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### Editorial Committee

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- Ms Mellisa Wood
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### Editorial

When agriculture started some thousand years ago, farmers already knew that they would win the battle over pests and weeds when they applied innovative thinking. They would pass this knowledge to their neighbours and communities, from one generation to another. Today we can say that agricultural innovation and knowledge management (KM) have co-existed and happened almost at the same time, hugely contributing to socioeconomic development worldwide.

Agricultural knowledge has become a vital resource as we are facing the need to feed 9 billion people by 2050 on shrinking land and in challenging climate change. Within the agri-food systems, which includes farming communities, agricultural and extension agencies, policy makers and

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### APAARI Participation in GFAR's 32<sup>nd</sup> Steering Committee Meetings

Dr Ramakrishna Akkinapally, Deputy Director General, National Agricultural Research Institute (NARI), Papua New Guinea represented APAARI in GFAR Steering Committee meeting in Rome on 8-9 February 2017. The expected outcomes of the meeting were: i) orient partners to new role, ii) shared understanding of GFAR Charter & Partnership Strategy, iii) approve GFAR



*Participants of the GFAR Steering Committee meeting, Rome, Italy*

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Partnership Strategy and iv) identify communication needs/mechanisms. The major issues discussed included: i) how to make GFAR cost effective and efficient in the context of large SC, ii) funding contributions by members and other agencies to GFAR, iii) comprehensive and inclusive actions in all the regions with good indicators, iv) evaluation of GFAR in terms of efficiency, effectiveness and relevance, v) bridging the gap between science and society, vi) impact and scale of collective actions, and vii) challenges and/or constraints to be addressed moving forward with new collective actions.

APAARI's Vice Chair – Dr Sergie Bang, Director General, National Agricultural Research Institute (NARI), Papua New Guinea – represented APAARI in the 32<sup>nd</sup> Steering Committee (SC) Meeting of GFAR held in Rome, Italy, on 13-15 June 2017.

The meeting's objective was to develop the Medium Term Plan (MTP) including key focus areas (KFAs) and collective actions (CAs) aimed to make agricultural technologies developed through research available to farming communities.

On the first day of the meeting, a visit to the Agricoltura Nuova Coop took place, where participants assessed the factors that made the cooperative successful, and threats that need to be addressed to ensure long-term sustainability. Factors contributing to success included the use of improved technologies, farm integration, value addition, developing value chains directly to consumers of niche markets, and venturing into new and related areas of business, such as horse riding school and eco-agri tourism.

The SC meeting itself identified success criteria for CAs, discussed the four key focus areas : i) communities determining their needs; ii) turning knowledge and innovation into enterprise; iii) strengthening organizational and individual capacities; and iv) demonstrating impact and improving investments.

The SC reviewed the CAs provided by the GFAR Secretariat, and considered the recommendations collated from the stakeholder survey. The selected CAs were assessed for their potential and feasibility in improving the livelihoods of targeted farming communities. The agreement on the CAs and KRAs led to the development and finalization of the MTP by the GFAR Secretariat.

During the meeting, the appointments of new GFAR Chair, Ms Bongiwe Njobe, Executive Director and Founder of ZANAC Consulting, South Africa and GFAR Vice-Chair, Mr Raffaek M. Maiorano, President of the National Young Farmers Association (ANGA) of Confagricoltura in Italy, were announced.

In the proposed MTP, it is envisaged that CAs will be implemented by GFAR and its SC members, to empower farmers (especially women and youth) in each region and

country through the innovation platforms where agricultural technologies developed through research are easily made accessible to farmers to improve their livelihoods.

Furthermore, policy platforms will demonstrate positive impact on improved farmer livelihoods and will engage policy makers to advocate for greater investment into agriculture.



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## Editorial

other development actors, practical insights are needed for optimizing the use of this knowledge. To be effectively used, agricultural knowledge and information need to be as relevant as possible to the local context, so that it can be efficiently incorporated into the local knowledge base. It also requires a conducive environment, which provides a supportive structural framework, including pro-poor policies and regulation instruments.

KM that integrates communication and outreach, is at the heart of APAARI's operations given APAARI's important role as a regional forum for knowledge sharing, learning and collaboration. Its KM programme, combined with partnership and networking, capacity development, and advocacy, is the key contributor to the strengthening of agri-food research and innovation systems (AFRIS), to ultimately benefit agri-food systems (AFS) and contribute to sustainable development.

This year, guided by the Strategic Plan 2017-2022, APAARI, has been for re-thinking and refining its KM approach to better respond to the changing needs of the region. This changing development context calls for even greater efforts to advance knowledge and improve the efficiency of its use to benefit AFS. This includes knowledge of researchers and scientists to find solutions in the field, policy and decision makers to design and implement improved policies, small farmers and small entrepreneurs in rural areas to improve their know-how that raises productivity, and consumers to make healthy choices about the food they consume.

The role of knowledge intermediaries or brokers, such as APAARI, is very important. They can help identify, capture and process relevant scientific/research information, and mobilize existing knowledge, re-package and share it, and hence enrich knowledge at different levels, and facilitate more knowledge sharing, learning and collaboration.

The two strategic objectives of the APAARI KM Programme, as stated in the Strategic Plan 2017-2022, are to: i) make AFS more knowledge intensive to effectively contribute to sustainable agricultural development; and ii) strengthen AFRIS through more effective KM. How this will happen will be stated in the APAARI Knowledge Management and Communication Strategy that has been drafted and will

be finalized soon. The stakeholder mapping, survey and analysis exercise, as well as the strengths, weaknesses, opportunities and threats (SWOT) analysis, were important part of the methodology used in the strategy design. Based on this information, the strategy recommends targeted KM processes, communication and outreach activities, a KM and Communication Plan, and a performance framework to support the implementation of the APAARI Strategic Plan 2017-2022 and the realization of its vision.

With the appointment of Dr Ravi Khetarpal as APAARI's new Executive Secretary, APAARI looks forward to enhancing its KM, as well as the other key programmes – partnership and networking, capacity development, advocacy, and APAARI governance and development – and thereby strengthen its collective action with members, partners and other stakeholders to make AFRIS more effective.

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### **International Training Workshop on Developing Knowledge Management in Agriculture for Small-Scale Farmers**

The Food and Fertilizer Technology Center (FFTC) for the Asia-Pacific Region, and the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) of the Department of Science and Technology (DOST), organized the International Training Workshop on Developing Knowledge Management in Agriculture for Small-Scale Farmers from 9-11 May 2017, in Los Banos, Laguna, the Philippines. The meeting served as a venue for sharing learning and experiences in the implementation of various KM strategies and programmes of agricultural organizations in the Asia-Pacific region. The main objective was to draw insights and enhance KM guide in agricultural development for possible adaption of the invited participants in their respective organizations/countries.

APAARI presented a regional overview of the issues facing agri-food systems and the key pillars and trends in KM in the region. The presentation also highlighted the needs of improved KM and APAARI's role and contribution to the Sustainable Development Goals (SDGs) to advance agriculture. APAARI's latest KM achievements and activities,



*Participants of the training workshop, Los Banos, Laguna, Philippines*

and the introduction of its Strategic Plan 2017-2022 were also emphasized during the workshop. A day visit to relevant institutions, such as the International Rice Research Institute (IRRI) and the Department of Agriculture, was also organized for all participants.

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### **Innovation Fair of Capacity Development for Agricultural Innovation Systems (CDAIS)**

The Tropical Agriculture Platform (TAP) and its Capacity Development for Agricultural Innovation Systems (CDAIS) project, organized an Innovation Fair on 19 May 2017 in Vientiane, Lao People's Democratic Republic (PDR). It aimed to create opportunities for the actors participating in agricultural innovation systems to meet and share experiences, explore future programmes and projects on strengthening functional capacities to innovate, and discuss needs and action plans on capacity development.



*Participants of innovation fair, Vientiane, Lao PDR*

The Innovation Fair served as a broker of partnerships for agricultural innovation at the country level. It brought together a range of different initiatives and projects that are supporting the development of agriculture to compare and understand existing capabilities, resources and achievements, as well as to create synergies based on organizational experiences and current complementary activities of the project partners.

The CDAIS Innovation Fair facilitated linkages between initiatives working on capacity development in agricultural innovation systems in Lao PDR, based on the needs of major agricultural innovation actors in the country. APAARI presented its role in TAP/CDAIS in the contexts of its key programmes based on the Strategic Plan 2017-2022, namely, Knowledge Management, Capacity Development, Advocacy and Partnership and Networking.



## APAARI Presents a Regional Perspective on the Research-Extension Linkages in the Context of Higher Education in the Regional Symposium

Mainstream monocrop-based agriculture remains one of the world's greatest contributors to global environmental problems, such as pollution, desertification, deforestation, drought, depleting aquifers, water diversion, biodiversity loss, land degradation and more. Agriculture may also be the world's single greatest contributor to climate change. Moreover, this largely agrochemical-dependent industrial, market-driven agri-food system has still not provided food or nutritional security for some 800 million of the world's poor, mostly rural people.

Ms Martina Spisiakova, Knowledge Management Coordinator, APAARI participated in the Regional Symposium on "Mapping and Assessing University-based Farmer Extension Services in the Association of Southeast Asian Nations (ASEAN) through an Agro-ecological/Organic Lens, which took place in Chulalongkorn University School of Agricultural Resources (CUSAR) in Bangkok, Thailand on 23 February 2017. The Symposium was supported by Chulalongkorn University UNISEARCH Fund ("ASEAN Cluster" Project Grant); Agroecology Learning Alliance in South East Asia (ALiSEA); United Nations Educational, Scientific and Cultural Organization (UNESCO); and Chula's ASEAN Studies Center (ASC). This event explored what universities have done to mitigate these problems through extension services with farmers.

The Symposium presented the university research on the roles that universities play in either exacerbating or mitigating environment, food security, poverty reduction and agricultural development challenges in ASEAN and how they contribute to social or rural transformation. It also shared quantitative empirical evidence combined with good qualitative analysis, how, why and to what degrees Southeast Asian universities inhibit or support agro-ecological and organic approaches in teaching, research and extension services. Finally, it provided policy, programme and curricular recommendations for future education, research and extension services and rural development planning in response to perceived knowledge and capacity gaps.

APAARI provided a regional perspective on the research-extension gap in Asia-Pacific, stressed opportunities for university-based extension to reduce the research-extension gap, shared the role of regional networks in reducing the research-extension gap, and highlighted the areas of how regional networks can better support university-based education and research-extension systems. The opportunities for university-based agricultural extension stressed by APAARI included: adaptation to a new research-extension environment, creation of space for research-extension interface, engagement in farmers' fields, enhancement of the quality of extension services, resource mobilization, engagement with other stakeholders, improvement of the efficiency and cost-effectiveness of the delivery of extension services through ICT, and supporting transformative learning and youth leadership development.

## APAARI Highlights Collective Actions Towards Climate-Smart Agriculture at the Regional Food Security Conference: Let's Get to Work - Building a Food Secure Future

'Let's start implementing SDG 2 and let's do it together' was the main message of the Regional Food Security Conference: Let's Get to Work - Building a Food Secure Future, held in Hanoi, Vietnam on 22-23 March 2016. The Conference was organized by the Ministry of Agriculture and Rural Development of Vietnam and the Government of the Netherlands. Interconnected with all other SDGs, the conference focused on the following themes: i) Climate-Smart Agriculture - SDG 13: Take urgent action to combat climate change and its impacts; ii) Reducing Food Losses – SDG 12: Ensure sustainable consumption and production patterns; iii) Food Safety – SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture; and iv) Sustainable Aquaculture – SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

The Conference was built around a two-day experts' segment and a high-level round table discussion providing specific fields for further action based on the current challenges and constraints, as well as good practices. The Conference also provided an opportunity to make concrete, cross-sectorial food security deals by different stakeholders committing themselves to action in new solutions to contribute to achieving SDG2. At the Conference, Ms Martina Spisiakova, knowledge Management Coordinator presented APAARI's contribution to respective SDGs in line with the Strategic Plan 2017-2022. Its focus in the Conference was specifically on climate-smart agriculture (CSA). As such, it shared strategies to promote CSA through collective action to strengthen agri-food research and innovation systems.

APAARI in its presentation stressed that it: recognizes climate change as a critical challenge to agriculture; provides knowledge-sharing mechanisms to discuss good practices in CSA to adapt to and mitigate the effects of climate change, and reduce stress on natural resources; advocates for increased and improved investment in CSA research, and other critical areas supporting sustainable agricultural development; creates an environment for increased resource allocation and congenial policy and institutional support; and facilitates partnerships to strengthen collective action in CSA. One of the recent examples is the High Level Policy Dialogue on Investment in Agricultural Research for Sustainable Development in Asia and the Pacific that APAARI organized in collaboration with ACIAR, Government of Thailand, FAO, GFAR, IFPRI, and other partners in Bangkok on 8-9 December 2014.

In addition to the presentation made, APAARI also participated in the working group on fisheries where it made a 'deal' with SNV Vietnam, Fresh Studio, Research Institute for Aquaculture No. 1 (RIA 1), and Vietnam Farmer Union (VNFU) to advocate the role of aquaculture in farmers' socioeconomic development and share innovative practices to facilitate learning and scaling up of aquaculture innovations.



## National Agriculture and Forestry Research Institute: Tackling Development Challenges in Lao PDR through Restructuring and Programme Diversification

The National Agriculture and Forestry Research Institute (NAFRI) of Lao People's Democratic Republic (PDR) was established in 1999 under the Ministry of Agriculture and Forestry (MAF). The objective was to consolidate agriculture and forestry research activities within the country and develop a coordinated national agriculture and forestry research system. NAFRI's mandate is to undertake integrated agriculture, forestry and fisheries research in order to provide technical information, norms and results, which help formulate strategy in line with the government policies.

### Challenges to Lao PDR's Agricultural Sector

The Government of Lao PDR recognizes the importance of agriculture in its Agricultural Development Strategy 2025, and the 8<sup>th</sup> National Socioeconomic Development Plan (2016-2020). However, the country's already struggling agricultural sector is further challenged by several emerging trends. These include: smallholder-based production with low productivity; low labour availability and productivity; minimal farmer experience with modern agriculture technologies and marketing; high post-harvest loss and lack of value addition; and high regional and international marketing competitiveness.

Furthermore, Lao PDR has always been vulnerable to natural disaster, such as floods and drought. The intensity of these events will increase with climate change. Finally, agricultural research has suffered from deficient financial support, facilities and capacities for R&D in terms of the envelope and delivery of resources, which has limited funding for core and other critical research programmes. Global economic liberalization and the country's admission to the World Trade Organization (WTO) and Asian Economic Community (AEC) raises new challenges but also opportunities. This has created pressure on national agricultural research system to develop appropriate and cost-effective technologies.

### NAFRI Staff and Structure

NAFRI currently employs 312 staff, out of whom, 97 are women. It has undertaken restructuring to reflect changes in the government's policy and rapid economic changes taking place in Lao PDR. It comprises of: i) Administrative, and Planning and Cooperation division; ii) commodity-based research centres (agriculture, horticulture, livestock, forestry, maize and cash crop, and living aquatic resources); iii) non-commodity based research centres (agriculture and forestry policy, climate change resilience, and agriculture and forestry information and communication); and iv) regional research centres and agencies (Luangnamtha, uplands, Thasano, coffee, fang Nong Daeng).

## Research Strategy and Programmes

- Sustainable agrobiodiversity programme:** Coordination of the national agrobiodiversity programme; development of a sustainable practice for natural resources utilization, management and conservation of agriculture genetic resources to support potential future needs for food security and suitable commercial production; development of improved methods, mechanisms and technical recommendations to ensure the sustainable management of agro-biodiversity.



- Productivity improvement programme:** Development and use of appropriate agricultural technologies and breeding for improvement of agriculture production systems; testing and development of good agriculture practices relating to soil nutrient depletion, loss of agrobiodiversity, land productivity, skilled human resources and improved water use efficiency; enhancement of the regional competitiveness of Lao agricultural sector through improved post-harvesting and processing technologies, and local value-addition to enable access to markets and their viable integration.
- Agriculture adaptation to climate change programme:** Development of climate information services and delivery of improved farmer guidance for improved and climate-safe management of production, and provision of technical support to the climate adaptation capacity of farmers; development of climate-smart agricultural practices through testing and scaling-up of technologies and improved practices that are needed to further build farmers' adaptive capacity to climate change; strengthening of policies and institutions for climate-resilience; and vulnerability assessments, scenario modeling and policy analysis to provide information and tools for planners and decision makers.

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**Australia**

**ACIAR and Value Chains in Pakistan**

The Australian Centre for International Agricultural Research (ACIAR) has launched new projects in Pakistan as part of the Agriculture Value Chain Collaborative Research Programme (AVCCR), a major agricultural research for development programme.

AVCCR aims to make sure that improved strategic value chains benefit poor rural people, particularly women, in Punjab and Sindh. The new projects cover agricultural value-chains where Australian and Pakistani knowledge and research can deliver benefits:

- **Dairy/beef:** Researchers will research value chains for beef in Pakistan, and help smallholders develop links with the market. LPS/2016/011: “Improving smallholder dairy and beef profitability by enhancing farm production and value chain management”.
- **Goats and small ruminants:** Researchers will improve the efficiency and quality of goat meat, which is in demand and expensive. They will map and analyse goat value-chains from farms through intermediaries to markets and consumers. LPS/2016/096: “Smallholder goat value chains in Pakistan: challenges and research opportunities”.
- **Horticulture:** Researchers will improve cultivation and marketing of potatoes, tomatoes, onions and chillies. HORT/2016/012: “Strengthening value chains in Pakistan for greater community livelihood benefits”.



Grandma-onion

- **Pulses:** Production has not kept up with growing demand for pulses. Researchers and farmers will test improved varieties of gram (chickpeas), lentils and groundnuts (peanuts) for disease susceptibility, weed management and suitability for mechanical harvesting, and see how current policies affect production. “Pulse value chain improvement”.

The AVCCR creates partnerships between farmers, research groups, value-chain participants and governments to reduce

poverty and gender inequality. It works with small stakeholders to make sure solutions are practical and appropriate to village life, and helps men and women to allocate labour and resources more efficiently and effectively.

ACIAR and the Department of Foreign Affairs and Trade (DFAT) will jointly fund the programme over its five-year lifespan. The programme builds on the Agriculture Sector Linkages Programme (ASLP), a strategic collaboration between Australia and Pakistan that ran for a decade and ended in 2015. Many ASLP team members are working on the new projects.

AVCCR links strategically with Australia’s broader development programme in Pakistan, the Aid Investment Plan (AIP) for Pakistan.

Read more:

- AVCCR quarterly newsletter: <http://mailchi.mp/edd59738f671/welcome-to-the-australiapakistan-aik-saath-avccr-first-quarterly-update?e=63d8e8b118>
- 30 years of ACIAR work in Pakistan: [http://aci.gov.au/files/tr\\_91\\_web.pdf](http://aci.gov.au/files/tr_91_web.pdf)

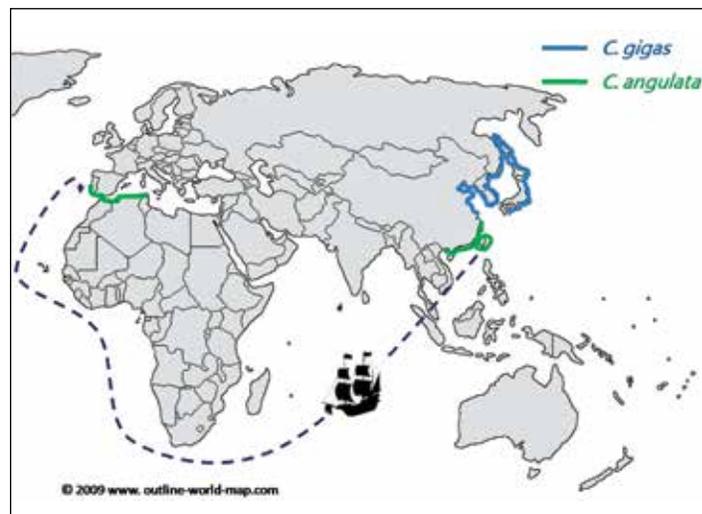
(Source: Dr Mellissa Wood, General Manager, Global Program, ACIAR, Australia; [mellissa.wood@aci.gov.au](mailto:mellissa.wood@aci.gov.au))



**Taiwan**

**Taiwan – the Origin of Portuguese Oyster**

Cupped oyster is one of valuable culture species in Taiwan. In 2015, Taiwan produced over 21 thousand tons of oyster worth about USD168 million. Traditionally, the oyster has been recognized as *Crassostrea gigas* which is a native species to the Pacific coast of Asia. However, some studies unexpectedly found that the relationships of oyster cultivated in Taiwan were close to *C. angulata*, or so called Portuguese oyster, rather than *C. gigas*. The reason for the local speculation of cultivated oyster species from Portugal was that Taiwan was



The route of *Crassostrea angulata*

colonized by Portugal at one time. Later, studies disclosed that Portuguese oyster has an Asian origin.

To solve this puzzle, a team from the Fisheries Research Institute, National Taiwan Ocean University, and Academia Sinica was formed. The team, using DNA barcoding has confirmed that Taiwan has no *C. gigas* in nature and the cultivated species is actually *C. angulata*. This paper, titled "DNA barcoding reveals that the common cupped oyster in Taiwan is the Portuguese oyster *Crassostrea angulata* (Ostreoida; Ostreidae), not *C. gigas*", has been published in Scientific Reports, 2016.

(Source: Ms. Ruby (Pao-Yu Yeh), Specialist, International Organizations Section, Department of International Affairs, COA, R.O.C.; rubyeh@mail.coa.gov.tw)

### Workshop on e-Business Modeling for Women Entrepreneurs

The Council of Agriculture of Taiwan in collaboration with Asian Productivity Organization (APO) and Asia-Pacific Association of Agricultural Research Institutions (APAARI) co-organized a Workshop on e-Business Modeling for Women Entrepreneurs on 19 June 2017 in Taipei. Participants came from 16 countries, including Afghanistan, Cambodia, India, Iran, Korea, Laos, Malaysia, Mongolia, Nepal, Pakistan, the Philippines, Samoa, Sri Lanka, Thailand, Vietnam, and Taiwan. There were around 40 professionals, including 21 representatives from APO member countries, one APO programme officer, 8 resource persons, and 9 representatives from APAARI member countries attending the workshop to discuss the successful models and share their experiences in the fields of agricultural e-commerce.



Participants of the workshop, Taipei, Taiwan

As the society and environment become more open and the economic knowledge has rapidly developed, the e-commerce modeling has provided a more efficient platform for commercial activities. The workshop aimed at examining the development of agricultural e-commerce and the trends in e-business, and sharing the successful e-business modeling, strategies and regulations with women entrepreneurs in Asia.

Many topics were discussed during the workshop, including: i) the main concept and principles of e-commerce and e-business, ii) trends, challenges and opportunities, and iii) how to analyze current and design future trends in digital

market. In view of the limited resources of entrepreneurship acquired by women in some Asian countries, it is considered that woman's characteristics, i.e. the sophisticated and comprehensive way of thinking, may be helpful for the corporate management and applications of digital tools, especially in the fields of digital marketing. By promoting such ideas, there will be more opportunities for women entrepreneurs without the influence of social bias. In this regard, the field of e-commerce is exactly where women can take advantages for. Therefore, the COA of Taiwan, APO and APAARI co-organized this workshop to invite women entrepreneurs in Asia to discuss those important issues, with an aim at bringing and encouraging more women to participate in the related activities of e-commerce.

Four outstanding women entrepreneurs from Taiwan participated in this workshop, including Ms Meng-Hui Lin (Manager, Yuan Jin Chuang Enterprise Co., Ltd.), Ms Yi-Shian Fan (Vice President, Origin Agriculture Co. Inc.), Ms Chen Yi-Man (Marketing Manager, Xu Mei Tea Factory), and Ms Chang Yun-Chi (Member, Xue Jian Oolong Tea). During the workshop, they shared their experiences about the role of women entrepreneurs in the development of agricultural e-commerce in Taiwan.

To help participating representatives have better understanding about the operation modeling in e-commerce, national and international experts were invited to deliver lectures and join the discussion at the workshop. Moreover, a field visit was arranged to the stores of Taiwan's e-business and Food Taipei 2017 to inspire participants with more innovative e-commerce management. The workshop also established a network between women entrepreneurs from Asian countries to build a new chapter for agricultural e-commerce development in the region.

Most participants highly praised the organizers for the course planning, venue and food arrangement. They also expressed their appreciation for getting more knowledge of the business modeling at the workshop, as well as sharing experiences and exchanging views with other participants. More new ideas on e-commerce business have therefore been generated. They also took a cultural tour in scenic areas such as Taipei 101, Shilin night market and Jiufen District in New Taipei City etc. With the fruitful outcomes and conclusions produced by the workshop, all participants are expected to produce diffusion effects after they return their home countries.

(Source: Ms Ruby (Pao-Yu Yeh), Specialist, International Organizations Section, Department of International Affairs, COA, R.O.C.; rubyeh@mail.coa.gov.tw)



### Fiji

#### The Pursuit of a Vanilla Farmer in Fiji

Jonacani Tamani, a Biaugunu native of Tikina Saqani in Cakaudrove, Fiji, started his vanilla farming in 1976 with

100 vanilla cuttings. He is now a proud farmer of 810 vanilla plants. Mr Tamani first learnt about vanilla farming when Ministry of Agriculture officials visited his home village in 1976. During the initial stages, the Ministry officials trained him in vanilla farming.

“With my 100 vines I started spacing between rows of 1.5- 2.5 meters while 2.5-3.0 meters apart in rows and as it grew, I made more planting materials out of them,” he said. “When I started planting, everything seemed hard and complicated but I did not want to give up yet. The Ministry staff were my advisory throughout the hard stages of vanilla farming,” he pointed out.

Mr Tamani stated that the demand for vanilla has increased gradually over the years. “Before we used to sell our vanilla at USD 25-50 per kg but an attractive deal has been made to us by the Spices of Fiji Limited at USD 150 per kg.”

This vanilla farm still has vines from the 1970’s and has withstood numerous cyclones and hurricanes. “It is the way you look after it that counts. If you look after it well it will give you an impressive result and that is what we always keep in mind,” Mr Tamani added.

In 2016, the Ministry of Agriculture assisted vanilla farmers of Saqani (Biaugunu, Navatu, Navetau and Vaturova) through its Vanilla Development Programme. The assistance included wheelbarrows for carting coconut husks, brush-cutters for maintenance, a pot and thermometer for wilting of beans.

### About vanilla

Vanilla is a climbing vine of the orchid family which grows on support trees and requires light shade and rich organic topsoils to grow well. It is the world’s second most expensive spice by weight. It is an important and popular flavouring material and spice, used extensively to flavour ice-cream, chocolate, beverages, cakes, custards, and other confectionery. It is also used in perfumery and to a small extent in medicines.



Vanilla farmer, Jonacani Tamani

This is a perennial crop which starts yielding from the third year after planting and continues to give commercial yield from 12-15 years. During the last 26 years, intensification and development of commercial vanilla occurred in Fiji with the annual production of 1.5 tonnes of cured beans.

Vanilla can be grown in any part of Fiji except in the very dry areas with its rooting system requiring only a thin layer of organic soil. It is a low volume-high; non-perishable crop that is ideally suited to remote rural areas.

### Vanilla Development Programme

The Ministry of Agriculture through its Vanilla Development Programme aims to revive the vanilla industry in Fiji and to increase annual production of cured beans by 10 per cent.

Through the programme, the Ministry will strengthen marketing linkages with the private sector and buyers, rehabilitate the current vanilla growing areas, establish new growers and reduce reject rates by continuous farmer/staff training, advisory and monitoring. This programme has been implemented in Cakaudrove, Naitasiri, Tailevu, Serua/Namosi and Rewa.

(Source: Ms Riteshni L. Singh, Information & Communication Section, Ministry of Agriculture, Raiwaqa; rsingh010@agriculture.gov.fj)



## Philippines

### PCAARRD Redefines Technology Transfer in the Philippine Agri-aqua Sector

Deployment, extension, and commercialization are the technology transfer strategies of the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development of the Department of Science and Technology (DOST-PCAARRD) for the Agriculture, Aquatic, and Natural Resources (AANR) sector. Dr Melvin B. Carlos, Director of the Technology Transfer and Promotion Division (TTPD) of DOST-PCAARRD discussed these strategies during a press conference held on 17 March 2017.



Vanilla farm at Cakaudrove, Fiji



*The DOST-PCAARRD Innovation and Technology Center (DPITC) is envisioned to serve as a one-stop hub for the facilitation of technology commercialization (Source: Applied Communication Division (ACD), PCAARRD)*

According to Dr Carlos, deployment and extension are resorted to when effective technology utilization and adoption are influenced by non-market considerations. On the other hand, commercialization is optimized for technologies that can reach users and adopters more efficiently through the market system.

Deployment is the pathway used during extraordinary circumstances for food and production input technologies, particularly at times of disaster and natural calamities. It is also used during pest and disease outbreaks for biocontrol technologies and disease-resistant varieties/breeds. This strategy is also adopted for technologies that are not easily affordable or accessible to farmers and fisherfolk, such as machineries, post-harvest and processing equipment, hatcheries, and nurseries. Deployment is also the main approach to address concerns on natural resources, such as watersheds, inland water bodies, coastal areas, and coral reefs. In all cases, deployment achieves adoption and realizes full technology utilization only when it comes with sufficient “extension” services. Hence, PCAARRD provides deployment-cum-extension as a package.

Technology transfer by extension is the most dominant pathway for most PCAARRD-funded technologies because majority of these technologies are component, knowledge-based tools and cultural management practices rather than readily marketable technology inputs or products. As such, customized and modality-based extension projects are the most effective and efficient technology delivery system. These

extension modalities encompass training, organizing, technical assistance, critical input subsidies for science and technology (S&T) based enterprise development, process documentation, and sustainability planning.

The third and last technology transfer pathway is through commercialization. With the enactment of the Philippine Technology Transfer Act of 2009 (Republic Act 10055), PCAARRD adopted an aggressive stance in pursuing the commercialization of new agri-aqua technologies to help bring about highly productive agri-aqua based business enterprises. At the heart of this strategy is the establishment of the Innovation and Technology Centre (DPITC), which is envisioned to serve as a one-stop hub for technology owners and generators, investors, end-users and other stakeholders to facilitate the commercialization of technologies generated in the AANR sector. Its activities include capability building; networking; providing funds and technical services; and facilitating technology promotion and marketing, and business acceleration.

While there are three technology transfer pathways, they are not mutually exclusive and all three end up in the adoption of technologies. Over time, technologies transferred via deployment and/or extension projects may lead to the development of enterprises, and as such proceed to the commercialization pathway. This is the case for S&T-based enterprises, such as the Lao Integrated Farms, Inc. for high valued coconut food products, and Baryo Froyo for frozen dairy buffalo products. The reverse is also true because after technologies enter the commercialization pathway, the initial adopters produce and distribute the technology products for adoption of downstream users.

Dr Carlos announced that technologies ready for commercialization include agri-aqua machineries, diagnostic kits, feeds, biofertilizers, food products, and plant and animal breeds.

*(Source: Dr Reynaldo V. Ebor, Acting Executive Director, DOST- PCAARRD, Philippines; r.ebor@pcaarrd.dost.gov.ph; rvebor@gmail.com)*

### **PCAARRD Pushes for Technology Business Incubators in the Philippines**

A Training-cum-Writeshop on the Establishment of Agribusiness Technology Business Incubators was held on 14-16 March 2017 at the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development of the Department of Science and Technology (DOST-PCAARRD) Innovation and Technology Center (DPITC) in Los Baños, Laguna. More than 50 officers and researchers from 10 state universities and colleges (SUCs) in the country participated. The workshop aimed to help the Council’s regional partners to pursue their technology business incubators (TBIs). The DOST defines TBI as a facility, which hosts start-ups and provides business development services.



Participants of training-cum-writeshop, Los Banos, Laguna, Philippines (Image credit: Institution Development Division (IDD), PCAARRD)

DOST-PCAARRD believes that helping SUCs establish or enhance their respective agribusiness, TBIs can create jobs, develop entrepreneurs, and promote public-private partnerships for regional economic development.

“PCAARRD has always believed that strategic research and development activities facilitate growth and development of the agriculture, aquatic and natural resources sector of the country, especially if their outputs are effectively passed on to their intended users,” said Dr Juanito T. Batalon, Director of PCAARRD’s Institution Development Division during the rationale setting and opening programme of the training-writeshop. Batalon added that the Council, with the



Mr Noel A. Catibog of the Technology Transfer and Promotion Division (TTPD) discussed technology commercialization and the establishment of agribusiness TBIs (Image credit: Institution Development Division (IDD), PCAARRD)

strong support of mother agency, the Department of Science and Technology, is continuously improving its technology promotion and transfer programmes to enhance client service and reach.

A number of TBIs have already been established in the country, some of which are based in SUCs. Three SUCs, namely, Benguet State University, University of the Philippines Visayas, and Visayas State University have in fact shared insights on how they implement their respective business incubation programmes during the workshop.

Facilitated by the Council’s Technology Transfer and Promotion Division (TTPD), PCAARRD, the training, aside from the sharing of firsthand experiences, also presented the important concepts related to various modes of technology transfer, specifically on commercialization through the establishment of agribusiness TBIs. Through the workshop, the participants learned to draft viable technology transfer proposals for possible funding support of DOST-PCAARRD.

Meanwhile, PCAARRD Acting Executive Director, Reynaldo V. Eborra reminded the participants that proposals for agribusiness TBIs should give emphasis on mature technologies. Eborra also highlighted that aside from the ability of the facilities and equipment of the TBIs to attract incubatees, their sustainability should also be prioritized.

(Source: Reynaldo V. Eborra, Acting Executive Director, PCAARRD; r.eborra@pcaarrd.dost.gov.ph)



## Vietnam

### Rice Genome Sequencing of Vietnamese Rice Landraces for Research and Breeding to Cope with Climate Change

In Vietnam, rice is a principal crop of economic importance. However, rice growing areas and rice productivity are being significantly reduced due to increasing adverse effects from climate change. To address this concern, in 2012 Vietnam’s Ministry of Agriculture and Rural Development (MARD), Ministry of Science and Technology (MOST), Agricultural Genetics Institute (AGI) and the Genome Analysis Center (TGAC), Earlham Institute, the John Innes Centre (JIC) in the United Kingdom (UK) launched a collaborative research project.



Deputy Minister of Vietnam MARD awarded AGI and Earlham Institutes certificates of outstanding research on rice genome sequencing

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## India

### Assam Agricultural University, Jorhat

#### Assam Agricultural University Presents a New Agriculture Policy for Assam State

On 12 June 2017, the Assam Agricultural University (AAU), Jorhat presented a new agriculture policy for Assam State to the Government of India in presence of all officers from the line departments headed by the State's Minister of Agriculture. The Minister and all attendees appreciated the draft policy paper that included policies related to land, water, soil, fertilizer, organic agriculture, post-harvest management, ICT application in the farm sector, convergence building, skill development, climate change adaptation, dairying, poultry, fish, farm credit, mechanization. The policies have been designed to reach the target of doubling farm production and farmers income within 5-6 years. The policy is being put under public domain for further inputs before it is placed in the state assembly.

(Source: Mr S.K. Dutta, Professor (Entomology) & Member, Science & Technology Cell, Assam Agricultural University, Jorhat; skdutta.aau@gmail.com)

#### Annual Rice Group Meeting (ARGM)

Since the agriculture in the state of Assam is rice centric, a total of around 300 rice scientists/workers from all over the country gathered to discuss and deliberate researchable and developmental issues concerning rice under the umbrella of 52<sup>nd</sup> Annual Rice Group Meeting (ARGM) that was held at the Assam Agricultural University (AAU), Jorhat on 8-11 April 2017. Several senior officers from the Indian Council of Agricultural Research (ICAR), New Delhi and 23 scientists from the International Rice Research Institute (IRRI) participated besides the delegates from large number of private companies working in rice and also 8 farmers from different states of the country.

The Chief Guest, Sri Atul Bora, Hon'ble Minister of Agriculture, Assam appreciated the initiative of ICAR and efforts of AAU to hold the group meeting in Assam for the first time and appealed the scientific community to develop high yielding rice varieties with tolerance to multiple stresses and also



Dr K.M. Bujarbaruah, VC delivering welcome address

management practices to make rice farming more productive and remunerative in the face of labour shortage. Welcoming the gathering, Dr K.M. Bujarbaruah, Vice Chancellor, AAU stressed on the need of better convergence and collaboration among disciplines with use of latest technologies for developing problem solving and demand driven technologies. He drew attention of the scientists to the value of the rice germplasm of the Northeast India and suggested to carry out research for identifying and using novel genes/alleles present in them. Dr V. Ravindra Babu, Director, Indian Rice Research Institute (ICAR-IIRR), Hyderabad informed the house about the varieties released through State Variety Release Committee (SVRC) and Central Variety Release Committee (CVRC) and the flagship programmes of IIRR to address multitude of issues facing the farming community. He also underlined the fruitful collaboration of IIRR, NRRI and IRRI for enhancing rice production and productivity. Dr I.S. Solanki, Additional Director General [ADG (FFC)], ICAR complimented the contribution of All India Coordinated Rice Improvement Project (AICRIP) in the country's record food grain production and called upon the researchers to focus on productivity enhancing technologies including *indica* varieties with redesigned plant type.

In the inaugural function, 7 leading centres of AICRIP were conferred with awards for their significant contribution in different divisions of research and 6 innovative farmers from different parts of the country were also felicitated. Several publications in English and Hindi were released on this occasion.

The technical presentations and discussions were held in 3 general technical sessions and 7 concurrent sessions. Besides, a special session was held on important topics such as pre-breeding for rice improvement, activities of BEDF organization, overview of agricultural policy with special reference to rice, genome editing and deploying the mutants in the rice improvement program. The committee for revision of criteria for nomination and evaluation of entries under Advanced Variety Trial-Near- Isogenic Lines (AVT-NIL) of AICRIP also met during the group meeting and examined the existing



Release of publications in the Group Meeting

guidelines and criteria and decided its recommendations. In the sideline of the meeting, the NRRI scientists and PIs of AICRIP, IIRR deliberated on AICRIP re-orientation and noted several important points. Variety Identification Committee also met during this group meeting under the chairmanship of Dr J.S. Sandhu, DDG (CS), ICAR and critically examined 42 proposals for recommendations that included 31 varieties and 11 hybrids.

### World Wetlands Day celebrated

An awareness programme on 'Conservation and judicious utilization of wetlands' with the theme 'Wetlands for Disaster Risk Reduction' was organized at Fisheries Research Centre of the University on 2 February 2017 to celebrate the 'World



Participants of the World Wetlands Day Celebration, Jorhat

Wetlands Day, 2017'. The programme was attended by 60 wetland managers and other stakeholders of wetlands. Resource persons from the University, NFDB and DFDO, GoA enlightened the participants on the importance of wetlands for water conservation, conservation of environment and biodiversity and possible judicious utilization for enhanced production. Organized as per the guidelines of Ramsar Conservation, the programme could create visible positive impact on the participants.

### Kamdhenu University, Ahmedabad

#### 41<sup>st</sup> Convention of Vice Chancellors of Indian Agricultural Universities

Kamdhenu University, Gujarat, India organized the 41<sup>st</sup> Convention of Vice Chancellors of Indian Agricultural Universities in collaboration with the Indian Agricultural Universities Association (IAUA) on 20-21 December 2016 in Ahmedabad, India. The convention was inaugurated by Shri Vijaybhai Rupani Hon'ble Chief Minister, Gujarat State, and attended by twenty three Vice Chancellors of Agricultural Universities of India. It focused on the impacts of climate change



Chief Minister of Gujarat Shri Vijaybhai Rupani, Hon'ble Minister Shri Parshottambhai Rupala, Government of India, Hon'ble Minister Shri Chimanbhai Sapariya with Prof. M.C. Varshneya and other Vice-Chancellors

on food and fodder production, the livestock and fisheries sector, innovation of technologies and the role of agricultural universities to mitigate the effects of climate change.

A digital multi-media video film "Revolution in Gujarat Agriculture" was prepared by Dr P.H. Vataliya, Director of Extension Education, Kamdhenu University, Gandhinagar, which highlighted the phenomenal growth of agriculture in Gujarat State, India.

An exhibition highlighting salient achievements and activities of Kamdhenu University and state agricultural universities of Gujarat was also organized. Dignitaries and delegates took keen interest in the activities and achievements of the universities

(Source: Dr P. H. Vataliya, Director of Extension Education, Kamdhenu University, Gandhinagar; dee@ku-guj.com)



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### National Agriculture and Forestry...

- **Agriculture and forestry policy research programme:** Information and guidance for policy makers at different levels on emerging national, regional and global opportunities and challenges in the sector; improvement of rural livelihoods and empowerment through relevant policy development; improvement of accessibility to information and knowledge of different actors to enable more informed decisions at all levels.
- **Capacity building programme:** Development of human resources; organization and institution; and research infrastructure and facilities.
- **Information and communication programme:** Improvement of communication facilities and management systems; development of 'AKIS' (sharing of agricultural information, knowledge, resources and



Use of information communication for technology transfer

responsibilities; networking; linking); strengthening of multi-level and multi-stakeholder information, communication and coordination in agricultural technology transfer to extension workers and farmers.

Read more: [www.nafri.org.la](http://www.nafri.org.la)

(Source: Manoluck Bounsilath (MICT), Deputy Director, AFPRC, NAFRI, Lao PDR; luckie\_2005@hotmail.com)



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## Rice Genome Sequencing ....

The objective is to sequence the genome of 36 Vietnamese native rice landraces (with specific traits of interests, such as drought and salt tolerance, brown plant hopper resistance, rice blast resistance, and bacterial blight disease resistance) to characterize the genetic variations and develop genetic markers that could be used to accelerate rice breeding.

The first phase of collaboration brought the following achievements: i) investigation, data collection, building of native rice landraces of Vietnam were successful; ii) genetic diversity of native varieties in Vietnam at the molecular level were analyzed and 36 elite varieties with high diversity for genome sequencing were selected; iii) full genome sequencing, building genotype databases of selected varieties were coordinated; iv) supplementary assessment of major morphological agronomy traits was conducted and a phenotype database of the genome sequenced rice landraces was established; v) Single Nucleotide Polymorphisms (SNPs) were mapped; vi) Cleaved Amplified Polymorphic Sequences (CAPS) markers for research and breeding were designed; vii) the project website to manage and share genotype and phenotype database of rice varieties research was launched; viii) researchers and staff (master's, bachelor's, engineers, experts) were trained in genome sequencing and applying

## New APAARI Publications

- Investment in Agricultural Research for Sustainable Development in Asia and the Pacific – *Country Status Reports*
- Expert Consultation on Best Practices in Agri-food Innovations in Asia and the Pacific – *Proceedings and Recommendations*
- APAARI Strategic Plan 2017-2022 – *Pathways to Strengthened Agri-food Research and Innovation Systems in Asia and the Pacific*
- Abridged Version – *APAARI Strategic Plan 2017-2022: Pathways to Strengthened Agri-food Research and Innovation Systems in Asia and the Pacific*



bioinformatics to manage data sequencing; and ix) some research articles were published in international journals.

In the second phase of the collaboration, the TGAC team of scientists, AGI, and the National Institute of Agricultural Botany (NIAB), Cambridge, UK, are being fully sequencing genomes of more than 300 Vietnamese native rice varieties. They have also exploited their databases by applying bioinformatics pipelines to identify association of alleles with specific agronomic phenotypes traits of interest. The rapid identification of rice landraces that are tolerant and resilient to adverse conditions will work towards alleviating the current challenges the country's agricultural industry is facing and will contribute to food security.

The collaboration is improving bioinformatics capacity of AGI scientists, and also contributing to advancements in next generation genomics. It is based on applying computational skills to rice breeding to help maintain productivity in the face of changing climate and potentially develop new higher value rice varieties.

Currently, a number of promising rice lines carrying specific/multiple genes, candidate genes of abiotic and biotic tolerances from rice genome sequence (such as salt tolerance, bacterial leaf blight, and plant brown hopper resistance) have been developed by the molecular breeding programme and will be released soon.

(Source: Dr Tran Duc Trung, Department of Science and International Cooperation, VAAS, Vietnam; [ductrung83@gmail.com](mailto:ductrung83@gmail.com); [ductrung83@outlook.com](mailto:ductrung83@outlook.com))



### AIRCA Alliance to Promote Biological Diversity

May 22, 2017 marked the International Day for Biological Diversity. It was initiated by the United Nations to increase understanding and awareness of biodiversity.

Biological diversity, also known as 'biodiversity', is the wide range of living organisms on Earth. This includes the variety of plants, animals and microorganisms, their genetic diversity within the species and the ecosystems it coincides and interacts with. According to the Convention on Biological Diversity, at least 40 per cent of the world's economy and 80 per cent of the needs of poor people are derived from biological resources.

Living organisms are all interdependent on each other for survival – like how humans depend on certain plants for nutrition and medication. However, the fragile nature of our biodiversity is seeing more implications, as factors, such as climate change and unsustainable harvesting of natural resources are contributing to the loss in biodiversity. This is ultimately causing extinction of several species.

With the loss of biodiversity, it also affects different sectors as they not only contribute to implications on our natural environment but also income options and societal development. As our global population increases – our current population of 7.5 billion is expected to rise to 9 billion by 2050 – it is now more than ever important to conserve our rich biodiversity.

The Association of International Research and Development Centers for Agriculture (AIRCA) is a nine-member alliance focused on increasing global food security by supporting smallholder agriculture within healthy sustainable and climate-smart landscapes. The nine members, while all based in different regions and varying in focus areas, are all striving towards common goals – particularly in promoting agricultural biodiversity and supporting its ecosystem. This includes creating more sustainable and climate-smart landscapes, preserving and restoring our ecosystem, developing new agricultural practices to adapt to climate change and improve land use planning to adapt to climate impacts.

AIRCA members have a range of expertise including: the wider use of underutilized crops to diversify agricultural systems, improving soil management approaches, water scarcity solution in marginal environments and integrated pest management.

One of the initiatives currently being implemented by AIRCA members to promote agricultural biodiversity is the *Global Action Plan for Agricultural Diversification (GAPAD)*. Led by Crops For the Future (CFF), GAPAD is an initiative to support the United Nations 2030 Agenda for Sustainable Development (SDA 2030) in order to transform agriculture for good and counter the challenges facing agriculture today.

Agricultural diversification will expand the current food systems through increasing species diversity and more resilient



*AIRCA Steering Committee meets with DG, FAO*

agricultural ecosystems that include new crops for food and non-food uses. With a wide array of crops, agricultural diversification can also contribute to improved incomes, food security and nutrition, provide cropping systems that are more resilient to climate change and identify non-food crops for renewable energy.

“Through this multi-country initiative and many others, AIRCA members will conserve and promote the rich diversity of plant species and ecosystems to keep up with our changing and volatile world,” highlights Professor Sayed Azam-Ali, Chair of AIRCA.

Read more: <http://www.airca.org/index.php/airca-resources/airca-newsletters>

*(Source: Ms Marita Dieling, Executive Secretary, Association of International Research and Development Centers for Agriculture, Kenya; mdieling@airca.org)*



### The World Vegetable Center

#### The World Vegetable Center with More Data, Quicker Response on the Ground

The World Vegetable Center (WorldVeg) and local collaborators are using Akvo Flow, a survey tool, to monitor the training, technical assistance and uptake of technologies of agriculture and nutrition concepts by household garden project clients.

WorldVeg and partners have developed appropriate vegetable seed kits along with participatory training systems for the production of nutritious vegetables through home gardens in Cambodia.

The project has focused on women as managers of home gardens and household diets through campaigns including nutrition awareness and sound household sanitation. This **USAID-Supported Feed the Future** initiative aims to change behaviors to reduce malnutrition, especially among women and children, through diet diversification and by promoting the production and consumption of nutritious vegetables containing essential nutrients such as iron, folate and zinc, as well as vitamins A and C.

The project partnered with Akvo to use **Akvo Flow**, a survey tool, to monitor the training, technical assistance and uptake of technologies of agriculture and nutrition concepts by household garden project clients.

In Year 1 (2016) more than 1,300 households took up improved agriculture and nutrition activities and were monitored through Akvo. This resulted in the accumulation of more than 13,000 individual data records captured about client characteristics, training activities, and the technical assistance they received from the project.

“With Akvo Flow we were able to capture an enormous amount of data in a short period of time, which allowed us to understand quickly what was the immediate situation in the field,” said Stuart Brown, Project Manager.

For example, the data revealed high demand from clients for technical assistance in integrated pest management (IPM) techniques and low demand for continued assistance with garden bed preparation and variety selection. This immediate feedback enabled the project to adjust internal resources to focus more on IPM technical awareness, to quickly reflect requirements on the ground. “A traditional paper based survey would not have been so responsive,” said Mr Brown.

Immediate responsiveness is needed if horticulture is to be sustainably intensified for both nutrition and commercial purposes among developing communities. Lessons learned from Year 1 have led to an increased use of Akvo with more detailed monitoring to occur in Year 2 to quickly record and respond to garden production and nutrition issues as they occur.

The project is committed to open data access for our project partners. With this in mind we are currently developing data cleaning, analysis and visualization resources primarily through R (R Studio and associated packages) for the stream of data that will flow in from regular field surveys by the project partners in Year 2.

The project partners will have access to “snapshots” of the data for their own immediate response strategies in the field and for longer term planning and reporting. These snapshots are being developed in R through the open source web application data visualization framework called Shiny to provide our partners with interactive views of the collected data.

Too often data is hidden or inaccessible to the most important in-country project partners. Open access to data in a format that is accessible and timely will promote immediate action rather than delayed responses when the issue at hand is often a rapidly evolving concept.

Read more: <https://avrdc.org/data-quicker-response-ground/>

*(Source: Maureen Mecozzi, Head, Communications and Information, World Vegetable Center, Taiwan; maureen.mecozzi@worldveg.org)*



## CABI

### CABI Plantwise Wins Two Prestigious International Awards

Plantwise countries in the Asia-Pacific region received international recognition in 2017 for their work implementing the CABI-led food security programme, Plantwise. The St Andrews Prize for Environment and the Bond Development Award for Innovation were awarded to the Plantwise programme, which helps farmers lose less of what they grow in 34 countries around the world.

Plantwise operates in ten countries in the Asia-Pacific region, with over 2,680 trained plant doctors supporting smallholder farmers with practical plant health information. The awards



*CABI Plantwise wins Bond Award*

reinforce the central role of partners across the region in delivering the programme.

The St Andrews Prize for the Environment, a joint environmental initiative by the University of St Andrews and Conoco Phillips, awarded \$100,000 USD to Plantwise on 27 April 2017 in recognition of the programme’s significant contribution to protecting the environment.

Bond, a UK association promoting, supporting and representing the work of international development organizations, announced Plantwise as the winner of its Innovation Award on 21 March 2017, praising the inventive efforts of Plantwise funders and implementation partners who make its innovative approach a reality in policy and practice.

Plantwise helps increase food security and improve rural livelihoods by reducing crop losses. It has achieved this by establishing sustainable networks of local plant clinics, run by trained plant doctors, where farmers can find practical plant health advice. Plant clinics are reinforced by the Plantwise Knowledge Bank: a gateway to actionable online and offline plant health information, including diagnostic resources, pest management advice and front-line pest data for effective global vigilance.

Dr Washington Otieno, Plantwise Programme Executive, speaking after the St Andrews Prize ceremony, said: “It’s a privilege and an honour to win. The prize money will help scale up the use of our ICT tools and applications, enabling plant doctors to make better diagnoses and recommendations, as well as improving the speed of data collection.”

(Source: Rachel Winks, PR and Social Media Manager, CABI, UK; [r.winks@cabi.org](mailto:r.winks@cabi.org))



## ICIMOD

### ICIMOD hosts AIRCA Community of Practice Meeting on Monitoring, Evaluation and Learning

The International Centre for Integrated Mountain Development (ICIMOD) hosted the second annual meeting of the AIRCA Community of Practice on Monitoring, Evaluation and Learning (CoP on MEL) Group from 1-3 March 2017 in Kathmandu, Nepal. AIRCA had launched this CoP on MEL in March 2016 and during this second annual meeting, Monitoring and Evaluation (M&E) experts from seven out of the nine AIRCA member organizations participated.

The theme of the meeting was ‘Complexity-aware Monitoring, Evaluation and Impact Assessment Approaches’ in recognition that a complexity-aware monitoring, evaluation and learning approach can help programmes harness complexity. The meeting focused on AIRCA centers’ experiences of evaluating complex interventions and the often-unexpected outcomes they generate; and, using M&E to support adaptation and learning in order to strengthen and expand the use of complexity-aware MEL and other impact evaluation approaches in AIRCA centres.

Read more: <http://www.icimod.org/?q=26335>

(Source: Dr Laurie Ann Vasily, Head, Knowledge Management and Communication/  
Senior KM Specialist, Knowledge Management and Communication, ICIMOD,  
[laurie.vasily@icimod.org](mailto:laurie.vasily@icimod.org))



Participants of second annual AIRCA M&E meeting



## IRRI

### IRRI: Helping Cambodia Reap a More Bountiful Harvest

After achieving rice self-sufficiency in the 1990s, Cambodia strives to be a global rice producer. As the global food plate continues to demand more rice, more rice-producing countries, including Cambodia, are setting their sights in becoming major players in the market. The country aims to export 1 million tons of milled rice per year, which means ramping up several initiatives to increase its rice competitiveness.

The Government of Cambodia invested in developing a portfolio of strategies aimed at helping them reach 50 per cent of their target. These include addressing labor shortage in rice production through mechanization, improving infrastructure, and providing interventions to improve its post-harvest systems.

“But there’s still a lot more work to do,” says Dr Meas Pyseth from the Ministry of Agriculture, Forestry, and Fisheries. “We could not optimally reach our target because there is no market for Cambodian rice. Farmers largely depend on traders buying and processing their paddy in Vietnam instead of processing their own, which makes our rice value chain weak.”

To tackle this problem, farm machinery, like two-wheel tractors and combine harvesters, were rapidly introduced to the rice landscapes. But the anticipated impact of mechanization was encumbered by the lack of value chain support services.

“Farmers are keen innovators. But without a clear understanding of these machines and how to operate and troubleshoot them, they cannot be optimally used,” shares Lor Lytour, dean of the Faculty of Agricultural Engineering at the Royal University of Agriculture, a leading public agricultural university based in Phnom Penh. “Aside from these, the farmers who can afford to buy the machines do not have the mechanisms to recover its cost. Cambodia also lacks agricultural engineers who can adapt existing technologies to local conditions and skilled agricultural machinery mechanics, who can provide repair and maintenance services,” he pointed out.

### Building capacity of future agricultural engineers

The International Rice Research Institute (IRRI) is a strong partner of Cambodia in looking for solutions to optimize through mechanization and improved postharvest. In 2013, IRRI appointed Gerald Hitzler, IRRI-Centre for International Migration and Development expert, to lay the groundwork for developing initiatives to improve the country’s capacity to strengthen its rice value chain support services.

Mr Hitzler works with the Royal University of Agriculture (RUA) to revitalize its Agricultural Engineering curriculum. Formerly known as Agricultural Technology and Management, the programme focused on technologies in general and lacked courses that will improve the operational skills and business component of the technologies.



“The new Agricultural Engineering curriculum emphasizes the technical aspects of mechanization,” Dr Lytour says. “Recently, we’ve been teaching business management skills so our graduates will have the chance to become entrepreneurs in the future.”

Mr Hitzler also collaborates with the Department of Agricultural Machinery (DAM) and took the initiative to send some senior students to assess technologies developed by the institute. Some of them chose the improvement of machinery as the topic of their thesis.

Kroesna, a senior agricultural engineering student at RUA, is one of those students. She elected to work on improving the seed cleaner developed by DAM for her thesis. “I like the practical teaching approach,” Kroesna shares her experience studying under the new programme. “We were taught how to drive a tractor and repair machines. I’m very interested in machinery, so I find it fun to spend time in the workshop repairing machines, welding, and troubleshooting. I can even make my own machines in the future.”

“This helps the department’s efforts to improve the country’s post-harvest and mechanization activities,” Dr Lytour says. “We also engage in discussions on how to improve other machinery.”

### Fostering synergies among different actors

IRRI, through Mr Hitzler’s active involvement, also works with other partners, such as the Don Bosco Agricultural Vocational School (DBAVS) in Battambang Province. “We have been sending our students to different institutions such as CLAAS Harvest Center and Agricultural Systems Research-Cambodia in Battambang as interns to get hands-on training in tractor repair and other jobs that can’t be done in DBAVS’s workshop,” says Walter Zwick, a senior expert service consultant at DBAVS. Mr Hitzler also fostered a great and informal partnership with the French Agricultural Research Center (Cirad) and DBAVS.

“We hosted about 10 students from the DBAVS to work on field operations in our project sites,” says Florent Tivet, a scientist at Cirad. “It was good for us, and good for them because they can learn much from field operations. At the same time, the students get hands-on experience in maintaining and fixing agricultural machines. We also borrow the equipment they have at DBAVS, such as a straw baling machine. Without this great partnership, we won’t have this kind of synergy.”

A Business Management module is also being considered by DBAVS to reinforce the knowledge and skills of students, who want to run their own business someday.

Recently, an IRRI-led rice straw management project, launched in 2015, introduced the rice straw baler to help solve the country’s increasing problem in handling rice straw after harvesting. The project held demonstrations of straw baling



*Kim Dara (center), a student at DBAVS Battambang and intern at CLAAS Harvest Center Phnom Penh. He plans to have his own machine repair shop someday*

in Battambang Province. The project is also expanding its activities to Svey Rieng. Baling machines entered that province from Vietnam where they made an impression.

“Rapid adoption of rice straw baler is slowly reaching neighboring provinces,” says Mr Hitzler. “Because farmers can now efficiently collect rice straw, the cattle raising at Svay Rieng has increased by 20 per cent.”

He is scheduled to train farmers and government agriculture staff on the operation, maintenance, and repair of balers and other machines. “This way, we can improve the efficiency of providing after-sales service to ensure sustained use of equipment.”

### The rise of RICE in Cambodia

There are more things to do to help Cambodia meet its rice production goals. But, more importantly, the country now has the means to accomplish them.

With the inception of the Rice Agri-food Systems CGIAR Research Programme or RICE, IRRI and its partners will continue working together towards strengthening the rice value chain services under the Flagship Project 2 (Upgrading rice value chains) of RICE. The Flagship Project enables Cambodia to produce rice sustainably and be responsive to market opportunities.

With IRRI’s continued strong commitment to being a global leader in rice science initiatives and the country’s efforts to ramp up such initiatives, the transformation of Cambodia’s rice industry from a local to a global provider is within its reach.

*(Source: Reianne Quilloy, Communication and Outreach Specialist, IRRI; Alaric Francis Santiagué, Division of Communications and Partnerships, IRRI; a.santiagué@irri.org)*



### Executive Chairman, BARC, Bangladesh

Dr Mohammad Jalal Uddin, an eminent agricultural scientist, joined the Bangladesh Agricultural Research Council (BARC) as the Executive Chairman on 10 January 2017. Dr Uddin began his career as a Scientific Officer at the Bangladesh Agricultural Research Institute (BARI) in 1983. He served in different important capacities and was promoted as Director in 2012. He served as the Director of Wheat Research Centre, Tuber Crops Research Centre, and Research.



During his career at BARI Dr Uddin conducted and implemented different research programmes on maize, barley, millet, various pulses and oilseed crops, wheat and tuber crops and thus contributed to developing more than 40 crop varieties along with some associated technologies.

Dr Uddin earned his B.Sc. Ag. (Hons.) and M.Sc. in Genetics and Plant Breeding from Bangladesh Agricultural University. Dr Uddin focused his Ph.D. research on Genetics and Plant Breeding in Bangabandhu Sheikh Mujibur Rahman Agricultural University, and published research articles in national and international journals and newspapers.

### Director General, International Affairs Department, COA

Dr Grace Lih-Fang Lin joined as the Director General, International Affairs Department, Council of Agriculture (COA), Taiwan in April 2017. Prior to this position, she held several important positions including: Deputy Director-General, Agriculture and Food Agency, COA (2014-2017); Deputy Director, Economic Division, Taipei Economic and Cultural Representative Office in the United States (2008-2014); Deputy Director-General, International Affairs Department, COA (2006-2008).



Dr Lin received her Ph.D. and M.S. degree from the University of Massachusetts, Amherst, MA, U.S.A. in the field of Molecular and Cellular Biology. Dr Lin obtained M.S. and B.S. degree in Horticulture from the National Taiwan University, Taipei, Taiwan. Dr Lin has a long and rich experience in agriculture, and has significantly contributed to the agricultural industry, as well as international arena.

### Director, Department of Agriculture, Ministry of Agriculture and Forests, Bhutan

Ms Kinlay Tshjering joined the Department of Agriculture,

Ministry of Agriculture and Forests, Bhutan as its new Director on 18 November, 2016. Ms Kinlay joined the civil service in 1999 as a researcher and has served in various research and development centres for more than eleven years. She was transferred to the Council for RNR Research of Bhutan (CoRRB) as the Dy. Chief Research Officer in 2010, where she served for two years until she was promoted as Chief of Horticulture Division, Department of Agriculture.



Ms Kinlay has a M.S. degree in Horticulture from Melbourne University, Australia, and a B.S. Degree in Horticulture from Wye College, University of London, United Kingdom. She also has a Post Graduate Diploma in Agricultural Science, a Diploma in Vegetable Production and Research, and a Certificate in Plant Pathology and Biotechnology.

Of the numerous publications she made, "Evaluation of Potato Varieties in Multi-Location Trials together with the Farmers", Citrus Cultivars: Potential for Increasing the Citrus Cultivation Range, Pathogenic variability of *Colletotrichum capsici* Isolates in Chili, Morphological and Molecular Characterization of *Colletotrichum capsici*, Bulb Onions, A Potential Crop for Domestic Market and Agriculture and Usage of Natural Resources in Bhutan, are some of the journal papers she published.

### Director General, WorldFish, Malaysia

Dr Blake Ratner has become the new Director General of WorldFish, an international, nonprofit research organization dedicated to strengthening sustainable livelihoods and increasing food and nutrition security. Dr Ratner is responsible for the overall leadership and operation of the organization, focused on raising the profile of fisheries and aquaculture as pathways to development impact. A passionate advocate of applied research to support development innovation, Dr Ratner has led programmes to strengthen capacity to manage competition and catalyze collaboration for resilient rural livelihoods and equitable natural resource governance.



With 20 years post-doctoral research and programme leadership experience, Dr Ratner has authored over 65 journal articles, policy reports, book chapters and edited volumes on rights, equity, and accountability in environmental decision-making. Dr Ratner previously worked at the World Bank and the World Resources Institute. He is fluent in French, Spanish, and Khmer, and holds a Ph.D. in Environmental Sociology and a professional Masters in Development Administration, both from Cornell University.

## APAARI Staff Changes

### New APAARI Staff

#### Dr Ravi Khetarpal, joins as Executive Secretary, APAARI

Dr Ravi Khetarpal has been appointed as the new Executive Secretary, APAARI and he is likely to join at Bangkok on 1 August 2017. Dr Ravi Khetarpal has served for CABI – South Asia (India) as Regional Director and also as its Regional Advisor on Strategic Science Partnerships for a span of more than seven years. Prior to this he has worked for National Agricultural System in India for three decades. He holds a PhD in Life Sciences (Virology) from University of Paris and was a Visiting Scientist in an EU Collaborative Project at INRA, Versailles, France for three years. His areas of interest include research, development, policy issues and capacity building in areas of biosecurity, biosafety, seed certification and biodiversity. He has worked as Consultant of twelve FAO/World Bank Projects notably in Indonesia (as Team Leader), India, Nepal, Mauritius and Cambodia. He represents Asia as a Developing Country SPS Expert in STDF Working Group in WTO. He has published 110 research papers, 19 books, 56 book chapters, 12 review articles and 3 policy papers. APAARI welcomes him and wishes him a great success in this challenging assignment.



#### Dr Rishi Kumar Tyagi joins as APCoAB Coordinator, APAARI

Dr Rishi Kumar Tyagi has been appointed as APCoAB Coordinator, APAARI, Bangkok. Dr Rishi Kumar Tyagi holds a Ph.D. degree in Botany from University of Delhi, Delhi, India and Post-Graduate Diploma in Intellectual Property Rights laws from Indian Law Institute (Deemed University), New Delhi, India. Dr Tyagi worked as Post-Doctoral Research Associate in University of Illinois, USA, for wide hybridization of soybean employing biotechnological methods. He has more than 31 years of experience in managing plant genetic resources (PGR) in terms of collecting, characterization (morphological and molecular), evaluation, conservation and use, in accordance with national and international conventions/treaties and related phytosanitary and biosafety regulations. Since 2009, he is holding the position of Head, Division of Germplasm Conservation at the ICAR-National Bureau of Plant Genetic Resources, New Delhi, India, managing its National Genebank which ranks second largest in the world in terms of germplasm holding.



He is also the Programme Leader of Conservation of agricultural crop germplasm using conventional and modern (*in vitro* and cryopreservation) techniques; and Lead Centre Project Coordinator for the Consortium Research Project on Agrobiodiversity. He has executed several projects and organized trainings/symposia, both nationally and internationally. He was Co-organizing Secretary of '1st International Agrobiodiversity Congress', which was inaugurated by the Prime Minister of India, in November 2016. He has been Vice President, General Secretary and Editor-in-Chief of the Indian Society of Plant Genetic Resources. He has to his credit, more than 80 research papers in high impact factor peer reviewed journals, 40 book chapters/policy papers, 21 edited books/monographs. APAARI welcomes him and wishes him a great success.

### Outgoing Staff

#### Ms Martina Spisiakova leaves APAARI

Ms Martina Spisiakova has worked as APAARI's Knowledge Management Coordinator since December 2015. She has made a major contribution to APAARI's strategic planning, through the development of the APAARI Strategic Plan 2017-2022, Work Plan for the biennium 2017-2018, Knowledge Management and Communication Strategy, as well as stakeholder mapping. Martina also coordinated the implementation of APAARI's Knowledge Management Programme, particularly the development of a new APAARI website; introduction of a new communication tool – APAARI Network Highlights; enhancement of APAARI's presence and knowledge sharing on Social Media through Facebook, Twitter, Linked In, and Slideshare; improvement of APAARI's outreach and advocacy through enhanced communication materials (publications and posters); and strengthened partnership with APAARI members, partners, and other stakeholders, particularly collaboration with FAO. All these activities have become critical pillars of APAARI's future operations and will be pursued by the APAARI Secretariat. Martina left APAARI on 30 June 2017 for personal reasons but will continue her involvement with APAARI for some time on a consultancy basis.



## New APAARI Members

### Associate Members:

- Prof. Jayshankar Telangana State Agricultural University (PJTSAU), Hyderabad, India
- Dr Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Maharashtra, India

### Forthcoming APAARI Meeting/Workshops

- Regional Expert Consultation on Underutilized Crops for Food and Nutrition Security in Asia and the Pacific, Bangkok, 13-15 November 2017
- APAARI Executive Committee (EC) Meeting in Bangkok on 16 November 2017
- APCoAB Steering Committee Meeting in Bangkok on 16 November 2017
- APARIS Steering Committee Meeting in Bangkok on November 2017

### Forthcoming International Conferences/Events

- Winter School on Genomic, Proteomic and Metabolomic Application in Crop Improvement, Department of Biotechnology, JAU, Junagadh, 4-24 September, 2017
- 26th National Conference on Natural Resource Management for Climate Smart Sustainable Agriculture, CAU, 11-13 September 2017,
- The Second Regional Training Course on Forest Genetic Resources, APAFRI, Binzhou, Shandong Province, China, 18-22 September 2017
- 13th Triennial Conference of Pacific Women and 6th Meeting of the Pacific Ministers for Women, Suva, Fiji, 2-6 October 2017
- First Regional Training Course on Culture-based Fisheries, NhaTrang, Vietnam, 29 October - 9 November 2017
- International Symposium on "Promoting an active role for female researchers in agriculture, food, and nutrition research", U Thant International Hall, UNU (5-53-70, Jingu-mae, Shibuya-ku, Tokyo), JIRCAS, 2 November 2017
- Third International Congress on Biological Invasions, Hangzhou, China, CABI, 19-23 November 2017
- National Conference on New Vistas in Vegetable Research towards Nutritional Security under Changing Climate Scenario, Tamil Nadu Agricultural University, Coimbatore, 6-9 December 2017, Crop Genomics: Present and Future, ICRISAT, Pattancheru, 7-8 December 2017

### APAARI Participation in Meetings organized by other Fora

- Dr Ramakrishna Akkinapally, Deputy Director General, National Agricultural Research Institute (NARI), Papua New Guinea represented APAARI in GFAR Steering Committee in Rome on 8-9 February 2017
- Ms Martina Spisiakova, Knowledge Management Coordinator, APAARI represented APAARI in Regional Symposium on "Mapping and Assessing University-based Farmer Extension Services in ASEAN through an Agro-ecological/Organic Lens, Bangkok, Thailand, Bangkok, Thailand on 23 February 2017

- Ms Martina Spisiakova, Knowledge Management Coordinator, APAARI represented APAARI in Regional Food Security conference: Let's Get to Work - Building a Food Secure Future, Hanoi, Vietnam, in Ha Noi, Viet Nam on 22-23 March 2017
- Ms Celilu Bitong, Knowledge Management Officer, APAARI, represented APAARI in International Training-Workshop on Developing Knowledge Management in Agriculture for Small-scale Farmers at PCAARRD, Los Banos, Laguna on 9-11 May 2017
- Ms Celilu Bitong, Knowledge Management Officer, APAARI, represented APAARI in CDAIS Innovation Fair, at NAFRI, Vientiane, Lao-PDR on 19 May 2017
- Dr Sergie Bang, Director General, National Agricultural Research Institute (NARI), Papua New Guinea represented APAARI in GFAR Steering Committee in Rome on 13-15 June 2017



### Executive Committee

<i>Chairman</i>	:	Dr Yusuf Zafar
<i>Vice-Chairman</i>	:	Dr Sergie Bang
<i>Members</i>	:	Dr Suwit Chaikiattiyos Dr Vincent Lin Dr Y.R. Pandey Mr David Hunter Dr Marco Wopereis Dr K.M. Bujarbaruah Dr Mark Holderness Dr Barbara Wells Farmers Association* NGO* Private Sector*
<i>Interim Executive Secretary</i>	:	Dr Bhag Mal

*\*To be decided by the Executive Committee*

All queries relating to APAARI Newsletter be addressed to:

#### APAARI Secretariat

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