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Editorial Committee

- Dr Raghunath Ghodake
- Ms Mellisa Wood
- Dr Trinh Khac Quang
- Ms Martina Spisiakova
- Dr Bhag Mal

Editorial

New Strategy to Help APAARI Better Contribute to Transformation and Development of Agri-Food Systems in Asia and the Pacific

In the last issue of this newsletter, we outlined how APAARI sets on the path towards realization of the Sustainable Development Goals (SDGs). In this issue, it is demonstrated as to how APAARI, its partners and stakeholders, will move along the path to realize these goals in the Asia-Pacific region. The progression of the path is being designed through APAARI Strategic Plan 2017-22, which articulates key strategies under its high priority thematic areas to strengthen agri-food research and innovation systems, thereby contributing to the development

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APAARI Brings the Interests of National Stakeholders to the Global Level: Outcomes of GCARD 3

The 3rd Global Conference on Agricultural Research for Development (GCARD3), co-organised by the Global Forum on Agricultural Research (GFAR) and the Consultative Group on International Agricultural Research (CGIAR), and hosted by the Agricultural Research Council of South Africa (ARC), took place at Johannesburg, South Africa from 5-8 April 2016. More



Participants of GCARD3 at Johannesburg, South Africa

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than 500 participants from 83 countries gathered to set a new agenda for agricultural research and jointly work towards the transformation of agriculture. GCARD3 is a global consultative process that aims to provide a common platform for the wide range of actors involved in generating, accessing and using knowledge on agricultural and agri-food systems.

The Conference identified five key challenges to realizing the full development value from agriculture and agri-food research and innovation systems, around which collective actions have been formed. These include ensuring better rural futures, keeping science relevant and future-focused, scaling-up: from research to impact, showcasing results and demonstrating impact, and sustaining the business of farming.

APAARI actively participated in the GCARD3 event by bringing over 25 year experience in strengthening agriculture and agri-food research and innovation systems from regional to the global level.

Dr Raghunath Ghodake, Executive Secretary, APAARI, made an interesting presentation on how agricultural research is contributing to the achievement of SDGs and focus areas for agricultural research in the Asia-Pacific region. It highlighted the most relevant sustainable development goals (SDGs) related to: no poverty, zero hunger, gender equality, affordable and clean energy, decent work and economic growth, responsible consumption and production, climate action, and life on land. These SDGs will shape the next 15 years of agricultural research priorities, policies, programs and funding in the Asia-Pacific region, which requires the need for evolving and pragmatic research strategy.



Dr Raghunath Ghodake, Executive Secretary, APAARI Speaking at GCARD3

Dr Ghodake made another important presentation on "Investing in Agricultural Research and Innovations for Impact at Scale in the Asia-Pacific Region". It was based on the key outcomes of the High Level Policy Dialogue (HLPD) on Investment in Agricultural Research for Sustainable Development in Asia and the Pacific that was held in Bangkok, Thailand from 8-9 December 2015. He specifically highlighted the major constraints in investments in agricultural research for development (AR4D), purpose of the dialogue, key issues and opportunities for investment, outcomes and implications, major recommendations and way forward as well as APAARI expectations from GCARD3.

Through its contribution, APAARI informed GCARD3 on investments in agricultural research and innovation systems in Asia and the Pacific, and made a pledge for investments

in agricultural research based on the way forward following the HLPD. The working group on investment led by APAARI during the GCARD 3 helped refine the way forward for the Asia-Pacific region and APAARI was identified as a leader to develop the proposal on the mobilization of investment in agri-food research and innovations. One of the specific collective actions that participants committed to was to lobby for increased investment in research and innovation to achieve impact at scale. To achieve these commitments, participants agreed to work together to create effective partnerships at all levels including public-private-partnerships and innovative mechanisms to catalyze the necessary investments and capacities required.

The interactions with global stakeholders, including researchers, civil society, universities, policy makers, the private sector, youth, women's groups and development partners, helped strengthen APAARI's linkages between international, regional and national organizations to better support its members and partners on the pathway towards sustainable agricultural development.



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Editorial

of agri-food systems in the region and further paving the way to contribute to SDGs.

On the basis of APAARI Vision and the High Level Policy Dialogue on Investment in Agricultural Research and Innovation Organised in December 2015, APAARI made some valuable contributions at the GCARD 3 (held in April 2016 in South Africa) on how agricultural research and innovation are contributing to the achievement of SDGs in the Asia-Pacific region. APAARI also informed the Global Conference on how to go about improving investments in agricultural research and innovation systems. The working group on investment led by APAARI during the Conference helped refine the way forward for the Asia-Pacific region. In the process, APAARI was identified to lead the proposal development on the mobilization of investment in agri-food research and innovations globally.

To give effect to the realization of its Vision 2030, APAARI has been working intensely on the development of its Strategic Plan that will determine the course of its future actions. These actions will be realized through APAARI's mandated functions such as knowledge management, partnership and networking, promotion and advocacy, capacity development, and foresight and visioning, so that the agri-food research and innovations systems in the region are strengthened to contribute to development outcomes and impacts.

Some areas of interventions for realizing development outcomes and impacts include effective mobilization and sustainable use of natural resources; management of risks and uncertainties in the agri-food systems; managing and coping with risks

and uncertainties; congenial public policies; integration of value chain actors and markets; and enhanced use of agrobiodiversity and advanced biotechnologies. Attention will also be given to key generic issues involved in strengthening of agri-food research and innovation systems. Such issues include improved investment, enhanced capacity (human and institutional), making agri-food systems more knowledge intensive, strengthened partnerships and networking; and inclusion of women and youth.

The strategic interventions are expected to i) effectively deliver research and innovations with impact at scale; ii) add value and reduce losses, benefitting primary producers and consumers; iii) enhance productivity and sustainability of natural resources in agri-food systems; iv) enhance agricultural productivity and quality outputs of bio-resources; v) improve efficiency, productivity and sustainability of agri-food production systems; vi) improve availability of affordable, safe, nutritious and healthy foods; and vii) enhance benefits to small producers, rural communities, women and youth.

The follow-up impact pathways can be seen through: i) increased resource productivity, and enhanced profitability; ii) raised incomes for resource poor small producers and rural communities; iii) increased productive employment for greater participation/ involvement of women and youth; and iii) enhanced overall productive employment, growth and socioeconomic development.

These impacts will help contributing to key target areas of SDGs, such as reduced hunger and malnutrition leading to zero hunger; eradication of extreme poverty (living on less than \$1.25 a day); reduced poverty in all forms; improved and sustained environment; and improved livelihoods, quality of life and human development index (HDI).



A National Workshop on Forward Thinking for Agricultural Development in Western India

The Sardar Krushinagar Dantiwada Agricultural University (SKDAU) in collaboration with the Global Forum on Agricultural Research (GFAR), the National Academy of Agricultural Research Management (NAARM), the Asia-Pacific Association of Agricultural Research Institutions (APAARI), the Indian Association for Information Technology in Agriculture (IAITA), and the National Council for Climate Change, Sustainable Development (NCCSD) hosted a national workshop on “Forward Thinking Agricultural Development in Western India to Consider New Capacities Needed in Agricultural Research, Innovation, Extension, Education and Management” on 8-10 February 2015 at Sardarkrushinagar. GFAR and NAARM as co-Organisers provided two resource-persons each for the facilitation of the workshop.

The workshop aimed at identifying strategic elements based on forward thinking for agricultural development in Western India with emphasis on human capacity development needs



Participants of Forward Thinking Workshop

for agricultural education and learning. Specific objectives included: (i) elaborating steps towards a vision for agricultural development by 2030 in Western India, (ii) identifying related needs for capacity development for the vision for agricultural development by 2030, and (iii) developing elements of a strategy for capacity development with the role of agricultural universities and related Institutes in this strategy.

In all, 87 participants representing four Indian states, namely: Gujarat, Maharashtra, Rajasthan and Madhya Pradesh, from institutions from different fields of specialization, including the Indian Council of Agricultural Research Institutes, as well as farmers, entrepreneurs, attended the Workshop.

The program of the workshop was organised around seven technical sessions besides inaugural and concluding sessions.

The workshop started with welcome statement by Dr R.R. Shah, Director of Research, SDAU and keynote address Dr Ajit Maru, Senior Knowledge Officer, GFAR, FAO. Dr Ashok Patel, Vice Chancellor, SDAU inaugurated the workshop, deliberated in-depth on current scenario in agriculture in Western India and foresighted the role of future planning regarding production, processing, packaging and safety issues of agricultural products. Dr S. Acharya, Organising Secretary proposed vote of thanks.

The back casting session provided strategic elements with the questions of the new capacities needed to address the needs of the region for its agricultural development. Two working groups were organised to have in-depth discussion on back casting. The participants highlighted several points with respect to different perspectives which are given below:

- Transformed relationship between the government and university
- Higher investment in promoting infrastructure for agricultural education and learning
- Raising the quality of student and staff through establishment of rewards, recognition and support system
- Opening the higher education system by developing close linkages with stakeholders, private institutions; and the world's best universities
- Skill development through short-term skill-oriented courses

APAARI Collaboration with Mahanakorn University of Technology, Bangkok

APAARI collaborated in a training program on “Technological Intervention and Best Practices for Rice and Vegetable Production in Thailand”. The training program was organised by the Department of Civil Engineering, Bilingual Program, Faculty of Engineering, Mahanakorn University of Technology, Bangkok, Thailand from 31 March - 6 April 2016. Dr Raghunath Ghodake, Executive Secretary, APAARI was invited as a resource



Dr Raghunath Ghodake, Executive Secretary, APAARI delivering keynote address

person and a keynote speaker in the training program. Eight senior government officials from the Ministry of Agriculture, Government of the People’s Republic of Bangladesh participated in the training. Dr Raghunath Ghodake, in his presentation, highlighted on APAARI vision, mission, strategies and activities and also presented an overview of APAARI’S achievements and the role it could play as a vibrant, and neutral regional platform in putting towards the agenda of agricultural research and innovation for development (ARI4D) in collaboration with NARS and other stakeholders in Asia-Pacific region.

- Improving quality of education based on performance appraisal of faculty
- Use of informal learning (i.e. outside the formal education system) to train working populations in different skills. This refers to the establishment of an alternative/parallel system for farmers and rural inhabitants acquiring skills through e-access, virtual labs and schools.

The workshop offered most of the participants a first hands-on experience and practice with forward thinking. Following are some important considerations for improvement and deeper analysis:

- The inclusion of a greater diversity of stakeholders is needed, both in variety, age, gender and number, farmer organizations, CSO, NGOs, private sector, donors, and many other parties.
- A more systemic and systematic scenario building process with more comprehensive approaches including structural and morphological analysis, is required.

- A deeper back casting process, allowing for more comprehensive identification of the strategic elements and their implications about new capacities is required to face future challenges.
- Acquisition of knowledge and new skills is very important in forward thinking through long duration training courses and also conducting similar processes within their own institutions or apply it to other topics of interest
- The recognition of the need to have diverse participants with diverse background and knowledge was considered as a crucial factor to enrich the outputs and provide a more comprehensive understanding of potential transformation and plausible futures
- The focus of the follow-up will be on the exchange and sharing of new information, knowledge, and technology; promoting innovation among all actors in value chains; capacity development through exchange of scientists, teachers and extension agents; and establishing an institute that would build capacities needed to innovate and manage universities and institutions.

The outputs of the workshop indicate the urgency to move towards transformed objectives of agricultural universities, from being centers for producing agricultural and related graduates, extension agents, researchers and teachers and doing research to being the fountainhead of 360°, economically, socially and environmentally sustainable agricultural development with capacity to effectively use new information, knowledge, skills and technology for mass innovation in institutions, community participation and technology use that meets the continuous challenges in agricultural development that Western India faces. In order to attain intensified sustainability, the objectives of these universities should become to contribute to: i) improved livelihoods and employment, ii) servicing agricultural and rural development, and iii) enabling learning and capacity development in human skills and infrastructure needed for new roles and activities that will emerge in Western India by 2030.

It was recommended that the five agricultural universities in Gujarat jointly take the lead in creating collaboration through a consortium of the 21 universities in Western India, ICAR institutes, including NAARM and related institutes such as Institute of Rural Management, Anand (IRMA) and Indian Institute of Management, Ahmadabad (IIMA). It was also suggested that the Gujarat State leads and facilitates the establishment of a Center for Coordination and Supporting Capacity Development for Sustainable Agricultural Development in Western India.



APAARI Progressing on Developing its Strategic Plan 2017-22

An inception meeting for APAARI Strategic Planning was organised at Bangkok, Thailand on 21-22 March 2016 which was attended by nine participants including APAARI staff and the representations from DOA, Thailand, ACIAR, Australia and two consultants.

During the meeting, the discussion centered around i) strategic concepts and issues, ii) basis for developing the strategic plan, iii) process for developing the strategic plan, iv) stakeholders analysis, v) capacity development, and v) results and M&E framework. Under each of these areas, the key points/actions to be taken were agreed as follows:

- APAARI strategic plan, including its impact pathway and monitoring and evaluation (M&E) framework must be aligned with the Vision, Mission and Goal at every level (activity, output, outcome and impact).
- APAARI's core values (visionary approach, devotion to merit and excellence, learning and growing, inclusiveness and accountability) need to be promoted and adhered to.
- The strategic plan is to be framed on the basis of APAARI's thematic thrusts and implementation focus areas as identified in the Vision document.
- APAARI's key areas that the strategic plan should focus on are knowledge management (KM), partnership and collaboration, capacity development and advocacy. These elements are part of both mission statement and implementation focus areas.

An advanced consultation on APAARI Strategic Planning for 2017-22 was organised in Bangkok on 20-21 June 2016, which was attended by 25 participants, including the identified experts from diverse stakeholder groups and APAARI professional staff and Task Team. The agenda of the



Participants of Advanced Consultation

consultation included framework and content of strategic plan, mapping of APAARI stakeholders, needs assessment, strategy development, APAARI value added as perceived by primary stakeholders, APAARI governance and development, and expected results.

In some key strategic areas, in-depth discussions were held in working groups and the feedback was further discussed in plenary sessions, with the idea for developing consensus and agree on the final framework. As a result of two day intense discussions, the thematic areas (based on thematic thrusts), primary needs, broad and specific strategies, and specific strategies were refined, integrated and prioritized. Based on valuable inputs from the participants, the draft Strategic Plan will be prepared which will be further discussed in the Executive Committee meeting to be held in August 2016.



Dr Dyno Keatinge Retired as Director General, World Vegetable Center

Dr Dyno Keatinge served as Director General of the World Vegetable Center in Taiwan, from 2008-2016. He is also the Vice-Chair of the Global Horticultural Initiative, Member of the Horticulture CRSP International Advisory Board and a founder of the Association of International Research and Development Centers for Agriculture (AIRCA). He served in various capacities at ICRISAT, India; IITA, Nigeria; ICARDA, Aleppo, Syria; University of Reading, U.K.; Central Research Institute for Field Crops at Ankara, Turkey; and University of the West Indies, Trinidad. Currently, he is the Chief Executive Officer, Tropical Agriculture Development Advisory Services Ltd.



Dr Keatinge had been the editor of the e-Journal of Semi-Arid Tropical Agricultural Research, Chair of the Center Deputy Directors Committee of the CGIAR, International Member of the Policy Advisory Committee of the Netherlands Foundation for the Advancement of Tropical Research (WOTRO), Member of the editorial board of "Biological Agriculture and Horticulture", Member of the editorial advisory committee of the "Australian Journal of Agricultural Research", Member of the Department for International Development (DFID) Natural Resources Systems Program Advisory Committee, Elected Fellow of the Institute of Biology, and Member of the Editorial Board of "Agricultural Systems".

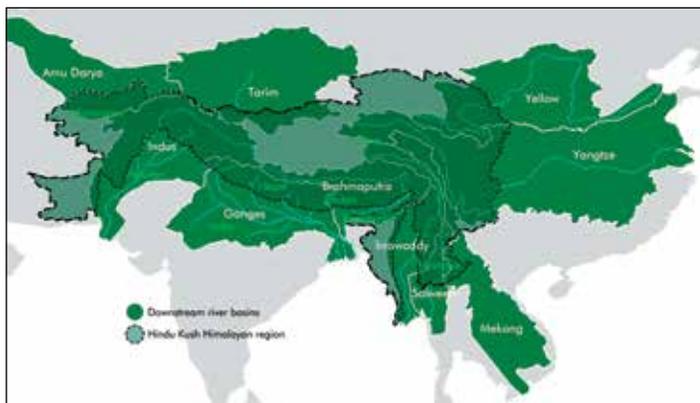
Dr Keatinge had a great passion for research, and laid solid foundation for AVRDC's worldwide operations. He worked tirelessly to expand the Center, raise its visibility, and enlarge its budget. He always advocated for scientists' work in conferences and other fora and always stood by their side.

Dr Keatinge holds a Doctorate in Agronomy/Crop Physiology from Queensland University, Belfast, Northern Ireland. He has 130 research papers to his credit including 85 in refereed journals.

APAARI is highly grateful to Dr Dyno Keatinge for his contribution and support to APAARI and wishes him great success in his future endeavors.

The International Centre for Integrated Mountain Development (ICIMOD)

Founded in 1983, the International Centre for Integrated Mountain Development (ICIMOD) is a regional inter-governmental learning and knowledge sharing center serving mountains and the people of its eight regional member countries of the Hindu Kush Himalayas – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan.



The Hindu Kush Himalayan transect

The Hindu Kush Himalayan (HKH) region extends 3,500 km over all or parts of eight countries from Afghanistan in the west to Myanmar in the east. It is the source of ten large Asian river systems – the Amu Darya, Indus, Ganges, Brahmaputra (Yarlungtsangpo), Irrawaddy, Salween (Nu), Mekong (Lancang), Yangtze (Jinsha), Yellow River (Huanghe), and Tarim (Dayan) – and provides water, ecosystem services and the basis for livelihoods to a population of around 210 million people in the mountain region. The basins of these rivers provide water to 1.3 billion people, one fifth of the world’s population.

Vision

Men, women, and children of the Hindu Kush Himalayas enjoy improved wellbeing in a healthy mountain environment

Mission

To enable sustainable and resilient mountain development for improved and equitable livelihoods through knowledge and regional cooperation

Governance

ICIMOD is governed by a Board of Governors consisting of one representative from each of the eight member countries and independent members, who are nominated by the ICIMOD Support Group based on their recognized professional expertise and experience. The ICIMOD Support Group is composed of representatives that provide financial contributions to the Center, including the regional member countries.

Globalization and climate change have an increasing influence on the sustainability of fragile mountain ecosystems and the livelihoods of mountain people. ICIMOD aims to assist mountain people to understand these changes, adapt to them, and make

the most of new opportunities, while addressing upstream-downstream issues. ICIMOD supports regional transboundary and knowledge-sharing programs, facilitates the exchange of experience, and serves as a regional knowledge hub. Overall, ICIMOD is working towards developing an economically and environmentally sound mountain ecosystem to improve the living standards of mountain populations and to sustain vital ecosystem services for the billions of people living downstream. With its highly qualified and dedicated team of social scientists, economists, ecologists, water specialists, atmospheric scientists, glaciologists, and communication specialists, ICIMOD works in an inter-disciplinary way to solve some of the mountain challenges facing the HKH region. ICIMOD puts a significant emphasis on planning for impact.

ICIMOD’s thematic areas develop and customize methodologies and tools, and carry out innovative applied research to support future program development. These four themes – Livelihoods, Ecosystem Services, Water and Air, and Geospatial Solutions – are the core competencies for implementation of the regional programs. ICIMOD’s regional programs are formulated with a view to the long-term testing, piloting, and monitoring of innovative approaches; demonstrating transboundary cooperation on landscapes and river basins; addressing common issues related to the cryosphere and adaptation; developing regional information and databases; and meeting capacity building needs in the region. Currently, there are six regional programs, which integrate various thematic topics and deliver impact. These are given below:

- Adaptation to Change
- Transboundary Landscapes
- River Basins
- Cryosphere and Atmosphere
- Mountain Environment Regional Information System
- Himalayan University Consortium

Mountain agriculture and food security is central to ICIMOD’s work across its programs. In the HKH region, the poorest often live in the most inaccessible pockets, eking out a living through subsistence farming, cut off from markets, and with



ICIMOD’s thematic areas and programs intersect with governance, gender, knowledge management and communication

minimal access to basic services. The challenge is to break the poverty cycle and initiate activities to improve livelihoods. A promising option is introducing sustainable agricultural practices involving high value mountain niche products, and extending market value chains with benefits going to men and women farmers. Mountains in the HKH region have a huge amount of agricultural biodiversity, and this diversity will be the key ingredient in building the resilience to deal with change. How this agricultural biodiversity is managed will have a direct bearing on future food security of the region. ICIMOD is promoting climate-smart agriculture and diversified farming systems, and is helping farmers gain access to markets through the development of related value chains.



The Himalayan nettle, a high value product that ICIMOD promotes for livelihood of mountain communities



ICIMOD and its partner Aaranyak received the 2014 Lighthouse Activity Award for their community-based flood early warning system in Eastern Brahmaputra River Basin

Establishing effective partnerships is pivotal to ICIMOD as an interface between research and development and to link science to policy and practice on the ground. ICIMOD partners with a wide variety of institutions, including strategic and policy partners, operational and research partners, development partners, and knowledge, science and network partners. Working together with regional and international partners, ICIMOD is committed to bringing about transformative change in the region by improving the environmental conditions and livelihoods of mountain and downstream communities. To this end, ICIMOD is a member of several regional and international organizations, including the Association of International Research and Development Centers for Agriculture (AIRCA) as well as APAARI. ICIMOD feels that its partnership with AIRCA can bring holistic approaches in improving and diversifying agriculture in a healthy landscape in the context of the changing climate. To this, ICIMOD envisages to bring the mountain perspective.

As an open house for knowledge initiatives on sustainable mountain development, the knowledge that ICIMOD and its partners generate are communicated through publications, databases, multimedia, and web content, all of which are available globally online. Looking to the future, new communications and interactive knowledge sharing tools are quickly becoming the global norm and will provide further momentum to knowledge management efforts. ICIMOD seeks to keep abreast of these global innovations while remaining

relevant to the socio-cultural context of the region. Means of knowledge sharing include promoting capacity development at many levels, including among youth, most importantly to help partners and policymakers transform the results of research into information that can be used for improved decision making and practical action; distilling and communicating relevant messages for action towards sustainable mountain development at all levels; and encouraging ICIMOD's partners to be actively involved in the knowledge development cycle.

ICIMOD's testing and demonstration site, called the Knowledge Park, is located at Godavari on the southern slopes of the Kathmandu Valley. The site is used to test, select, and demonstrate different technologies and (farming and agroforestry) practices useful for sustainable development and natural resource management; to train farmers and those who work with them; and as a repository for plant germplasm resources. Today, activities in the Park focus on vegetation management; soil management; water management; income-generation through high value cash crops, horticulture, and beekeeping; livestock; biodiversity; renewable energy technologies; scientific research; and training and dissemination.

(Source: Gopilal Acharya, ICIMOD's Communications Specialist; gopilal.acharya@icimod.org)



Junagadh Agricultural University (JAU), Junagadh

Introduction

Junagadh Agricultural University (JAU) is among the four Agricultural Universities in the State carved out of Gujarat Agricultural University under GAU Act 2004 and came in to existence from 1 May 2004. The University's jurisdiction is spread over the districts of Junagadh, Jamnagar, Rajkot, Porbandar, Surendranagar, Bhavnagar, Amreli, Devbhoomi Dwarka, Gir Somnath and Morbi of the Saurashtra region, comprising 32.8 per cent (6.43 m ha) area of the Gujarat state (19.6 m ha).



Gujarat Agricultural University Campus at Junagarh

Vision

Junagadh Agricultural University intends to be one of the nation's leading universities in terms of its academic quality, advancement in technological research and enhancement of farmers' knowledge for sustainable agriculture, as well as ensuring food and nutritional security to the people.

Mission

The mission is to play pivotal role in teaching, research and extension education related to agriculture and allied sciences.

Major Achievements

Education

Junagadh Agricultural University has a network of 13 institutions including Colleges (6), PG Institute (1) and Polytechnics (6) as follows:

I. Colleges:

- College of Agriculture, Junagadh
- College of Agriculture, Amreli
- College of Horticulture, Junagadh
- College of Agricultural Engineering and Technology, Junagadh
- College of Veterinary Science and Animal Husbandry, Junagadh

II. PG Institute of Agri-business Management, Junagadh

III. Polytechnics

- Polytechnic in Agriculture, Dhari
- Polytechnic in Horticulture, Junagadh
- Polytechnic in Agro-Processing, Junagadh
- Polytechnic in Home Science, Amreli
- Polytechnic in Animal Husbandry, Junagadh
- Polytechnic in Agricultural Engineering, Targhadia, Rajkot

The University offers higher education-undergraduate (UG) and postgraduate (PG) courses in the faculties of Agriculture, Agricultural Engineering and Technology, Fisheries Science, Veterinary Science and Animal Husbandry, Horticulture and MBA in Agri-Business Management. The University also offers Diploma/Certificate Courses in the field of Agriculture, Horticulture, Agro-Processing, Agricultural Engineering, Animal Husbandry and Home Science (Table 1).

Research

Junagadh Agricultural University has 31 research stations including multi-disciplinary main research stations, sub-centers on various crops and testing centers spread over whole North Saurashtra and South Saurashtra Agro-climatic Zones and part of North-West and Bhal and Coastal Area Agro-climatic Zones of Gujarat. These research stations are engaged in research in the field of agriculture, horticulture, agricultural engineering, animal sciences and fisheries for catering the needs of farmers, artisans, livestock holders, fishermen and rural masses for their upliftment. The research activities are carried out in crop improvement, crop production, horticulture and agroforestry, plant protection, basic science, social sciences, agricultural engineering, animal science and fisheries science. To strengthen the location specific research, 21 All India Coordinated Research Projects (AICRPs) are functioning in the University.



GT-3: An improved variety of til (*Sesamum indicum*)

Since the University's inception, the most significant achievements as outcomes of its research activities included the release of seven varieties in groundnut; six in pearl millet; five each in okra and brinjal; three each in sesame and chickpea; two each in garlic, Indian bean and sponge gourd and one each in wheat, castor, soybean, pigeonpea, cotton, sugarcane, onion, coconut, custard apple, tomato and ridge gourd. Out of 50 varieties, nearly 15 varieties received recognition at the national level. The University has developed 427 technologies /



Sprinkler irrigation in groundnut

Table 1. Under-Graduate, Post-Graduate and Polytechnic Diploma Programs Offered by the University

Faculty		Diploma	B.Sc.	M.Sc.	Ph.D.	Total
Agriculture	Up to July 2015	108	3984	1406	250	5748
	2015-16	35	169	148	48	400
Horticulture	Up to July 2015	106	-	48	01	155
	2015-16	35	50	22	8	115
Agriculture Engineering	Up to July 2015	-	953	163	11	1127
	2015-16	35	97	31	11	174
Fisheries	Up to July 2015	-	361	62	01	424
	2015-16	-	77	19	08	104
Veterinary & Animal Husbandry	Up to July 2015	-	18	13	02	33
	2015-16	35	60	36	10	141
Agri-Business	Up to July 2015	-	-	97	-	97
	2015-16	-	-	43	04	47
Agro-Processing	Up to July 2015	101	-	-	-	101
	2015-16	35	-	-	-	35
Home Science	Up to July 2015	73	-	-	-	73
	2015-16	35	-	-	-	35

package of practices for the benefit of farmers. The concerted research has been carried out on various important aspects in different crops including wheat, millet, pulses, oilseeds, cotton, sugarcane, fruit crops, vegetables, dry farming, grassland, agricultural engineering, cattle breeding and fisheries.

Noticeable increase was observed in the production and distribution of various crop seeds, including groundnut, wheat, chickpea, pearl millet, castor, sesame and other crops of Saurashtra region. Plantlets, grafts, saplings of horticultural crops and other ornamental plants are also being sold out at reasonable price. Different bioagents and biofertilizers, such as *Trichoderma*, *Rhizobium*, *Azotobacter*, PSB, *Beaveria*, etc. are supplied to farmers at reasonable prices. All products, such as seeds, mango pulp, bioagents and biofertilizers, etc. are distributed under the brand name of "Sawaj".

The National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited the Food Testing Laboratory



Gir breed of cow

functioning under the Department of Biotechnology. The demand for D × T coconut hybrid seedling is increasing. Hence, the elite farm has been developed in 12 ha area at Mahuva center to meet the requirement of farmers. Control measures of pink bollworm in cotton crop were developed and suggested for use by the farmers. Sea weed is used for preparing the liquid fertilizer at Fisheries Research Station, Okha which will be useful for zinc and iron deficient soils. Larvae of pearl oyster were released in the sea by the Fisheries Research Station, Sikka, for further harvesting of matured pearl oyster by fish farmers.

Extension

The University has six Krishi Vigyan Kendras (KVKs) for extension activities that are imparting training to extension functionaries of the line departments in order to transfer agricultural technologies to farmers and end users.

Apart from KVKs, extension activities/programs, such as Agriculture Diploma, Bakery Training Center, Mali Training Center, Training and Visit Scheme, Sardar Smriti Kendra (SSK), Farm Advisory Service Centre, Extension Programs for Fisheries, Agricultural Technology Information Centre (ATIC), Centre of Communication (CoC), and Agro-based ITI are also running in the University. New Community Radio Station releasing extension program on "Janvani 91.2" has recently started by the University.

Front line demonstrations (FLDs) are being conducted on various crops and technologies at farmers' fields through KVKs and Research Stations. A mega event Krushi Mahotsav is Organised every year since 2005 for dissemination of the latest technologies at farmers' door step.

(Source: Dr A. R. Pathak, Vice Chancellor, JAU, Junagadh; vc@jau.in)



India

CAU, Mizoram Organised Regional Agriculture Fair

A three-day Regional Agriculture Fair was organised by the Central Agricultural University, Selesih, Aizawl, Mizoram at the College of Veterinary Sciences and Animal Husbandry, during 3-5 February 2016. The theme of the Fair was “Animal Resources for Integrated Farming System” which was sponsored by the Ministry of Agriculture and Farmers Welfare, Government of India. The Fair was inaugurated by the Hon’ble Governor of Mizoram, Lt. General (Rtd.) Shri Nirbhay Sharma in presence of the Guest of Honour, Pu R. Lalrinawma, Deputy Speaker, Government of Mizoram and Prof M. Premjit Singh, Vice-Chancellor, Central Agricultural University, Imphal.

Out of 1,275 registered farmers/growers, more than 800 farmers from all districts of Mizoram and other North Eastern Hill (NEH) States actively participated in the Fair. The Agri-Fair also provided a platform for exhibition of improved agricultural technologies, equipments and showcasing agro-industrial products. There were around 36 stalls set up by ATMA, KVKs, NGOs, SHGs and Farmers’ Clubs across the NEH States. Some of the innovative products that were displayed in the exhibition included scented black rice of Manipur, improved breeds of pigs and domesticated birds along with fortified animal feed block from Aizawl, Mizoram; budded plants of Khasi Mardarin, as well as improved variety of vegetable seeds from Arunachal Pradesh.

The Hon’ble Governor, Shri Nirbhay Sharma initiated the forum by addressing the challenges faced by agricultural scientists and veterinarians in imparting knowledge to farmers and spelled out how initiatives like the CAU-Regional Agri-Fair

facilities, fisheries, horticulture, animal science, agricultural engineering, post-harvest technology, sericulture, poultry and floriculture.

Many interactive competitions were also organised where farmers participated and won cash prizes. More than 300 farmers also actively participated in “Dog Show” and a “Healthy Baby Show” (1-3 year age) organised during the event.

On the final day, Prof M. Premjit Singh, Vice-Chancellor, CAU, Imphal, congratulated all those who participated in the Fair. All farmers and organizations were given certificates of appreciation by the Chief Guest, Mr Liansailova, IAS Rtd.

The Agri-Fair was concluded with a successful note presented by Dr Angad Prasad, Deputy Director of Extension Education, CAU, Imphal, summarizing the proceedings of all three days activities and the salient features of Farmers-Scientists Interaction Program and various other programs.



Farmers’ Field Day at Upokpi, Bishnupur District, Manipur



Regional Agriculture Fair- 2016 at Mizoram

can help in bridging the gap between the local farmers and scientists. This initiative was further supported by the *Kisan Gosthi* program, during which farmers raised queries related to crop production, crop protection, improvement of livestock, poultry and fisheries products, which were clarified by experts. *Kisan Gosthi* proved to be the best platform for farmers and scientists to share their experiences.

The participants also gained information about the latest developments in the following areas: organic farming, irrigation

The Directorate of Extension Education, CAU, Imphal, also organised Farmers’ Field Day 2016 on “Zero Tillage Cultivation of Rapeseed-Mustard in Rice Fallow” under TSP project on 24 February 2016 at Upokpi village, Bishnupur District, Manipur. Farmers’ Field Day was inaugurated by the Chief Guest, Dr Dhiraj Singh, Director, DRMR, Bharatpur, Rajasthan and Dr M. Premjit Singh, presided over the function.

(Source: Dr Amarpreet Deol, Special Assistant, (Research to CEO); preet.deol@cffresearch.org)

India

Book entitled “India's Perspective Policy on Agriculture” released by Kamdhenu University, Gandhi Nagar, Gujarat

A book entitled “India's Perspective Policy on Agriculture” edited by Prof M.C. Varshneya and Anil Javalekar, was released by Hon. Minister of Agriculture and Cooperation, Government of Gujarat, during the inaugural session of Groundnut Workshop held at Junagadh Agricultural University, Junagadh, on April 18, 2016. This book is the compilation of policies on different aspects of agriculture and is a unique initiative taken with an objective that policy planners can take a holistic view on the agricultural sector.



Book on 'India's Perspective Policy on Agriculture' released by Hon'ble Minister of Agriculture and Cooperation, Govt. of Gujarat

Authors have suggested policies for each tenet of agriculture in a scientific manner keeping the farmer in the central focus specially marginal and small farmers, who are producing food, fodder, fuel and fiber not only for themselves and their families but for the population of the whole country, as well as neighboring countries. Policy context has been very well perceived by all the authors, who have contributed papers on different tenets of agriculture, viz., an overview of Indian Agriculture, policy intents, challenges, objectives and strategies, future of agriculture and its role in Indian economy, rain prediction and climate change, land use, production enhancement, horticulture, agroforestry, organic farming, seed, fertilizer, pesticides, farm machinery, water harvesting, livestock, dairy, fisheries, aquaculture, rural energy, post-harvest, agro-processing, warehousing, marketing, risk management and world trade. The book will be immensely useful to policy makers, researchers and students in the field of agriculture and will serve as a guiding source for evolving better policies relevant for different eco-geographies of India and its states in particular. Thus book itself is a think tank for all those who are interested in agricultural policy planning.

Kamdhenu University signs MoU with NDDB

A Memorandum of Understanding (MoU) between Kamdhenu University (KU) and National Dairy Development Board (NDDB) was signed at Gandhinagar, Gujarat on 5 May 2016 for providing support for establishment of Center of Excellence in Animal Reproduction and Translational Research. On the occasion, Prof M.C. Varshneya, Vice Chancellor, Kamdhenu



Signing of MoU between Kamdhenu University and National Dairy Development Board

University, said that with signing of this MoU, a new chapter of collaboration with NDDB has begun in the field of dairy and animal husbandry, which will provide an opportunity to study impact of various interventions of productivity of cattle and buffalo breeds of India, and develop joint research proposals in the areas of dairying and animal husbandry. He further solicited cooperation in exchange of know-how on various aspects of animal husbandry and dairying, such as software development and database management, and also delineated the area of cooperation in consultancy, training, education and research through faculty and students. He stressed that opportunities to researchers and students of Kamdhenu University would be provided to conduct research using NDDB run field program, information generated from such field programs or using NDDB run laboratories on mutually agreed research topics. The MoU will also facilitate the officers of NDDB to pursue postgraduate studies along with their work as in-service candidates in various institutions of Kamdhenu University.

Dr R. Kasiraj, General Manager (Animal Breeding Group), National Dairy Development Board (NDDB) said that this MoU would provide vast opportunity of joint activities for NDDB, which would surely benefit cattle and animal owners and also explore areas of research needed in the field of animal husbandry for increasing the productivity of indigenous cattle.

(Source: Prof M.C. Varshneya, Vice Chancellor, KU, Gandhinagar, vc.kamdhenu.university@gmail.com)



The Philippines

SIPAG FIESTA Forum Features Technology Breakthroughs

The Forum, which was part of the three-day SIPAG FIESTA (Strategic Industry Science and Technology Program of Agri-Aqua Growth-Farms and Industry Encounter through Science and Technology Agenda), was spearheaded by the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) of the Department of Science and Technology (DOST). Showcasing the best of the Council's R&D initiatives from 2010 to 2016, SIPAG FIESTA provided a technology forum where important achievements on crops, livestock, aquatic, forestry, and natural resources were presented.

Aquatic technologies

Aquatic experts from the University of the Philippines Visayas (UPV), Southeast Asian Fisheries Development Center (SEAFDEC), and UP Diliman-Marine Science Institute (UPD-MSI) discussed their respective research outputs. Prof Valeriano L. Corre, Jr. of the University of the Philippines in the Visayas, discussed the use of a disease diagnostic kit for detecting white spot syndrome virus (WSSV) and other shrimp pathogens.

Prof Valeriano L. Corre also discussed the biofloc technology, which uses multiple layers of microorganisms in water to enhance nutrition and control disease of shrimp.



Prof Valeriano L. Corre, Jr. of the University of UPV discusses shrimp biotechnology at the SIPAG FIESTA Techno Forum

Dr Emilia T. Qunitio, Head, Dumangas Brackishwater Station of the Southeast Asian Fisheries Development Centre (SEAFDEC), Aquaculture Department discussed the opportunities in mangrove crab as an export commodity, the use of marine annelid to ensure mangrove crab's nutritional requirement, as well as the production of high value soft-shell crab. Marine annelid is a formulated diet, which contains higher levels of total lipids and highly unsaturated fatty acid that can improve larval performance.

Dr Aletta T. Yniguez of the University of the Philippines Diliman-Marine Science Institute provided information about the Benham Rise, a deep-water biodiversity hotspot located off the coast of Aurora province and its exploration which was funded by DOST-PCAARRD.

Livestock technologies

Significant outputs under the Industry Strategic S&T Plan (ISP) as discussed during the Forum include slaughter goat, dairy goat, native chicken, duck, pork, dairy buffalo, and feed resources. The Goat ISP led to the development of the "Farmer Livestock School on Goat Enterprise Management (FLS-GEM)", an e-learning course on goat and artificial insemination (AI) system.

"FLS-GEM has benefited 214 technicians, 485 farmers, and 831 entrepreneurs," according to Anna Marie P. Alo,



Dr Teresita A. Narvaez, Director WESMARRDEC answering the questions about native chicken

Supervising Science Research Specialist, Livestock Research Division (LRD), PCAARRD. Dr Synan S. Baguio, LRD Officer-in-Charge, discussed native chicken production.

"Free range production protocols for four native chicken strains, including *Darag*, *Camarines*, *Manok Bisaya*, and *Zampen*," were developed under the Native Chicken ISP," Dr Baguio explained.

The program was also able to develop ethnobotanical anthelmintics and Newcastle Disease (NCD) vaccine to control gastro-intestinal parasitism and the annual NCD outbreaks, which cause 90 per cent mortality in native chicken flocks.

Forestry and natural resources technologies

Dr Ma. Victoria O. Espaldon of the UPLB-School of Environmental Science and Management tackled the topic Smarter Approaches to Reinvigorate Agriculture as an Industry (SARAI) in the Philippines.

SARAI aims to provide a decision support system for farmers in dealing with the effects of climate change in the agricultural sector using advances in S&T.

Dr Rex Victor O. Cruz, a forestry and natural resources sector expert of UPLB discussed watershed management for climate resiliency for a sustainable agri-aqua industry.

Crop technologies

The Crops Research Division (CRD) led the forum for the crops sector, which focused on six commodities: abaca, mango, rice, banana, coconut, and peanut. Dr Gil Magsino of the University of the Philippines Los Baños-National Crop Protection Center (UPLB-NCPC) discussed radiation-modified carrageenan plant growth promoter (PGP) in rice. The technology produced 15-30 per cent average increase in rice yield in multi-location trials conducted in Bulacan, Nueva Ecija, Laguna, and Iloilo.

Dr Olivia P. Damasco of UPLB-Institute of Plant Breeding and Dr Lourdes C. Generalao of the University of Southeastern Philippines (USP) discussed irradiated Lakatan, a technology that addresses banana bunchy top virus (BBTV) and *Fusarium*



Dr Ma. Victoria O. Espaldon of UPLB discusses smarter agriculture during the Forestry and Natural Resources Forum



Dr Gil Magsino of the UPLB-NCPC discussing the benefits of carrageenan plant growth promoter in rice

Wilt Tropical Race 4 through varieties and biological control, respectively.

AAFNR Techno Forum

Jose Tomas M. Cabagay, Supervising Science Research Specialist, Technology Transfer and Promotion Division (TTPD) discussed the prospects of agribusiness entrepreneurship for high school graduates. He stressed that unemployment in the country can be reduced if Filipinos would consider getting into agribusiness or get self-employed.

Dr Melvin Carlos, TTPD Director, encouraged students to pursue tertiary and post-graduate courses specializing in agriculture, aquatic, forestry and natural resources disciplines in order to fill up the lack of professionals in the field.

“The country is faced with the concern of having more than 3,000 ageing researchers and scientists in the said sectors,” Carlos said.

(Source: Rose Anne K. Mananghaya, DOST-PCAARRD S&T Media Service)

Villar Lauds SIPAG FIESTA

Senator Cynthia A. Villar, Senate Chairperson on Agriculture and Food, lauded the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development of the Department of Science and Technology’s (DOST-PCAARRD) SIPAG FIESTA is a vital science and technology diffusion strategy, which could impact on the lives of the country’s 11.8 million agricultural workers.



Senator Villar addressing SIPAG FIESTA participants on the final day of the event

Ms Villar served as keynote speaker on the third and final day of the event which gathered the agriculture-aquatic and natural resources (AANR) research and development stakeholders. “SIPAG FIESTA depicts a bright landscape for the country’s farmers and fisherfolks, who in most cases do not have access to technologies and know-how and do not possess the necessary financial literacy,” Ms Villar explained.

She said that an ordinary farmer in the country earns an average of P4,000 (\$ 87.97)/month, while a coconut farmer earns even lower at P1,500 (\$ 32.99)/month. These earnings are far below the poverty threshold of P5,300 (\$ 116.56)/month. There is, therefore, a need to help our farmers produce more at lesser cost for them to be competitive.

Ms Villar, however, refuses to accept that the agricultural sector leads the dip in the country’s poverty threshold, noting the case of Benguet Province, an agriculture area, which registers a poverty index of only 2.8 per cent. She further mentioned

New APAARI Members

Regular Member:

- National Agriculture and Forestry Research Institute (NAFRI), Vientiane Capitol, Lao PDR

Associate Members:

- Kamdhenu University (KU), Gandhinagar, India
- Tamil Nadu Agricultural University (TNAU), Coimbatore, India
- Uttarakhand University of Horticulture and Forestry (UHF), Bharsar, India

Affiliate Member:

- Sardarkrushinagar Dantiwada Agricultural University (SDAU), Sardarkrushinagar, India

Reciprocal Member:

- Global Open Data for Agriculture & Nutrition (GODAN), Wallingford, United Kingdom

that the country’s agriculture is not really that unrewarding after all; it is more of the right attitude and the adoption of the right technology.

Ms Villar sees SIPAG FIESTA as a good venue for the gathering of the best technological options for the benefit of the country’s farmers and fisherfolks, as she also praised PCAARRD and its partner agencies’ effort in providing the answer to almost every research and development gaps, such as those that concern abaca, shrimp, rubber, and rice. She emphasized that with improved technologies, particularly in rice, it is possible bring down the cost of production in the country from P 12.34 (\$ 0.27)/kg (cost of dry paddy production in 2013) to as low as P8.50 (\$0.19)/kg as in Thailand, or even to as low as P5.50 (0.12)/kg as in Vietnam (based on 2015 average exchange rate of 1 USD = P 45.47).

Ms Villar also noted DOST-PCAARD as a potential venue for “lakbay aral,” (study tour) which according to her, is better than the premiere exhibits in Manila for similar concerns. Alluding to the gains of ‘Smarter Approaches to Reinvigorate Agriculture as an Industry in the Philippines’, she praised DOST-PCAARRD’s efforts in providing farmers and decision makers with sound science-based judgments under certain situations, particularly in dealing with the effects of climate change, using science and technology based tools. As Senate’s Chair for Agriculture and Food, she explained their vital linkage as tools towards achieving the country’s food sufficiency. She also mentioned the important role of the University of the Philippines as a premiere institution for agricultural concerns in shaping up the fate of the country’s agricultural sector.

(Source: Ricardo R. Argana, DOST-PCAARRD S&T Media Service)



GFAR

GCARD3: An Agenda for Action

The Global Conference on Agricultural Research and Development (GCARD) organised in Johannesburg, 5-8 April 2016, generously hosted by the South African Agricultural Research Council, that also showed us great examples of the benefits of agricultural research and innovation. Building from previous dialogues and agreements in GCARD1 and GCARD2, informed by 20 national consultations and four regional processes, GCARD3 was a truly global gathering, with over 500 participants from 83 countries across 15 different recognized sectors, and with many more joining via social media. GCARD3 had a strong emphasis on the involvement



Group discussion at GCARD3

of youth, women, farmers and grassroots actors from around the world, and thus was an international, diverse and highly energized and interactive event.

The emphasis of the GCARD3 was very much on active participation and building on the personal commitment of all involved to work together to bring the needed change for which collective action is vital.

Through GCARD3, we have together set a clear path forward, defined by our own commitments, our ambitions, and our hopes for the future. We have a new shared vision and we have agreed on a range of collective actions that all of us will embrace, and will deliver before we come together in three years' time for GCARD4. These actions will resonate around the world, because they were formulated through the collective voices of farmers and producers, youth, women's groups, consumers, advisers, researchers, civil society, the private sector, universities, policy makers and development partners; all caring about the role of agri-food research and innovation in ensuring sustainable development for humanity.

Together, we agreed on collective actions across five themes:

Ensuring better rural future: Establish foresight platforms that bring together farmers (via farmer organizations in Africa, Asia-Pacific, Central Asia/Caucasus, Latin America, Europe, the Mediterranean basin and the Near East and North Africa (NENA) regions) with research and innovation actors from

around the world to develop and select preferred future scenarios – and through these, collectively plan, design and implement initiatives to change the present to shape and achieve the desired future.

Keeping science relevant and future-focused: Produce 1,000 additional PhDs a year in future-relevant agricultural research, with reform across 100 universities in five continents to ensure that multidisciplinary training meets both technical needs and the wider skills needed in development. Continue professional development in agriculture for innovation and entrepreneurship in agricultural practices, products and services.

Scaling up from research to impact: Develop a culture of alignment between different actions towards impact. Lobby for investment and capacity building, in particular for youth, foster the policies required, and embed research into innovation systems through effective brokerage. This will require greater, smarter and more integrated investment and capacity development, involving the public, private and civil sectors.

Showcasing results and demonstrating impact: Build on the lessons learned from past experiences and frameworks, to contribute to national measurements of progress towards the Sustainable Development Goals (SDGs), and build national capacities for integrated measurements that are fully engaged with stakeholders. Create a platform to harmonize agriculture-related indicators linked to the SDGs, in order to improve collective action for impact.

Sustaining the business of farming: Cluster small farmers for greater participation in R&D, and for stronger links to finance and markets. Build value chain partnerships for success that recognise traditional farming methods and practices, and address public health and nutrition concerns. Develop demand-driven evidence to enrich policy and attract finance. Protect small farmers' access to resources and build their business skills, opening innovation platforms for farmers to provide access to new technologies and make farming a business.

Partners in the Global Forum on Agricultural Research (GFAR) are committed to helping ensure that these processes succeed. GFAR is an open and inclusive forum, driven by the commitments of partners from all sectors to transform our agri-food systems and deliver on the SDGs. The GFAR Partners' Assembly, held just before the GCARD3 event, agreed a new Charter and governance that recognises all partners in the Forum as equals and as innovators, empowered to play their roles, and working together to shape the future of agriculture and food systems. The agenda set out in GCARD3 will shape



Dr Mark Holderness addressing GCARD3 at Johannesburg

GFAR's next Medium-Term Plan. We welcome all like-minded partners into these efforts. If you would like to become a recognised GFAR Partner in any of the above collective actions, based on your own interests, simply express your interest by writing to gfar-secretariat@fao.org.

The GCARD3 dialogues do not stop with Johannesburg. We will continue to further develop these collective actions together. The GCARD3 dialogues will also continue to help shape the new research programs of the CGIAR, discussed through the GCARD3 national consultations and Conference and now available in full for public feedback. These outcomes will also be taken forward to inform the agriculture-related SDGs and feed into policy processes, such as those of the G20.

What GCARD3 has done, perhaps for the first time ever, is to truly link agricultural science and society. GCARD3 succeeded through the energy and commitment of all those who took part in this event, a wonderful effort by all involved. Through this active participation, we have all been able to help bring down the walls between institutions, between sectors, between communities and between nations, with youth shaping a new future, for which we are all responsible and must each play our part.

The processes of change have begun and they will succeed because they are based on reality and common-sense. We know it will be challenging for all of us to maintain the momentum from the amazing energy we achieved together in Johannesburg, but we have to drive forward. It is essential that agri-food research and innovations now deliver their full contribution to the sustainable development needs of humanity.

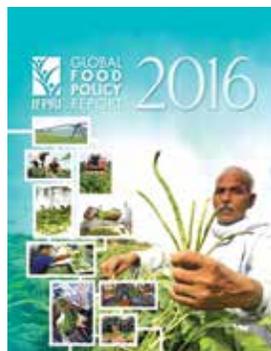
(Source: Charles Plummer, Administrative Officer, GFAR; charles.plummer@fao.org)



IFPRI

Reshaping the Global Food System for Sustainable Development

The recently released 2016 Global Food Policy Report focuses on building a food system that works for people and the planet. IFPRI's annual flagship publication reviews major trends, events, and changes affecting food security and nutrition in 2015 and looks ahead to the challenges the world will face in 2016. As the Millennium Development Goals reached their endpoint, the world has taken on the more expansive SDGs as well as new Climate Change Goals. Today's global food system has the following major weaknesses: nearly 800 million people are left hungry, one-third of the world's population are malnourished, a substantial share of food produced is lost or wasted, and



IFPRI Report on Global Food Policy 2016

agricultural practices contribute to degradation of soils and water and climate change. "The Sustainable Development Goals task us all with the challenge of eradicating hunger and undernutrition in 15 years or less," said IFPRI's Director General, Shenggen Fan, "If we are to meet these goals, we have a lot of work ahead."

This year's Global Food Policy Report examines the latest research on opportunities and challenges the world will face in achieving the many SDGs that are linked to our food systems. Chapters on smallholder farmers and the SDGs, sustainable diets, food loss and waste, water management, soils, and value chains and sustainability make it clear that we already have good evidence on how to address the new challenges. Building food systems that are sustainable, climate-smart, nutrition- and health-driven, inclusive, efficient, and business-friendly will be the key to meeting the SDGs. The report points to win-win opportunities for addressing the SDGs, including the SDGs on food security and nutrition, gender equality, water and sanitation, and employment, as well as the COP 21 commitments. Support to smallholders, for example, through investment in irrigation technologies, can improve the efficiency of water use, and generate water savings, better access to clean water and sanitation, and improved nutrition.

Regional analyses look at particular trends and events that have shaped food security around the world over the last year. In Asia, these include El Niño and natural disasters, as well as economic slowdown in China, but also progress on food safety in East and South Asia, new policies on seeds and biofortification, along with investments to support smallholders in South Asia, and prospects for the Trans-Pacific Partnership. The report also provides data on key food policy indicators, including country-level data on hunger, agricultural spending, agricultural research investment, and food policy research capacity.

The report will be launched in several Asian cities—including Beijing, Kathmandu, and New Delhi—in coming weeks.

The full report is available at <http://ifpri.org/gfpr/2016>.

(Source: Xinyuan Shang, Communications Specialist, IFPRI; x.shang@cgiar.org)



CABI

Plantwise Wins the OECD DAC Prize 2015

Plantwise countries in the Asia-Pacific region received international recognition in March 2016 for their work implementing the CABI-led food security program, Plantwise. The OECD DAC Prize 2015 for innovation was awarded to the Plantwise Plant Health Initiative, which helps farmers lose less and feed more in 34 countries around the world.

Plantwise operates in ten countries in the Asia-Pacific region, with over 1,800 trained plant doctors supporting smallholder



CABI receives the OECD DAC Prize 2015 in Paris (©CABI)

farmers with practical plant health information. The award is testament to the important contribution that partners across the region make to the program.

This international award, which was presented in Paris on 9 March 2016, recognises the initiatives that take innovative approaches that have been scaled-up and make a difference to people's daily lives. This prestigious award recognises the efforts of all the Plantwise supporters and partners – over 168 worldwide – 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.

A video showing how Plantwise works and its impact at scale was delivered in Paris at the award ceremony: <https://youtu.be/8-2PljBG9OI>

Raj Kumar, Chair of the Humanitarian Council of the World Economic Forum and Member of the DAC Prize Jury, said: "Plantwise's promising partnership model is exactly the sort of innovation we need to reduce plant loss and combat hunger around the world."

Sustainable Tea Production - An Ecological Approach to Pest Management - A Unilever-CABI Initiative

India is the largest producer of black tea in the world, which is consumed as a low cost hot beverage globally. At present, tea crops grow in more than 50 countries around the world; countries where tea is infected by more than one thousand insect and mite species. Various synthetic pesticides are widely used to control these pests.

However, the excessive use of chemicals has caused various ecological, economical and health problems. Currently, the biggest challenge for tea growers in India is to combat pests

and diseases through non-chemical, eco-friendly, sustainable pest management by avoiding the use of toxic chemicals.

CABI was commissioned by Unilever Ltd. to develop a roadmap for sustainable tea production through a project which aims to assemble a toolkit for non-chemical, economic pest management practices in the tea ecosystem. So far, the research has been localized to Assam, but in subsequent years it will be up-scaled to other tea producing zones of India, as well as other regions.

The field experiments have researched trials of non-chemical approaches like use of Hot Melt Pressure Sensitive Adhesive (HMPSA), tree banding, standardised use of traps, pheromones, ecological farming, nutrient composting, etc. They are giving very encouraging results and replicability. In a recent interactive workshop, tea growers gave an optimistic response to the non-chemical approach. The project emphasizes a systems' approach of environmental health, soil health and bush health with optimum pest-predator ratio to keep the pest population below Economic Threshold Limit (ETL) levels.

Aside from the sustainable production aspects, this project is also playing a key role in changing the mindset and approach to pest management among planters, who generally assume that chemicals are the best and only solution for pest management.

(Source: Rachel Winks, CABI; r.winks@cabi.org)



CFF

Insect Meal: An Ocean of Opportunities Workshop

Over 60 participants from the private sector, research institutes, universities as well as NGOs attended the "Insect Meal: An Ocean of Opportunities" Workshop organised by FishPLUS, one of the research programs of Crops for the Future (CFF). The purpose of the Workshop was to share the findings and experience from the research conducted by FishPLUS and the University of Nottingham. The research entitled "Insect and Underutilised Crops Aquafeed Project on the Utilisation of Black Soldier Fly (*Hermetia illucens*) in Aquaculture Feed" was supported by the Newton-Engku Omar Grant. The research used pre-pupae fed on underutilised crops as a fish meal substitute in aquaculture feeds. The workshop program comprised of papers by a number of local and overseas



Participants of the Workshop

experts such as Abu Talib Ahmad, Director of Research of the Department of Fisheries, Malaysia; Prof Sungchul C. Bai from Pukyong National University, South Korea; Prof Yew-Hu Chien of the National Taiwan Ocean University, Taiwan; Jesse Willems of University of Stirling, Scotland; Prof Andrew Salter of University of Nottingham, UK; and Guillaume Daoulas of Ynsect, France. FishPLUS aims to identify alternative, underutilised plant-based products that better feed and protect aquaculture fish stocks against disease.

University of Reading's expertise in climate change and social development with CFF's expertise in agricultural biodiversity and climate resilient cropping systems in Southeast Asia. During the week, the participants worked with mentors from both CFF and the Walker Institute on a number of training exercises which helped them to develop their proposals.

(Source: Dr Amarpreet Deol, *Crops for the Future*, Kualampur, Malaysia; preet.deol@cffresearch.org)

Agro-Innovation Workshop

CFF and the Walker Institute for Climate Research of the University of Reading hosted the Agro-Innovation Workshop on 14-18 March 2016. The program involved a total of 33 early career research leaders across a range of disciplines and from a number of leading research institutes in both Malaysia and the UK. During the week, these researchers worked together with the intention of developing new and imaginative proposals for innovative agriculture technologies to tackle the challenges that climate change poses to agriculture in Malaysia. The workshop was designed as an interdisciplinary program. It combined the

New APAARI Publications

- APAARI Vision 2030: Strengthened Research and Innovations for Sustainable Agricultural Development
- APAARI Flyer 2016



Dr Nick Austin Retired as CEO, ACIAR



Dr Nick Austin served as the CEO of ACIAR for seven years and completed his tenure in June 2016. Dr Austin led ACIAR through a time of significant change, which has seen Australia's efforts in international agriculture research become a central pillar of the broader Australian aid program and highly valued by the international agricultural research community, including through the membership of APAARI. Importantly during Dr Austin's tenure, there has been a re-focus on agricultural research contributing towards livelihood improvement, overcoming poverty and supporting sustainable economic growth, and at a grassroots level increasing the productivity, profitability and sustainability of smallholder farmers throughout the Asia-Pacific region.

The Asia-Pacific region is at the threshold of a new era, where economic growth and increasing investment in science and research, particularly by the private sector, are opening up new opportunities. This means that the region is experiencing a major reorientation towards agriculture and agri-food systems for both development and commercial reasons, with an increased need to ensure smallholder farmers benefit from these opportunities of market engagement and the utilisation of innovation and technology to improve their productivity, profitability and sustainability. However, these transformational opportunities in the region's agri-food systems are reliant on rapid innovation, which is underpinned and driven by targeted research, active partnerships and collaboration for which a strong foundation has been well laid by Dr Austin. Both ACIAR and APAARI's role remained critical in this time of rapid transformation of the region to which Dr Austin contributed significantly.

The delivery of impact through international research partnerships has been at the heart of ACIAR's approach led by Dr Austin in the region. To continue to deliver impact through investments in agri-food system research, outcomes will need to be taken to scale through effective communication, the right policy setting environment and the requirements for incentives to enable smallholder adaptation of innovation and consumer behavior. Dr Austin will remain involved in addressing a number of the challenges outlined and the opportunities that international agricultural researches bring to bear on these challenges through his appointment as interim Executive Director of the CGIAR based in Montpellier.

APAARI is highly grateful to Dr Nick Austin for his dedicated services and outstanding contribution and support to APAARI and wishes him great success in his future endeavors.

Chief Executive Officer, ACIAR

Prof Andrew Campbell has been appointed as the CEO of Australian Centre for International Agricultural Research (ACIAR) and will join on 31 July 2016. Prior to this, he worked as the Director of the Research Institute for the Environment and Livelihoods at Charles Darwin University. Prof Campbell brings to the position of CEO a wealth of experience and a passionate belief in the vital role international agricultural research for development can play in building healthier, more equitable and prosperous societies. Previously Managing Director of Triple Helix Consulting, Prof Campbell has played influential roles in natural resource management in Australia for 30 years. Notably, Prof Campbell was instrumental in the development of Landcare in Australia and was the first National Landcare Facilitator. He was Executive Director of Land & Water Australia from 2000-2006 and has also held senior policy roles in land, water and biodiversity management in the Australian Government.



Prof Campbell's seven-year leadership of Land & Water Australia (LWA) was characterized by rapid growth in national research partnerships with industry, a quantum lift in communication effort across multiple platforms, a sharpened focus on managing knowledge assets to catalyze faster adoption and greater impact, and continuous improvement in portfolio evaluation strategies to measure impact through time. National collaborative research programs initiated and managed by LWA during this time included Managing Climate Variability, Sustainable Irrigation, Grain and Graze, Healthy Soils for Sustainable Farms, Land Water and Wool, Defeating the Weeds Menace, Environmental Water Allocation, and Tropical Rivers.

Prof Campbell has written widely on Landcare, sustainable agriculture and knowledge management issues at the interface between science and policy. Among more than 100 publications, his books include *The Getting of Knowledge* (Land & Water Australia 2007), *Landcare* (Allen & Unwin 1994), and *Planning for Sustainable Farming* (Lothian 1991). His most recent journal article (2015) analyses success factors for collaborative, multi-institutional applied research programs.

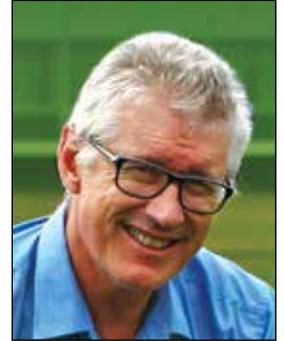
In recent years, Prof Campbell has particularly focused on the 'converging insecurities' of food, water and energy. He contends that, as agriculture is the dominant land use, major employer, main consumer of water and a significant source of greenhouse gas emissions in developing countries, then designing more productive and sustainable farming systems is the most powerful lever that can be deployed to make better use of land, water and energy and mitigate carbon emissions.

Prof Campbell delivered 75 invited keynotes over the last decade in Australia and internationally. He is a proactive user of

digital media through blogs and social media and is interested in strategic deployment of these tools in applied research. Over the last five years based in Darwin, he has developed research and teaching partnerships in natural resource management and sustainable agriculture in South East Asia, in particular in Indonesia, Timor-Leste and the countries of the Mekong Basin.

Director General, IRRI

Dr Matthew Morell joined as the Director General of International Rice Research Institute (IRRI) in December 2015. He brings with him decades of leadership experience in scientific excellence, an understanding of private-public partnerships, a sound capacity for stakeholder engagement, protection of intellectual property, and people engagement skills. As Director General, Dr Morell is the institute's Chief Executive Officer (CEO), directly managing and administering its affairs in accordance with the policies and decisions of the IRRI Board of Trustees. He sets the institute's strategic direction in close consultation with the Board.



Prior to this, Dr Morell was Deputy Director General (Research), providing strategic leadership to IRRI's research and outreach programs across various dimensions of rice science, including climate change-ready rice, healthier rice varieties, environmentally sustainable farming systems, farmer-friendly crop management and value chain practices, timely and accurate provision of rice information, capacity building, and building the next generation of rice scientists. He was theme leader for 17 years at the Commonwealth Scientific and Industrial Research Organization (CSIRO) where he led a research program on "Future Grains and Plant Oil Production".

Dr Morell also has extensive experience in identifying, protecting, and managing intellectual property, as well as establishing a means for strong compliance with the requirements of gene technology regulations, genetic modification stewardship, and occupational health and safety legislation. He holds a Ph.D. degree in agricultural chemistry from the University of Sydney, completed his postdoctoral studies at the University of Michigan and the University of California, Davis, and served as research fellow at the Australian National University.

Secretary DARE & Director General, ICAR

Born on 20 April 1962, Dr Trilochan Mohapatra, is an alumnus of Indian Agricultural Research Institute, New Delhi from where he completed M.Sc. (1987) and Ph.D. (1992) in Genetics with Molecular Genetics



and Genomics as major area of research. The Government of India appointed him to the present position of Secretary, Department of Agricultural Research and Education (DARE) and Director General, Indian Council of Agricultural Research (ICAR) in February 2016. Prior to the present assignment, he served as Director, Indian Agricultural Research Institute, New Delhi; Director, National Rice Research Institute, Cuttack, and as a researcher and teacher for about 20 years at the National Research Centre on Plant Biotechnology, New Delhi. His research accomplishments include development of the first high yielding *Basmati* rice variety resistant to bacterial leaf blight through molecular marker assisted selection, and physical mapping and genome sequencing of rice and tomato. He published 145 research papers in reputed national and international peer reviewed journals. Dr Mahapatra is a Fellow of the prestigious Indian National Science Academy (INSA), New Delhi, National Academy of Sciences (NAS), Allahabad and the National Academy of Agricultural Sciences (NAAS), New Delhi.

Permanent Secretary, MoA

Mr Jitendra Singh was appointed as the Permanent Secretary for Agriculture in the Fijian Government on 21 March 2016. In this capacity, he also serves on the Executive Committee of the Asia-Pacific Association of Agricultural Research Institutions (APAARI), as Chairman of the Agricultural Facilitation Committee and as Director of Viti Corps Company Limited and National Employment Centre in Fiji. In addition, Mr Singh is the Alternate Liaison Officer for Fiji for the Asia-Pacific Coconut Community.



Mr Singh is an economist and he started his career with the Reserve Bank of Fiji as a Technical Assistant in 1997. He moved swiftly through the ranks of Economist and Senior Economist and was subsequently appointed as the Chief Manager (Economics) for the Bank in 2009. His main duties included formulating Fiji's monetary policy, economic analysis and research in fields such as the external and domestic economies, financial conditions and price developments. In addition, Mr Singh held the Secretariat of the National Macroeconomic Policy Committee, which is tasked with forecasting Fiji's national, trade and balance of payments accounts and making submissions towards the National Budget process.

Immediately prior to joining the Ministry of Agriculture in Fiji, Mr Singh served as Fiji's Trade Commissioner to the Americas (Los Angeles Office, USA) for the Fijian Government from August 2010 to March 2016. He was instrumental in expanding trade between Fiji and the Americas, as well as investments in Fiji.

Mr Singh's educational qualifications include a Bachelor of Arts in Economics and Information Systems and a Post-Graduate Diploma in Economics from the University of the South Pacific in Suva, Fiji. As a Chevening Scholar, Mr Singh obtained a Master of Science Degree in Economic and Social Policy Analysis from the University of York, United Kingdom. He is recipient of Gold Medal for the Outstanding Student graduating in Economics.

Secretary/Director, SLCARP

Dr J.D.H. Wijewardena joined as the Secretary/Director of Sri Lanka Council for Agricultural Research Policy (SLCARP) on 6 May 2016. Prior to this, he served as an Additional Secretary (Development) in the Ministry of Agriculture, Sri Lanka during 2015-2016, Director (Organic Fertilizer), Ministry of Agriculture from 2009-2015, Deputy Director (Research), Department of Agriculture from 2005-2009 and Research Officer, Department of Agriculture, Sri Lanka from 1983. Serving the Government of Sri Lanka for more than 32 years, Dr Wijewardena has successfully handled research programs on rice, fruits, vegetables and other field crops.



Dr Wijewardena obtained his M.Phil. degree from the University of Tashkent, Tashkent, former USSR. He obtained his Ph.D. from the University of Aberdeen, United Kingdom. He has specialized in soil science and plant nutrition. His research areas of interest are soil fertility, agronomy, organic and chemical fertilizers, crop production, organic farming and agriculture development.



New APAARI Staff

Ms Celilu Bitong joined APAARI as Knowledge Management Officer on 28 April 2016. She is a native of the Philippines and worked as a research and technical staff for the Philippine Statistics Authority and the Department of Trade and Industry. Later, she moved to Thailand and served as a Senior Web Programmer on an automotive media firm, Grand Prix International Public Company Limited prior to joining APAARI. She assists in the implementation of APAARI's Knowledge Management Program and provides web and IT support. She obtained Bachelor's degree in Applied Statistics from Polytechnic University of the Philippines.



Forthcoming Events

Forthcoming APAARI Meeting/Workshops

- APAARI Executive Committee (EC) Meeting at Bangkok in August 2016
- FAO - ITU E-agriculture Solutions Forum (29-31 August 2016), and Training-of-Trainers Strategy Development (1-2 September 2016) at TOT Academy Nonthaburi, Thailand
- APAARI General Assembly Meeting in Chinese Taipei in November 2016
- APCoAB and APARIS Steering Committee (SC) meetings at Bangkok in August 2016
- Expert Consultation on Successful Agri-Food Innovations in Asia and the Pacific in Taichung City, Chinese Taipei on 1-3 November 2016
- 1st International Agrobiodiversity Congress: Science, Technology, Policy and Partnership at New Delhi, India, 6-9 November 2016

Forthcoming International Conferences/Events

- Australian Pulse Conference at Tamworth, New South Wales, Australia, 12-14 September 2016
- 7th International Rice Blast Conference (IRBC07) at Manila, Philippines, 9-14 October 2016
- FOOD 2030 Conference: Research and Innovation for Tomorrow's Nutrition and Food Systems at Brussels, Belgium, 12 October 2016
- International Conference on Agri-Chains and Sustainable Development (AC&SD 2016): Linking Local and Global Dynamics at Montpellier, France, 12-14 December 2016

APAARI Participation in other Fora/Meetings

- Dr Raghunath Ghodhake, Executive Secretary, APAARI participated in Forward Thinking Agricultural Development in Western India at Sardarkrushinagar, Gujarat, India, 8-10 February 2015.
- Dr Raghunath Ghodake, Executive Secretary, and Ms Martina Spiciakova, Knowledge Management Coordinator, APAARI, participated in the 3rd Global Conference on Agricultural Research for Development (GCARD3) at Johannesburg, South Africa, 5-8 April 2016.
- Dr Raghunath Ghodake, Executive Secretary, APAARI participated in ASEAN Technical Working Group Meeting on Agricultural Research and Development (ATWGARD) in Brunei on 28-29 April 2016.
- Ms Martina Spisiakova, Knowledge Management Coordinator, APAARI, participated in the Inception Meeting of the Tropical Agriculture Platform – Capacity Development for Agricultural Innovation Systems, in Vientiane, Lao People's Democratic Republic, 8-9 February 2015.
- Dr Bhag Mal, Senior Consultant, APAARI, attended a meeting of the Core Group on Coalition for Attracting and Retaining Youth in Agriculture (CARYA) held at NASC Complex, Pusa, New Delhi, India, 20 May 2016.
- Dr Bhag Mal and Dr J.L. Karihaloo, Senior Consultants, APAARI, attended Technical Committee Meetings of 1st International Agro-biodiversity Congress held at NASC Complex, DPS Marg, New Delhi; 16 April 2016 and 7 June 2016.
- Dr J.L. Karihaloo, Senior Consultant, APAARI participated in Strategy Workshop: Towards Self-sufficiency of Pulses held at NASC Complex, DPS Marg, New Delhi, 7-8 April 2016.

Outgoing APAARI Staff



Dr Vilasini Pillai, APCoAB Coordinator left APAARI on 31 January 2016 due to personal reasons. She coordinated the APCoAB Program during her short stay of ten months in APAARI.

Ms Urairat Rujirek left APAARI on 4 April 2016. She served APAARI for over 18 years as Secretary-cum-Accountant, Administrative Associate and later as Administrative Officer and provided invaluable services in administrative and finance-related activities and a good support in general administration.



Ms Khatiya Ounjai left APAARI on 31 May 2016 for higher studies. As a Technical Assistant, she provided good technical help to the APCoAB Coordinator and later to the Knowledge Management Program.

APAARI takes this opportunity to thank Dr Vilasini Pillai, Ms Urairat and Ms Khatiya Ounjai for their hard work, support and cooperation and wishes them a great success in their future career.

Executive Committee

<i>Chairman</i>	:	Mr Somchai Charnnaroungkul
<i>Vice-Chairman</i>	:	Dr Abul Kalam Azad
<i>Members</i>	:	Ms Mellisa Wood Dr Reynaldo Ebor Dr Hemantha Wijewardena Mr Jitendra Singh Dr Mark Holderness Mr Tony Simons Dr Muhammad Musa Ms Esther Penunia Ms Heidi Gallant
<i>Executive Secretary</i>	:	Dr Raghunath Ghodake

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