully conducted its first Annual Partners' Workshop from 26-28 April 2022 in Hanoi, Vietnam. This hybrid event gathered partners from Cambodia, Laos, and Vietnam, while others joined remotely via Zoom. A total of 106 partners participated in the event.

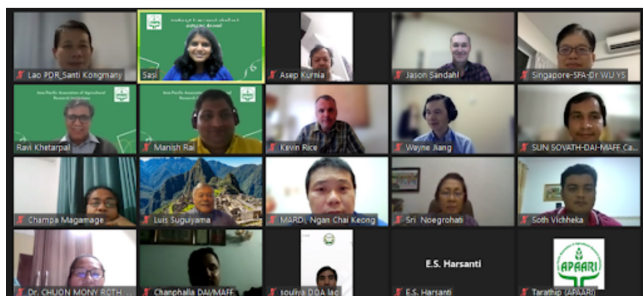
Dr. Sasireka Rajendran represented APAARI, providing an overview of the new Communication and Visibility Strategy, as well as the completed and ongoing communication activities. The strategic objective is to engage with ASSET partners through newsletters, success stories, and media documentation, and to increase the visibility of the outcomes of the ASSET project.

The ASSET Team highlighted an increase in the follower base and engagement on the project website and Social Media pages, including Facebook, LinkedIn, and Twitter. It also discussed plans for more in-person meetings with stakeholders and continuation of field activities.



Asia Pesticides Residue Mitigation Project: Promoting biopesticides for sustainable pest management

The Asia Pesticides Residue Mitigation Project is working towards reducing the presence of conventional pesticide residues in crops by promoting the integration of biopesticides in pest management strategies in ten Asian countries.



The Asia Pesticides Residue Mitigation Project (APRMP) facilitates organized efforts to promote the inclusion of biopesticides in Integrated Pest Management (IPM) with specific strategies aimed at reducing the presence of conventional pesticide residues through the use of biopesticides. The project is currently being implemented in ten countries across Asia, including Bangladesh, Cambodia, Indonesia, Laos, Malaysia, Nepal, Pakistan, Sri Lanka, Thailand, and Vietnam. Recently, APAARI signed a new contract with Ag Aligned Global, USA, which has undergone a change in leadership and is now led by Dr. Jason Sandahl.

To ensure the project success, Ag Aligned Global and APAARI have brought together a team of experts in the field, including Dr. Jason Sandahl, Technical Coordinator; Mr. Luis Suguiyama, Biopesticide Regulatory Harmonization Expert; Ms. Grace Lennon, Study Director and Field Residue Research Expert; Dr. Kevin Rice, Entomologist and Bioefficacy Expert (Virginia Tech, USA); and Dr. Wayne Jiang, Lab Research Expert (IR4 and Michigan State University).

The APRM project funded by STDF, and the USDA-funded project entitled “Improving Phytosanitary Trade Compliances in Bangladesh” share a similar mandate to generate residue decline data for the agricultural produce. A ten-days training on field and laboratory pesticide residue analysis for scientists and officers of the Bangladesh Agricultural Research Institute (BARI) and Department of Agriculture Extension (DAE). The training was conducted by Ms. Lennon (study director) and Dr. Jiang (lab research expert) with in-person support from Dr. Cherukuri Sreenivasa Rao, the Principal Investigator for Monitoring of Pesticide Residues at the National Level

at the Acharya N. G. Ranga Agricultural University (ANGRAU) Centre in India.



Participants of the residue decline training in Bangladesh

Furthermore, Ms. Lennon worked closely with national study teams to finalize protocols and field data notebooks. The teams from Cambodia, Indonesia, Malaysia, and Thailand have completed field residue decline training in a hybrid mode between April and June 2022 and are now analyzing their samples in the lab. They will then begin their second phase of the residue decline study.



Participants of the Residue Decline Training in Thailand



Biopesticide regulatory harmonization: Building functional capacities for sustainable pest management in East Asia

The first Biopesticide Regulatory Harmonization workshop of the APRMP brought together regulatory points of contact from countries in East Asia to assess the current state of biopesticide regulation, and explore ways to promote innovation in pest management through the development of functional capacities of regulators.

On 18 March 2022, APAARI conducted the first Biopesticide Regulatory Harmonization workshop for

APRMP and brought together all regulatory contact points from the participating countries, including Bangladesh, Cambodia, Indonesia, Laos, Malaysia, Sri Lanka, Thailand, and Vietnam. The online workshop was led by Mr. Luis Suguiyama, Biopesticide Regulatory Harmonization Expert, Ag Aligned Global, USA.

Before the workshop, a survey was sent out to assess the current state of biopesticide regulation in each country and to confirm the availability of certain biopesticide products for efficacy trials as residue mitigation tools. Based on the feedback, the project can ascertain that the participating countries have biopesticide regulations in place and in line with the 2013 ASEAN Guidelines on the Regulation, Use and Trade of Biological Control Agents.

During the workshop, participants discussed the development of functional capacities (soft skills) for regulators to successfully regulate biopesticide development in their countries and promote further innovation in the field. They identified various types of innovation, including those related to processes, such as understanding and regulating safety aspects of biopesticide development and promoting awareness and advocacy with farmers while respecting indigenous knowledge, and improving the legal framework, which is lacking in some countries.

The participants also explored why functional capacities are important in the context of their regulatory work. The key concepts of the Tropical Agriculture Platform (TAP) Common Framework on Capacity Development for AIS were presented and discussed in the context of the project.

The next step in building these functional capacities is a planned workshop on risk communication, which will include regulators from Bangladesh, Cambodia, Indonesia, Laos, Malaysia, Nepal, Pakistan, Sri Lanka, Thailand, and Vietnam, as well as scientists. The agenda will include topics, such as understanding the importance of risk communication, analyzing stakeholders' perceptions of pest-related risks, and developing effective communication strategies and messages for different audiences.



APAARI partners with the Asian Farmer Association (AFA) to empower farmers in integrating biopesticides in their pest management

APAARI and Asian Farmer Association (AFA) have joined forces to provide farmers with the right

knowledge and tools to integrate biopesticides in their pest management strategies, through a series



Farmers' learning session in Bangladesh
of learning sessions and regional exchanges.

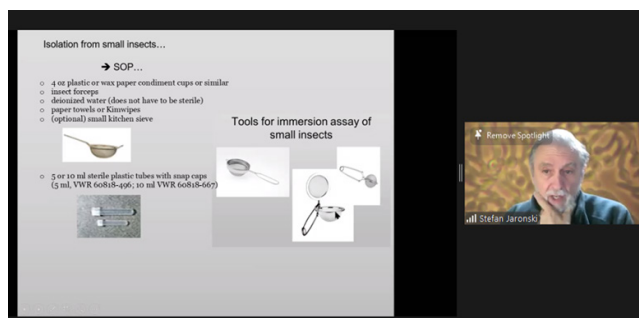
APAARI started partnering with AFA to empower farmers with the knowledge and tools to enable them to incorporate biopesticides in their pest management strategies. Various farmers' learning sessions were carefully crafted to foster a collaborative exchange between researchers and farmers, as they navigate the shift towards safer agri-food production.

From March to June 2022, four national farmers learning sessions were held, bringing together 122 participants from Bangladesh, Indonesia, Laos and Pakistan. In the latter half of 2022, APAARI and AFA will host regional exchanges to share the insights and progress made during these national events.



Microbial biopesticides manufacturing: An engaging online lecture series

APAARI held a comprehensive online lecture series on microbial biopesticide manufacturing in May 2022. The participants learned about the processes of insect pathogenic fungus isolation, candidate strain selection, mass production, and quality control.



In May 2022, APAARI conducted a two-day riveting online lecture series on microbial biopesticide manufacturing, led by Dr. Stefan Jaronski, APAARI's

consultant and an adjunct professor in Entomology at Virginia Tech University.

During the four-hour session, Dr. Jaronski provided details on insect pathogenic fungus isolation and identification, secure accession of candidate strains for future use, critical screening criteria for selecting the best candidate, mass production techniques, and quality control measures.

For those eager to expand their knowledge in this area, the videos from the lecture series are available for access on APAARI's YouTube channel.

[Microbial biopesticides manufacturing - Part 1 | APAARI, STDF - YouTube](#)

[Microbial biopesticides manufacturing - Part 2 | APAARI, STDF - YouTube](#)



NEWS FROM NATIONAL AGRICULTURAL RESEARCH SYSTEMS (NARS)

Australian Centre for International Agricultural Research (ACIAR)

ACIAR joins forces to promote safer and more efficient agrichemical practices in Laos and Vietnam

In Laos and Vietnam, the Australian Centre for International Agricultural Research (ACIAR) is supporting research to develop safer, more effective farming practices using agrichemicals. An international team of researchers will investigate how agrichemicals are currently used and accessed, identify gaps between these approaches, and highlight good practices.



Vietnamese consumers, traders and farmers all have a role to play in improving agrichemical practices by creating both demand and supply for safely produced food. Photo: ACIAR

ACIAR is supporting research to gather information on how agrichemicals are being used in Laos and

Vietnam to develop safer, more effective farming practices. Fertilisers and pesticides – known collectively as agrichemicals – help to control pests, disease and weeds. They support crop growth and food security around the world. But improper distribution and use can create risks for farmers, consumers, the broader community, and the environment.

Pesticides and fertilizer use

While institutional advice and regulations exist in both Laos and Vietnam, little has been documented about compliance and what drives agrichemical use in different production systems and contexts.

This project aims to document both the current policies and the frameworks that are in place across the different nations. It also aims to answer the questions of what influences farmers to use agrichemicals, and why. The project examines drivers, influences and attitudes towards agrichemicals.

Dr Lucy Carter, Senior Research Scientist The Commonwealth Scientific and Industrial Research Organisation (CSIRO), and the project leader, explains: “If we can understand how farmers balance risks, production pressure and family wellbeing, we can start to think about how to maximize incentives and support for safe practice around agrichemical use.”

The project brings together researchers from Laos (National Agriculture and Forestry Research Institute, National University of Laos), Vietnam (Plant Protection Research Institute, National University of Agriculture, National Institute of Medicinal Materials) and Australia (CSIRO). They will gather and analyse data to help understand how agrichemicals are currently being accessed and used, and identify gaps between these approaches and ‘best practice’ that can help to protect crop production into the future.

The researchers have already conducted literature reviews on farmer use of agrichemicals in Laos and Vietnam. They identified current policies, regulations and conceptual frameworks, relevant institutions, as well as patterns, practices and drivers of agrichemical use.

“The ACIAR project is laying the foundation for understanding how farmers use agrichemicals so that environmentally safe and healthy use of chemical inputs in agriculture can be ensured in the future,” says Dr Clemens Grünbühel, Research Program Manager for Social Systems at ACIAR.

Agricultural intensification

The literature review and a cross-country comparison of findings have shown that agricultural practices are intensifying. With farming in both countries becoming more commercial, and as climate change increasingly affecting land-use options and the incidence of pest and disease outbreaks, farmers need tools, training and support that can help them maintain crop production and use agrichemicals safely.

The use of agrichemicals is also being affected by changes in labour availability. As individuals migrate from rural to more urban areas, a reduced workforce means more interest in labour-saving technologies.

Oula Bouphakaly, Assistant Professor of Agriculture at the National University of Laos and the project's in-country research partner, says: "Farmers are increasingly relying on agrichemicals to maintain yields and profitability, but the risks of using them are not being managed adequately to ensure environmental sustainability and guard human health. Better knowledge of how to apply and handle chemicals could protect farmers' lives and livelihoods."

Market influencers

Agrichemical manufacturers and retailers also have a role to play. Product formulation, labeling and retail availability needs to align with best-practice standards to help ensure farmers have access to accurate information to make informed decisions on agrichemical use.

"One of the solutions for promoting safe use of agrichemicals is educating consumers. Consumers showing concern for food safety influences how producers use these chemicals", says Dr Phonevilay Sinavong, researcher at the National Agriculture and Forestry Institute of Laos.

All consumers want food that is safe to eat. Better financial incentives, access to safer products and information about the benefits of low-intensity agrichemicals could give farmers more scope to explore changing their use of these products. Linking food safety with safe agrichemical use and sustainable crop management practices could help to incentivise more consumers to pay premiums.

This needs to go hand in hand with better protective equipment availability and practices to ensure the safety of farmers. Education for producers and retailers is needed to ensure farmers understand the risks, as well as options available to them when applying fertilisers and pesticides.

Building a full picture

Project teams have conducted interviews with local agrichemical users and traders, district and provincial-level agricultural employees, local leaders, associations and advisory service officers.

Responses will help the project team build a fuller picture of how decisions on agrichemical use – by farmers, traders and other local stakeholders – are being made. Alongside policies and frameworks, understanding market dynamics, consumer expectations and the role of product makers, new data from the project will inform approaches to agrichemical practices for Laos and Vietnam into the future.

Source: Patrick Cape, Assistant Director, Outreach and Capacity Building, ACIAR; Patrick.Cape@aciar.gov.au



Japan International Research Center for Agricultural Sciences (JIRCAS)

Green Asia: Unleashing the power of innovation to transform food systems and achieve sustainability in Asia's Monsoon Region

The Japan International Research Center for Agricultural Sciences (JIRCAS) launched the "Green Asia" project to accelerate the application of fundamental agricultural technologies in the Asia-Monsoon region through international collaboration, dissemination of information, and joint research. The project aims to support Japan's long-term strategy and facilitate the transformation of food systems in the region.

In September 2021, the United Nations Food Systems Summit (UNFSS), the first UN summit that dealt with all food-related issues from production to consumption as food systems, was held at the initiative of the UN Secretary-General. The food systems have received such great attention with a shared recognition that transforming food systems is one of the major drivers to achieve the SDGs.

According to the UN, the food systems contribute up to a third of global anthropogenic greenhouse gas emissions, up to 80 percent of biodiversity loss and up to 70 percent of freshwater use. The transformation to sustainable food systems is thus an urgent issue, which should be tackled globally, regionally, and nationally.

Against these backgrounds, in May 2021, Japan launched the government's sustainable food

systems strategy “MeaDRI” Measures for the achievement of Decarbonization and Resilience with Innovation (MeaDRI)”, a medium-long term strategy for enhancing engagement of stakeholders at each stage of food supply chains, and promoting innovation to reduce environmental load in achieving sustainable food systems.

The Strategy “MeaDRI” shares many characteristics, including distinctive climatic conditions, such as high temperature and humidity, paddy-rice based agriculture, and a high proportion of small and medium-sized farmers. Japan will be actively advocating it as a model for a new sustainable food system in Asia-Monsoon region to realize both increasing production potential and improving sustainability in food, agriculture, forestry and fisheries sectors through innovation.

Based on this perspective, in April 2022, JIRCAS launched the project on “Accelerating application of agricultural technologies, which enhance production potentials and ensure sustainable food systems in the Asia-Monsoon region” (Green Asia). As one of the major projects of JIRCAS, “Green Asia” aims to contribute to the Strategy “MeaDRI” and to facilitate the transformation of food systems in the Asia Monsoon Region by accelerating the application of fundamental agricultural technologies suitable for the region. This is through the development of an international collaboration system, dissemination of information, and joint research utilizing the JIRCAS network.

The “Green Asia” project consists of two parts. The first part concerns the development of an international collaboration system and dissemination of information with the establishment of the International Center for Strategy “MeaDRI” in JIRCAS. The center will function as a hub for collection, analysis, management, and dissemination of research results and outputs that will be generated from the project, including a series of reports on sustainable agricultural technologies, technology catalogue, and agricultural databases. These resources are envisioned to be utilized as a reference for promoting sustainable agriculture in the Asia Monsoon Region. To support the project, an international scientific advisory board for the strategy will also be created.

The second part consists of joint research on the application of fundamental agricultural technologies, such as alternate wetting and drying (AWD) irrigation technology and biological nitrification inhibition (BNI), utilizing the JIRCAS network. Reports and manuals will be published based on the research results.

It is noted, however, that there is no one-size-fits-all solution for establishing sustainable food systems in the Asia Monsoon Region. Even if basic agricultural technologies have been applied, it would be necessary to optimize and coordinate these technologies among countries and regions with different environments.

The results of this project will inform various stakeholders, including government officials, researchers, extension officers, producers, and the private sector, thereby contributing to the sustainable food systems transformation in the Asia Monsoon region.

Source: Dr. Yasuro Funaki, Director of Social Sciences Division/Project Leader of Green Asia, JIRCAS;
yfunaki850@affrc.go.jp



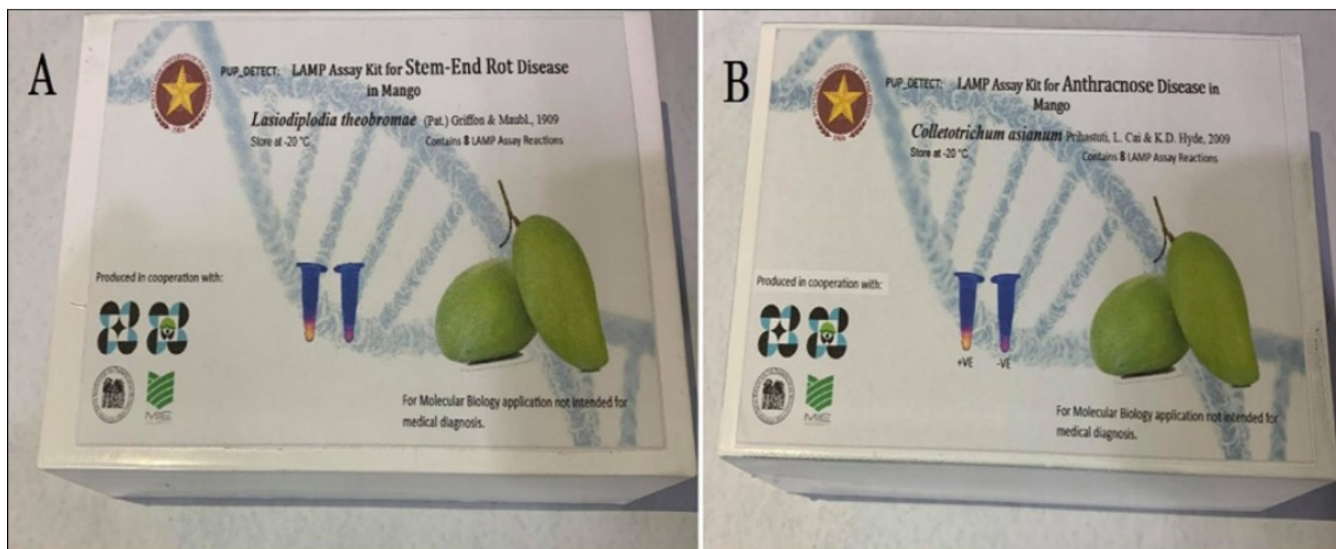
Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD)

Innovative research and development efforts in crop disease management in the Philippines

DOST-PCAARRD is working on developing disease detection kits for mango, coffee, and tomato using technology to aid early detection and prevent the spread of disease in farmers' crops. It also plans to use biological control methods to combat Panama disease in Cavendish bananas, which will help increase crop yield and profits.

One of the ways to increase the yield of a crop and ensure that a farmer gets back his capital and profit is to effectively manage diseases that may hamper production. Recognizing this, the Department of Science and Technology of the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD) spearheads and funds projects on the development of disease detection kits for mango, coffee, and tomato, as well as the use of biological control to fight against Panama disease in Cavendish banana. Detection kits allow farmers to diagnose a disease early and prevent it from further infecting other crops.

Carabao mango is one of the export commodities of the Philippines. However, its production is hampered by several diseases, such as anthracnose and stem-end rot. In light of this, DOST-PCAARRD,



LAMP kits for detection of anthracnose and stem-end rot diseases of mango developed by the Polytechnic University of the Philippines

in collaboration with Mie University in Japan under the DOST and the Japan Society for the Promotion of Science (JSPS) joint research programme, developed two detection kits for major diseases of mango.

The project called: “DOST-JSPS Joint Research Program: LAMP Detection Assays for Anthracnose, Stem-End Rot, and Scab Disease Pathogens in Philippine ‘Carabao’ Mango (*Mangifera indica* Linn.),” aimed to develop a loop-mediated isothermal amplification (LAMP) assays for the detection of the causative fungi of anthracnose, stem-end rot, and scab diseases of Philippine ‘Carabao’ mango. A patent application for the developed LAMP kits has been filed by the project team.

In coffee, the impact of pest infestation is only seen when they are widespread, which makes early detection important. The project, “Development of a Detection System for Pest and Disease Resistance in Philippine Coffee Varieties” uses molecular markers to differentiate resistant from susceptible local coffee varieties against pests and diseases.

Dr. Ernelea P. Cao, project lead from the Institute of Biology, University of the Philippines Diliman (UPD), the implementing agency, said that the project used LAMP technology on *Coffea arabica* and *C. canephora* varieties, producing promising results in detecting coffee white stem borer, coffee leaf rust, and coffee berry disease.

Furthermore, the team will compare healthy coffee leaves with coffee leaf rust and white stem borer-infested ones to validate resistant and susceptible genes identified through RNA profiling. The LAMP primers designed by the team will also be validated in coffee plantations in Batangas and Cavite.

Tomato yellow leaf curl virus (TYLCV), meanwhile,

is one of the major challenges for tomato farmers in the country, as it affects the growth and fruiting of tomato plants. Symptoms of the virus can be visibly determined through the marginal curling and yellowing of tomato leaves. The development of a detection kit for TYLCV is done through the project called: “Development of LAMP-based detection kit for Tomato Yellow Leaf Curl Virus (TYLCV) – Philippine Strains” led by Dr. Elizabeth G. Panerio of the DOST-Industrial Technology Development Institute (DOST-ITDI).

LAMP technology is also used to develop the detection kit, which will be used for quarantine regulations and border surveillance of the virus. It will also determine the TYLCV strains and their occurrences in 15 tomato-producing provinces in the country. Field sampling was already done from four major producing provinces – Nueva Ecija, Tarlac, Laguna, and Batangas.

In Cavendish bananas, one of the deadliest diseases is *Fusarium wilt* or Panama disease. It is one of the most serious problems of banana plantations in Mindanao, Southern Philippines. Symptoms include yellowing and hanging of leaves, splitting of pseudostem, producing unmarketable bunches, and ultimately dying of plants. Previous studies recorded an eradication of 30,000 affected plants from 1974 to 1991. The *Fusarium wilt* outbreak in Cavendish banana was observed in 2002. New infections were more severe and faster to spread.

Recently, eleven new bacterial isolates were found promising in formulating a biological control agent that can prevent if not eradicate occurrence and spread of *Foc TR4*, which causes the disease. This is a result of the project funded by DOST and implemented by the University of the Philippines Los Baños – National Institute of Molecular Biology and

Biotechnology (UPLB-BIOTECH) led by Ms. Irene A. Papa. A total of 384 microorganisms were isolated from soil samples taken from Cavendish banana areas in Kapalong and Sto. Tomas, Davao del Norte in Southern Mindanao.

Out of the 384 microorganisms, 68 had inhibitory effects against Fusarium wilt. Of the 68, 66 isolates identified belong to Actinobacteria, a group of microorganisms that can be useful microbial resources for agricultural, medical, and industrial applications.

DOST-PCAARRD hopes that these projects on disease management would help more farmers in the country and improve the country's food security.

Source: Dr. Reynaldo V. Ebor, Executive Director, DOST- PCAARRD; r.ebor@pcaarrd.dost.gov.ph



Bureau of Agricultural Research (BAR), Philippines

Revolutionizing agriculture: Philippines unveils its first precision and digital agriculture R4D facility

The National Center for Precision and Digital Agriculture (PreDiCT) has been established to promote precision technology-based farming, with the goal to make agriculture more efficient,

productive, sustainable, profitable, and globally competitive. With smart farming technologies and research and development facilities, PreDiCT will catalyze the development and adoption of precision agriculture technologies.

To facilitate the development, promotion and adoption of precision agriculture technologies in the country, the Philippine Department of Agriculture (DA) and the Central Luzon State University (CLSU) established the first National Center for Precision and Digital Agriculture (PreDiCT) in the country. This was officially inaugurated on 6 May 2022.

PreDiCT aims to provide more efficient, productive, sustainable, profitable, and globally competitive agriculture by developing and promoting precision technology-based farming. This is under the CLSU's project titled 'Harnessing Precision and Digital Agriculture Technologies of High Value Crops'.

In line with the development of technological solutions for both current and future precision agriculture technologies, including new multi-sensor techniques for optimizing fertilization and irrigation to improve yield and quality of produce, PreDiCT features various smart farming technologies. These are intended for mapping spatial variability of soil variability within the field of precision agriculture, variable rate technology application for fertilizer management, hydroponic tomato production using Dutch buckets, sensor-based automated drip irrigation and nutrient control system for tomatoes



Aerial view of the PreDiCT facility at the Central Luzon State University (CLSU)

and onions in an open field environment.

Currently, CLSU is working on the development and packaging of growth monitoring and yield estimate techniques for mango, using remote sensors/drone technology with multi-spectral cameras, as well as designs for onion direct seeder, transplanter, and harvester.

PreDiCT also houses various Research for Development (R4D) facilities, such as demonstration farms that will serve as laboratories, training facilities, and learning ground for farmers, technicians, and students alike. It will provide researchers an avenue for developing and testing future precision technologies that will improve and increase agricultural productivity.

The project also includes automated drip irrigation on a 1,000-square-meter tomato production area, as well as vertical farming technology with a ground heat exchanger and an automated recirculating irrigation system for hydroponically grown lettuce and tomatoes.

To date, two greenhouses have been set up for an automated drip irrigation system, provided by the

a technical committee so that PreDiCT will become the repository of all the technologies that are being generated by the Science City of Muñoz,” said William Dar, Agriculture Secretary, adding that there will always be something to improve and innovate in precision and digital agriculture.

Officials from CLSU, including Dr. Edgar A. Orden, CLSU President, Dr. Armando N. Espino Jr., Vice President for research and extension and project leader, and Dr. Eugenia G. Baltazar, Director of the University Extension Centre, were present during the inauguration. Dr. Anthony B. Obligado, Assistant Director-designate for research support services, and Raymond Patrick Cabrera, Director of the Division for Research Programme Development, were also present along with Dr. Junel B. Sorian, DA-BAR Director.

The establishment of PreDiCT was funded under the Bayanihan to Recover as One Act, DA, through the High-Value Crops Development Program and DA-BAR. The Bayanihan to Recover as One Act or RA 11494 provides support to accelerate recovery and bolster the resilience of the Philippine economy at the height of the COVID-19 pandemic through recovery



Aflatoxin programme team comprising of officials of USAID, USDA, CABI, PARC, and Rafhan Maize

Israeli Embassy in the Philippines. The CLSU Extension Center will support the setup of additional units in selected techno villages.

“Let’s bring in and harness the synergy between and among the agencies in agriculture, and put up

response, interventions, and mechanisms.

Source: Ma. Eloisa H. Aquino, Information Officer, DA-BAR; meaquino@bar.gov.ph



NEWS FROM INTERNATIONAL AGRICULTURE RESEARCH CENTERS

Centre for Agriculture and Bioscience International (CABI)

CABI Pakistan pioneers aflatoxin biocontrol technology in South Asia

In field trials, CABI Regional Bioscience Centre Pakistan successfully demonstrated aflatoxin biocontrol technology with a 70% reduction of aflatoxin content in maize. This public-private partnership will assist Pakistan's regulatory authorities in updating their process for registering biopesticides/biocontrol products, and assisting safer procurement and consumption.

Aflatoxins are highly toxic and carcinogenic secondary metabolites produced by *Aspergillus flavus* and related fungi, which cause severe contamination to different food sources. About 60-80% of the world's food crops are affected by mycotoxins each year. Each year, contamination of food/feedstuffs with aflatoxins accounts for an estimated USD 50 million to USD 1.6 billion in agricultural losses in the USA. Additionally, aflatoxin is a precursor for causing liver cancer in humans, stunted growth in children, and different reproductive and metabolic diseases in animals.

Efforts have been made in the past to manage aflatoxin issues around the world, mostly focused on post-harvest management of the produce. But continuous reporting of aflatoxin prevalence in fresh produce is an alarm to food security. To curb aflatoxin contamination in food crops, scientists from the United States Department of Agriculture (USDA) pioneered an "aflatoxin biocontrol technology" as a pre-harvest mitigation strategy for the aflatoxins. This technology uses indigenous atoxigenic strains of *Aspergillus flavus* that do not have ability to produce aflatoxins and act as competition displacement in the field. This technology has been successful in enhancing food security in the USA and Africa since decades.

CABI Regional Bioscience Centre Pakistan, with support of the United States Agency for International Development (USAID), Foreign Agricultural Service (FAS) of USDA, and in collaboration with Rafhan Maize Products Co. Ltd. and Pakistan Agricultural Research Council (PARC), has recently rolled out aflatoxin biocontrol technology for the very first time in South Asia. Pakistan has been selected as the pioneer to experience this technology.

Through a public-private partnership, this technology

has been transferred to Pakistan and indigenously developed into a biocontrol product. The biocontrol product has been successfully demonstrated in the field through pilot field trials, with a reported 70% reduction in aflatoxin contents of harvested maize produce.

Interventions of this technology have been shared extensively in Pakistan to create awareness and build the capacity of national regulatory authorities and other stakeholders, including growers, processors, allied industry and scientific community.

A state of the art R4D facility "Aflatoxin Biocontrol Research Lab" has been established at the Crop Diseases Research Institute, National Agricultural Research Centre (CDRI-NARC), in Islamabad, Pakistan. This facility aims to ensure the country's food security by validating an eco-friendly biocontrol product to diminish poisonous aflatoxins, which has the potential to decimate crops, such as maize, chilies, rice and nuts.

This cooperation aims to help the regulatory authorities in Pakistan to consider and update their registration process for biopesticides/biocontrol products, the industry to procure safer raw material, and the community to consume safer food. The success of this technology in reducing aflatoxin contamination to acceptable levels will facilitate regional trade, and be a stepping stone for the scaling up of this technology in the South Asian region.

Moving forward to create regional harmonization, CABI Regional Bioscience Centre Pakistan and APAARI have joined hands to pool the organizational efforts. The cooperation enables both organizations to scope aflatoxin-related activities, strengthen the capacity of stakeholders and standardize practices for aflatoxin mitigation across collaborating countries within the Asia-Pacific region.

Source: Dr. Sabyan Faris Honey, CABI Regional Bioscience Centre Pakistan; s.honey@cabi.org



NEW MEMBER – PROFILE



The Cambodia Agricultural Research and Development Institute (CARDI) joined APAARI as a core country member representing Cambodia. CARDI

aims to increase agricultural productivity, improve crop diversification, and ensure environmental sustainability and stability of rural livelihoods in Cambodia through partnership in research and technology utilization.

CARDI is a leading research entity in Cambodia that specializes in rice and other crops. Established as a semi-autonomous public administrative entity, CARDI is governed by a Board of Directors (BoD) and falls under the jurisdiction of the Ministry of Agriculture, Forestry and Fisheries (MAFF) and the Ministry of Economics and Finance (MEF). CARDI has a scientific research capacity to meet the needs and address major challenges in the Cambodian agricultural sector development. It was derived from a 12-year Cambodia-IRRI-Australia Project (CIAP) focusing on ensuring food security mainly through rice productivity improvement.

CARDI has broadened its focus to additional research related to crop diversification and enhancement of the quality of rice and other important crops, which respond to the needs in agricultural production and market, as well as climate change adaptation and mitigation. It conducts research and technology development on various components, such as germplasm conservation and development of crop varieties, soil fertility and nutrient management, development of cultural methods and farming systems, plant protection from pests, pre- and post-harvest technology, socio-economic analysis, and training and dissemination of agricultural technical knowledge and information.

With its Vision, Mission and Strategic Goals, CARDI is committed to continuously improve the living standards of Cambodian farmers through agricultural research, training and technology transfer.



NEW APPOINTMENTS

Mr. Rapibhat Chandrarasrivong, Director-General, Department of Agriculture, Thailand

Mr. Rapibhat Chandrarasrivong has recently been appointed as Director-General of the Department of Agriculture, Thailand. His experience in various roles to strengthen agriculture in the Asia-Pacific region spans over 17 years. He previously served as Secretary-General of the Office of Agricultural Economics (2019-2020) and Assistant Cabinet Secretary (2014-2016). He served as Assistant



Permanent Secretary and then Deputy Permanent Secretary at the Ministry of Agriculture and Cooperatives, until 2022. Mr. Chandrarasrivong also held leadership positions with FAO, serving as Chairman of the Global Soil Partnership Assembly between 2013 and 2014, and as Chairman of the ASIA Regional Group at FAO in 2012. He has completed his Master's degree in Public Administration (MPA) from Chaminade University of Honolulu, Hawaii, USA, and has earned a Bachelor of Economics from the University of the Thai Chamber of Commerce.

Dr. Oscar Ortiz, Interim Director General, International Potato Center (CIP)



Dr. Oscar Ortiz has spent over 20 years working at the International Potato Center (CIP), where he has held various scientific and management positions, including serving as the Deputy Director General for Research and Development since 2014. In February 2022, Dr. Ortiz was appointed as the Interim Director General of CIP.

The Peruvian agronomist earned his PhD in agricultural innovation and rural development from the University of Reading in the UK. His research and publications have been widely recognized in the field, with many peer-reviewed journal articles, books, and conference proceedings associated with his name. He has also led inter-disciplinary teams involving both crop and social sciences, and has coordinated R4D on

three continents in various areas, including integrated crop management and systems research.

Dr. Ortiz was also recently appointed as the Senior Director of Crop Based Systems in the CGIAR Resilient Agrifood Systems Science Group, and he currently holds both positions.

Mr. Yonten Gyamtsho, Director, Department of Agriculture, Ministry of Agriculture and Forests, Bhutan



Mr. Yonten Gyamtsho has been appointed as the new Director of the Bhutan Department of Agriculture. In this position, he is responsible for food and nutrition security, the transformation of agriculture through innovation and sustainable technologies, the development of diversified and competitive economic and production options, as well as the implementation of policies and programmes that are inclusive and sustainable.

Prior to this appointment, Mr. Gyamtsho was the Chief Marketing Officer of the Bhutan Department of Agriculture. He started his civil service career as a Deputy Fodder Officer in Bumthang in 1999. Between 2001 and 2011, he served as a Lab Manager in Paro, an Extension Officer in Wangdue, and a Dzongkhag Agriculture Officer in Punakha. He also served as a Counselor (Trade) at the Royal Bhutanese Embassy in Dhaka between 2013 and 2016.

He holds an M.Sc. in Plant Biotechnology from the University of London. Having served in various capacities for 22 years, he brings along rich knowledge and experience in the agricultural field.

Dr. V. Geethalakshmi, Vice-Chancellor, Tamil Nadu Agricultural University

Dr. V. Geethalakshmi is the 14th Vice-Chancellor of Tamil Nadu Agricultural University (TNAU) in Coimbatore, India, and the first female Vice-



Chancellor among all state agricultural universities in India. She is a specialist in agricultural meteorology, and an internationally acclaimed climatologist. She has served in TNAU for over 33 years in various capacities and has acquired agricultural education in TNAU.

Dr. Geethalakshmi has undergone Post-Doctoral training in the fields of weather forecasting, climate modeling, climate change and climate-resilient technological development in renowned international institutes in Australia, Israel, Japan, UK and US. She has established research collaboration with around 40 premier institutions across five continents and has developed an adaptation tool-box and technologies for mitigating climate change impacts in varied agro-climatic zones.

Dr. Geethalakshmi has been instrumental in establishing the climate crop modeling team in TNAU for undertaking the Regional Integrated Assessment of Climate Change Impact on Agriculture sector. She has been conferred with the "Fellow of Agrometeorology" Award by the Association of Agrometeorology, India, and has bagged 21 awards and recognitions.



NEW APAARI STAFF

Ms. Pooja Mathur, Communication Officer

Ms Pooja Mathur joined APAARI as a Communications Officer in January 2022. After her post graduation from the Indian Institute of Forest Management, she joined an international NGO in India as a Communication Associate, where she worked closely with smallholder farmers in rural India, gaining valuable insights into the unique challenges faced by these communities. Subsequently, she transitioned to a consulting firm as a Communications Manager, where she developed and implemented communication strategies and outreach processes, aimed at advancing social impact and change.



At APAARI, she is responsible for implementing and monitoring the Knowledge Management and Communication Strategy.



NEW PUBLICATIONS OF APAARI

Global tracking of agrifood research and innovation for meeting food security and sustainable development goals

Achieving global food security, alongside other Sustainable Development Goals, will not be possible without massive increases in investment in agrifood research and innovation. Crucial areas of agrifood innovation are under-funded, including reducing food waste and producing nutritious food sustainably. This policy brief proposes a global multi-stakeholder tracking hub that would synthesize data on investments in agrifood innovation and subsequently track innovations and their uptake. This document can be accessed on: https://agroavances.com/img/publicacion_documentos/GLOBAL-TRACKING-OF-AGRI-FOOD-RESEARCH-AND-INNOVATION-FOR-MEETING-FOOD-SECURITY-AND-SUSTAINABLE-DEVELOPMENT-GOALS.pdf

Research for the future: Investments for efficiency, sustainability, and equity (Book Chapter 4)

Food systems worldwide are facing multiple challenges, including poverty, hunger, malnutrition, population growth, pressure on natural resources, and climate change. These challenges are accentuated by the COVID-19 pandemic, which has made agricultural yields and prices more volatile and has affected rural areas disproportionately. To meet the needs of a growing population, food production must increase by 60% by 2050, but climate change threatens food security and livelihoods. This book extract explores the steps that can be taken to ensure that R&D contributes to greater productivity, sustainability, and equity. This document can be

accessed on: <https://ebrary.ifpri.org/utis/getfile/collection/p15738coll2/id/135885/filename/136103.pdf>

'Good Practice Notes' series

The 'Good Practice Notes' series is an attempt by the Asia-Pacific Islands Rural Advisory Services Network (APIRAS) and APAARI to document cases that have tried to address development of an effective Agriculture Innovation Systems (AIS) through addressing constraints, such as lack of sufficient partnerships, inadequate investment/policy focus, and insufficient capacity development initiatives in and around engagement with AIS. Given here are the links to each Good Practice Note in the series:

1. Promoting Sustainable Agriculture through Green Extension in Lao PDR <https://www.apaari.org/web/download/39318/>
2. Strengthening Capacities To Innovate Through North-south Collaborative Agricultural Research In Papua New Guinea <https://www.apaari.org/web/download/39320/>
3. Multi Stakeholder Approaches for Enhancing Command Area Water Productivity in India <https://www.apaari.org/web/download/39295/>
4. Enhancing Organizational and Functional Capacities of Producer Organisations in India through Strategic Collaboration <https://www.apaari.org/web/download/39306/>
5. Strengthening Last Mile Service Delivery To Support Smallholder Farmers In India <https://www.apaari.org/web/download/39546/>
6. Promoting Community Driven Innovations in the Forested Uplands of the Philippines <https://www.fao.org/3/cc0958en/cc0958en.pdf>
7. Promoting Climate Sensitive Innovations In The Mekong Delta Through Diversified Public-private Partnership <https://www.fao.org/3/cc1968en/cc1968en.pdf>

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