SEAMEO SEARCA

PHILIPPINES AND SEARCA

ATTAIN
ACCELERATING TRANSFORMATION THROUGH AGRICULTURAL INNOVATION

SEARCA's headquarters was constructed with funding from the International Development Research Centre (IDRC) of Canada and the Government of the Philippines.

Established in 1966, the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) is one of the 26 specialist institutions of the Southeast Asian Ministers of Education Organization (SEAMEO), a treaty organization that promotes regional cooperation in education, science, and culture.

The SEAMEO member countries are Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste, and Vietnam. The associate member countries of SEAMEO are Australia, Canada, France, Germany, Morocco, the Netherlands, New Zealand, Spain, and the United Kingdom. The Philippines is one of the founding member countries of SEAMEO, which was established in 1965.

SEARCA's objectives are to:

1. Provide high-quality graduate education and training in agriculture;
2. Promote, undertake, and coordinate research addressing the development needs and problems in agriculture of the region; and
3. Disseminate the findings of agricultural research and experimentation.

Our Vision

A leading enabler and champion of excellence in agriculture and rural development in Southeast Asia

Our Mission

To elevate the quality of life of agricultural families through sustainable and resilient livelihoods and access to modern networks and innovative markets

Our Strategic Objectives

- Access new and innovative financial services
- Adopt new, sustainable, and resilient production technologies and systems
- Integrate with modern postharvest and logistics system
- Gain access to and operate in modern networks and markets

SEAMEO SEARCA

supports the
UN Sustainable Development Goals

Our Strategic Intent

SEARCA, in the next five years, commits to BETTER, BIGGER, and SMARTER outcomes and impact on the agriculture industry and its stakeholders, most especially the larger proportion of resource-poor farmers, by delivering better services through more context-relevant and valuable services to even more beneficiaries in more effective and efficient ways.

Alongside other global, regional, and national organizations, SEARCA aligns its direction toward contributing to the achievement of the United Nations (UN) Sustainable Development Goals (SDGs) that address global challenges to achieve a better and more sustainable future for all. SEARCA commits to contribute and allocate resources for the achievement of five SDGs which directly align with its mandate and focus, with an emphasis on creating partnerships (SDG17). Moreover, SEARCA also touches three other SDGs as it tries to achieve the five.

EDUCATION AND COLLECTIVE LEARNING

SEARCA's core program on Education and Collective Learning (ECL) leads the development of a new breed of agriculture leaders and professionals through its scholarships and other graduate study programs. ECL also leads the technical and professional trainings, and coordinates roundtable discussions, conferences, fora, and all other SEARCA learning events.

GRADUATE SCHOLARSHIP AND INSTITUTIONAL DEVELOPMENT

▶ GRADUATE SCHOLARSHIP PROGRAM

One of SEARCA's main objectives is to produce high-quality human resources in agriculture for the SEAMEO region in order to strengthen their institutions that would propel regional development. One of the major undertakings under this program is the provision of scholarships that enable Southeast Asians working in agriculture and rural development to pursue their master's or PhD studies.

Full Master's and PhD Scholarships
So far, SEARCA has awarded 468 full graduate scholarships (241 MS, 227 PhD) and 66 PhD Research Scholarships to Filipinos. Of this number, 453 (217 MS, 177 PhD, 59 PhD research) have completed their graduate studies.

Nagoya University-SEARCA Joint PhD Scholarship in the Field of Agriculture and International Development for Philippine Health
To date, six scholarships were awarded under this collaboration. Four scholars had completed their studies, while one is ongoing and one dropped out.

Other Project Scholarships
In 2010, SEARCA together with the Department of Agriculture (DA) implemented a graduate scholarship program under the DA-SEARCA Umbrella Capacity Development Program in Strategic Management and Policy for Agricultural Professionals and Executives. The four-year scholarship program aimed to produce a cadre of home-grown, world class-career bureaucrats who can competently and proactively steer the Philippine government's agriculture program. Six DA staff completed their Master's degrees in Public Management at Ateneo School of Government and three DA staff completed Master in Development Economics at UP School of Economics.

Moreover, in 2002, four Filipinos were awarded the ASEAN-European Master of Science in Food Science and Technology, a 19-month intensive training in food science offered under France Ecole Nationale Superieure des Industries Agroalimentaires (ENSIA).

Currently, SEARCA is also administering the Graduate Scholarship Program in Livestock Research and Biotechnology for the Philippine Carabao Center (PCC) which aims to strengthen the Center's pool of professionals by providing scholarship grants to qualified PCC officers and regular staff to pursue graduate degrees from selected universities in the Philippines, USA, Canada, and Australia. One PhD and seven MS scholars completed their graduate programs, while two PhD scholars are still ongoing.

SEARCA in cooperation with the Tokyo University of Agriculture (TUA) in Japan, is also offering a Dissertation Doctorate Program for Agriculture and Natural Resources which is open to all nationals of member countries of the Southeast Asian Ministers of Education Organization (SEAMEO) including the Philippines.

NTU-SEARCA Joint Scholarship Program for Global Agriculture Technology and Genomic Science (Global ATGS)
A partnership between the National Taiwan University and SEARCA, the joint scholarship aims to cultivate agricultural professional talents, encourage academic excellence, and promote research and development in agriculture within Southeast Asia through a two-year Master Program in Global Agriculture Technology and Genomic Science (Global ATGS). The academic program tackles emerging agricultural biotechnologies and smart agriculture through its cross- and inter-disciplinary curriculum. Since its pilot offering in AY 2020/2021, SEARCA has awarded the scholarship to eight Filipino nationals.

Sejong-SEARCA Joint Scholarship Program
The joint scholarship between SEARCA and Sejong University in South Korea aims to increase the capacities of Southeast Asian scientists/researchers in the fields of Integrated Biological Sciences and Industry (e.g., Plant Breeding and Genetics), Bioresource Engineering (e.g., Plant pathology, QTL mapping, Tissue culture). Three Filipinos have been granted the scholarship since its pilot offering in 2020/2021.

Sandwich Program
SEARCA also awarded scholarships for sandwich program to three Filipino graduate students to conduct or complete their graduate research under the supervision of a counterpart adviser in the French Agricultural Research Center for Development (CIRAD) and in the National Taiwan University (NTU). Awardees for the sandwich program scholarship were Mr. Bryan Rey Oliveros and Dr. Ana Liza C. Lopez, both faculty at the University of the Philippines Los Baños, and Dr. Ma. Fe. A. Simbulan of Pampanga Agricultural College.

Special Graduate Seminar
The special graduate seminar is held once every semester and highlights outstanding research by a SEARCA scholar. Hosting the seminar is the Center's way to support the scholars' academic milestones and to recognize their capacity to produce quality research that has a great impact on agriculture and rural development.

The following Filipino SEARCA scholars served as speakers at the Special Graduate Seminar:

- Engr. Philip Donald C. Sanchez (MS in Agricultural Process Engineering, Universiti Putra Malaysia), "Application of laser-based imaging technique in the quality evaluation of Malaysia sweet potato varieties during postharvest storage," 5 March 2021 via Zoom
- Dr. Glenn Y. Ilar (SEARCA PhD Research Scholar, PhD in Development Studies, UPLB), "Developing a Community-Based Development Framework for Agriculture and Rural Development," 24 January 2018
- Mr. Arsenio Bulfa Jr. (MS Soil Science, UPLB), "Measurement of Carbon Dioxide in Corn Cob Biochar-Amended Acid Soil Added with Different Types of Fertilizers," 14 June 2017

▶ REGIONAL SEARCA ALUMNI ASSOCIATION (RSAA)

Participants and beneficiaries of SEARCA's capacity-building programs become the Center's partners in its mandate of promoting agricultural and rural development toward poverty reduction and food security in Southeast Asia.

Upon graduation, SEARCA scholars automatically become members of RSAA, an organization consisting of all SEARCA Graduate Scholarship Alumni. The goals of RSAA are to facilitate the development of linkages among in-country associations (country chapters) of SEARCA alumni, as well as foster collaborative research and development efforts in the region. As testimony that the SEARCA graduate scholarship program is a key factor in human resource development in the Philippines, a number of these scholars have held key positions of responsibility in government and other sectors of the country.

SEARCA, in partnership with the Regional SEARCA Alumni Association (RSAA), organized the Scholars and Alumni Conference 2024 on "Cultivating Tomorrow: SEARCA's Insights for Agriculture's Future" attended by 58 scholars and alumni combined.

Three SEARCA Alumni from the Philippines served as Parallel speakers:

PLENARY SPEAKER
Dr. Jonathan Sabiniano
Director of the National Livestock Program
Department of Agriculture, Philippines

MODERATORS
Dr. Charlie B. Batin
OIC Dean of the College of Agriculture, Food and Sustainable Development
Mariano Marcos State University

Dr. Inocencio E. Buot, Jr.
Professor
Head of the Plant Systematics Laboratory
Curator of the Plant Biology Division Herbarium
Institute of Biological Sciences, UP Los Baños

Dr. Diomedes A. Racelis
Professor
College of Forestry and Natural Resources
UP Los Baños

Outstanding SEARCA Scholars

Since FY 2020-2021, SEARCA has been granting Outstanding SEARCA Scholars award to those who completed their degrees during the fiscal year with remarkable academic achievements and related engagements. Ms. Maria Genesis T. Catindig-Reyes, who completed her MS in Rural Sociology from the University of the Philippines Los Baños, was recognized as the Outstanding SEARCA Scholar for the master's level for Fiscal Year 2021-2022. The award recognizes Ms. Reyes' academic excellence, including publication in a refereed journal, numerous papers presented in international conferences about resilience of rice farming families and scaling up inclusive digital agricultural value chains that contribute to the Center's thrust on Accelerating Transformation Through Agricultural Innovation (ATTAIN), and other co-curricular engagements.

Outstanding SEARCA Scholarship Alumni (OSSA)

On the occasion of its 50th anniversary, SEARCA honored 11 Southeast Asians with the OSSA Award. It was the first time that SEARCA conferred such accolade on its alumni who have championed ARD and distinguished themselves in creating positive impact through their work.

Five Filipino alumni received this award:

- **Dr. Naomi G. Tangonan**, OSSA Award for Excellence in Teaching, was recognized for her passion for teaching and academic excellence in the university as well as in the field with the farmers, out-of-school youth, and women. She is also known for the two editions of the reference book in plant pathology titled "Host Index of Plant Diseases in the Philippines" that are still considered main references among crop protection students, agriculturists, and technicians in the country. Her leadership in the rubber industry where she led 17 experts to produce the book titled "Rubber Production and Management in the Philippines." She also became the first female dean at her university.

- **Dr. Segfredo R. Serrano**, OSSA Award for Public Policy, was honored for his nearly 20 years of government service as one of the think tanks of a country's agriculture sector, having been entrusted that critical position by 12 agriculture ministers. He had provided the agriculture ministry the critical "institutional memory" and expertise used in crafting national agricultural policies and programs with strong convictions about the long-term welfare of the Filipino farmer. He also took the lead as the chief negotiator for agriculture and fisheries in all international trade negotiations of the Philippines and was able to mainstream the issue of climate change in the country's agriculture and fisheries sector, leading the Philippine Delegation to negotiating sessions under the U.N. Framework Convention on Climate Change (UNFCCC).

- **Dr. Lucrecio L. Rebugio**, OSSA Award for Advocacy, was cited for being a major prime-mover in advancing social forestry education in the Philippines and in other Asian countries. His more than 37 years of service in UPLB is marked by former students who are now leaders, academicians, and scientists both in the Philippines and abroad, and his numerous scholarly publications. His lectures on

paradigms and their relationship to forestry and the environment have inspired major policy and program reforms in forestry toward a more holistic and integrated approach on the technical and social aspect of natural resources management.

- **Dr. Generoso G. Octavio**, OSSA Award for Advocacy, was honored for his leadership of a micro-finance institution that became the frontier of training for small and large institutions, both local and international, which started their micro-credit ventures using the Grameen Bank methodology. As a leading micro-finance institution ASHI helped he microfinance industry in the Philippines to expand and grow, and reach out to almost half a million poor households in a sustainable manner. Dr. Octavio extended also his expertise to help not just local organizations but other neighboring countries. As a servant-leader, he helped tsunami devastated areas in Aceh in Indonesia, Sri Lanka, Tamil Nadu and Kerala in India, Khao Lak and Phang Nga in Thailand, and Penang-Kedah in Malaysia through various recovery and rehabilitation activities.

- **Dr. Delfin Ganapin, Jr,** OSSA Award for Public Policy and Governance, was recognized for his work in the environment and the marginal sector that translated into concrete actions with lifelong impacts. He was able to strengthen environmental impact assessment by introducing the social acceptability requirement for the Philippines' environmental compliance certificate (ECC). This became the pattern for the "prior informed consent," which is now enshrined in the United Nations Declaration on the Rights of Indigenous Peoples. He also conceptualized and set the precedent for setting up environment and social guarantee funds, which is an innovative insurance system to be used for stakeholder monitoring of impacts as well as providing immediate funds for affected communities to solve problems, for compensation, and for rehabilitation, should the need arise. Moreover, he led an internal advocacy within government to empower indigenous peoples and took the lead in conceptualizing and implementing an innovative ancestral domain claims program. The program allows IPs to have security of tenure for their conservation-oriente practices even as the law does not yet allow them the ownership of their traditional lands. These laid the ground work for the passage of the Indigenous Peoples Rights Act, which until now serves as a model and inspiration for those wanting to empower indigenous peoples in other parts of the world. As the Global Manager for the UNDP-implemented Global Environment Facility (GEF) Small Grants Programme (SGP), he was able to transform the program into a global platform by adding 79 countries to its portfolio of 54 participating countries. Now SGP is GEF's biggest program for community and civil society engagement.

▶ UNIVERSITY CONSORTIUM

The University of the Philippines Los Baños (UPLB) is one of the founding members of the Southeast Asian University Consortium for Graduate Education in Agriculture and Natural Resources (UC) initiated by SEARCA in 1989. The other members are Institut Pertanian Bogor (IPB), Universitas Gadjah Mada (UGM), and Universitas Brawijaya (UB) in Indonesia, Universiti Putra Malaysia (UPM) in Malaysia, and Kasetsart University (KU) in Thailand.

Three Philippine universities became affiliate members of the UC:

- Visayas State University
- Central Luzon State University
- Central Mindanao University

The 4th University Consortium (UC) Faculty Forum concluded at the Science City of Muñoz, Nueva Ecija, Philippines, held on 5-6 December 2022 with the theme Future Proofing Agriculture. The Forum gathered UC members to discuss strategies to ensure agricultural productivity in a future that is full of uncertainties and confronted with environmental and social problems. The 4th UC Faculty Forum was the first major event hosted and organized by Central Luzon State University (CLSU) for the UC.

Moreover, CLSU, SEARCA, and the UC jointly organized the International Summer Short-Term Course on mushroom farming, organic agriculture, aquaculture, and transboundary animal diseases on19-29 July 2021. This was CLSU's first activity with the consortium since it became a member. The activity had its second iteration on 1-12 August 2022 in the fields of food sustainability and food security in marine fishes, sustainable mushroom pharming, sustainable and efficient animal management strategies, and combatting ASF through risk analysis test kit development. A third conduct was held on 24 to 31 July 2023 on freshwater aquaculture, goat production, and mushroom pharming. The fourth offering of the program was conducted on 21 July-3 August 2024 with the following tracks: Sustainable Production of Freshwater Fishes for Food Security; Sustainable and Efficient Goat Production in Tropical Areas; and Sustainable Mushroom Pharming.

UPLB organized a number of annual UC activities such as the 2015 UC Summer School on "Food and Nutrition Security and Sustainable Agriculture in Southeast Asia" and the 2019 UC Summer School on "Sustainable and Resilient Food Systems in Vulnerable Areas" as part of the Master of Science in Food Security and Climate Change (MS FSCC) project funded by the European Commission's ERASMUS + Capacity Building for Higher Education from 2016 to 2019. UPLB likewise hosted the 2016 UC Graduate Forum on "The Quest for Environmental and Food Security, Inclusive and Sustainable Agricultural Development." The UC Faculty Forum was proposed to the UC by UPLB taking inspiration from the existing UC Graduate Forum, hence, the institution was the first one to host it in 2019 with the theme "Responding to the Challenges of the Fourth Industrial Revolution."

The 5th UC Faculty Forum, with a theme Sustainable Agriculture Under Changing Climate, gathered faculty researchers to share and discuss the pressing challenges and opportunities in agriculture in the context of a changing climate. The event was held on 20-21 September 2023

in Baybay City, Leyte, Philippines. The Forum was the first major event hosted and coorganized by the VSU for the UC.

SEARCA has marked the completion of one of its Institutional Development Assistance (IDA) project, the Leveling-up Philippine Higher Education Institutions in Agriculture, Fisheries, and Natural Resources (LevelUPHEI AFAR), funded by the Philippine Commission on Higher Education (CHED). The project, under CHED's International Continuing Professional Education (ICPE) program, spanned from 2021 to 2023 and included shortterm training programs, mobility exchanges, summer schools, faculty-graduate forums, cross-visits, and active participation in the UC. The project's overarching aim was to enhance the relevance and competitiveness of the country's higher education institutions (HEIs) in the 21st century. At the end of the project, 258 faculty members from 44 universities of the State Universities and Colleges – Association of Colleges of Agriculture in the Philippines, Inc. (SUC-ACAP, Inc.) participated in various mobility activities in university consortium partner universities. Tangible outcomes included the establishment of Memoranda of Understanding/Agreement with visited UC member universities, curriculum revisions, journal article submissions, introduction of new extension programs, integration of acquired knowledge into existing courses, and the appointment of mentors. from overseas mobility exchanges as adjunct faculty members of the HEIs. It also played a pivotal role in fostering international linkages and collaboration, contributing significantly to the academic and personal growth of the grantees. In line with the targets outlined in the Philippine Development Plan 2023–2028 and AmBisyon Natin 2040, the LevelUPHEI AFAR project resonates with the goals of the Philippine government. It emphasizes harmonization and internationalization in higher education, resiliency, inclusivity, equitability, support for lifelong learning opportunities, and global partnership and cooperation, which aligns seamlessly with the framework of the ASEAN Workplan on Education 2021–25, the objectives of the ASEAN Higher Education Space 2025, the Master Plan on ASEAN Connectivity 2025, and UN Sustainable Development Goals 4 and 17.

The UC, in cooperation with the Tokyo University of Agriculture (Tokyo NODAI) in Japan, is also offering a Dissertation Doctorate Program for Agriculture and Natural Resources, which is open to researchers with full-time employment at any member of the UC. One Filipino grantee completed her PhD Under this program.

So far, at least 272 Filipinos have participated in UC activities, 45 graduate exchange students, 90 thesis grantees, 51 exchange faculties, 2 research fellows, 82 professorial chair holders, and 3 seed fund for collaborative research grantee.

▶ REGIONAL PROFESSORIAL CHAIR GRANTS

Since 1974, SEARCA provides professorial chair grants to highly competent faculty and research staff of universities in Southeast Asia. Initially, the grant was offered only to faculty and research staff of UPLB. In the Philippines, the grant was expanded in 2005 to cover the entire UP system. Through Professorial Chair Grant, SEARCA supports and recognizes the contributions of institutions and individuals who promote academic excellence in the fields of agriculture and related sciences.

Starting 2012, it further expanded to include other universities in Southeast Asia. Since academic year 2011-2012, the SEARCA Regional Professorial Chair Grant has recognized the contribution of institutions and individuals in the fields of agriculture and related sciences, thereby contributing to ARD in Southeast Asia through instruction, research, innovation, and extension work. Since AY 2012-2013, 33 Filipino faculty staff have been awarded this grant.

TRAINING FOR DEVELOPMENT

Short-term training continues to be one of the Center's most effective approaches for cultivating change makers and thought leaders capable of transforming the agriculture and rural development landscape in Southeast Asia. Since SEARCA began this capacity-building service in 1970, there have already been 8,958 Filipinos who participated in 522 international, regional, in-country SEARCA trainings, seminars, and learning forums on various topics, including:

Integrating climate change adaptation into local and national policies, plans, and investments
- Climate risks management in natural resources management and agriculture
- Upland agroforestry systems and watershed resource management
- Leadership excellence in academe program in Southeast Asia
- Climate change vulnerability and socioeconomic analysis
- Environmental planning and management
- Watershed governance
- Strengthening project development and management
- Techniques and tools for effective knowledge sharing
- Advanced higher education administrators development
- Technology and capacity development
- Commercialization of research results
- Research management
- Knowledge management
- Strategic communication on agricultural biotechnology
- Plant genetic resources documentation
- Plant biotechnology regulations
- Integrated pest management
- Regional food safety system
- Biosafety
- Social laboratory and technology transfer management
- Assessment of development projects' impacts on poverty
- Supply chain management and sustainable development
- Strategies and planning for farmers' communities
- Management of agricultural information services
- Data management for rural development
- Enterprise development
- Community forestry
- Agricultural extension
- Agricultural innovation

Of these learning events, 475 were conducted in the Philippines. Owing to mobility restrictions brought about by COVID-19, the Center established the SEARCA Online Learning and Virtual Engagements (SOLVE) platform in 2020. It hosted the online capacity-building activities of the Center, including at least 22 activities conducted in the Philippines.

Under its short term training component, the LevelUPHEI AFAR project has implemented five online trainings, six faceto-face trainings, and three cross-visits on the following:

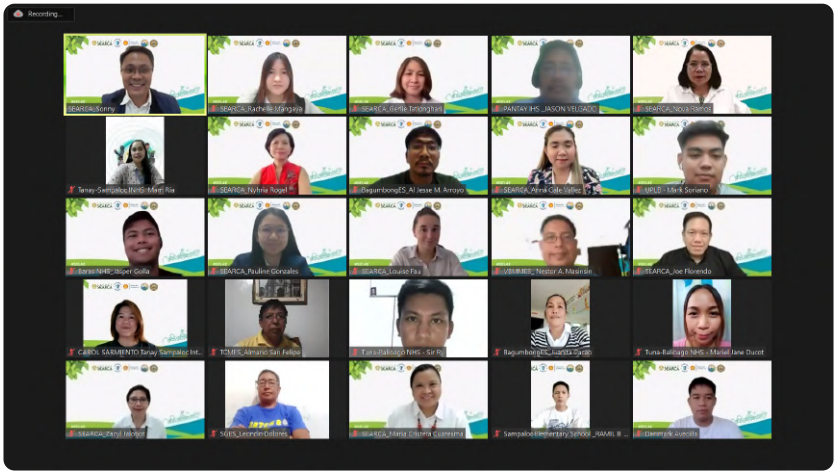
- Leadership Development Program for Higher Education Institutions (HEIs) in the Philippines (LDP-HEIs-Phils, two offerings – online and hybrid)
- Training Course on Research Designs and Methods for HEIs in the Philippines (Research4HEIs, two offerings, online and face-to-face)
- Strategic Communication Planning Workshop: Enhancing Communication Skills for HEIs in the Philippines (StratCom4HEIs, two offerings, online and face-to-face)
- Training on Scientific Writing and Presentation for HEIs in the Philippines (SciWriting4HEIs, two offerings, online and face-to-face)
- Training-Workshop on Developing Fundable Research Project Proposals for HEIs in the Philippines (FundableProp4HEIs, two offerings, online and face-to-face)
- Crash Course on Data Analytics for the Future for Higher Education Institutions in the Philippines (DAF-X4HEIs)
- Cross-visits to Thailand, Singapore, and Indonesia
- Beyond Borders: Embracing Global Perspectives in Higher Education (Culminating Forum)

These short-term training programs have trained 354 grantees Filipinos from 53 SUC-ACAP member universities.

Participants during the Culminating Forum of the LevelUPHEI AFAR Project funded by CHED, with the theme "Beyond Borders: Embracing Global Perspectives in Higher Education," held on 13-14 December 2023 at the SEARCA Headquarters in the Philippines.

SEARCA also organized and implemented a series of training programs on school plus home gardens for teachers and staff under the Philippine Department of Education (DepEd) in different provinces of the country, in support of the DepEd's Gulayan sa Paaralan program.

The 2018 Training of Trainers on Scaling up the School-plus-Home Gardens in Southeast Asia had participants from different DepEd divisions. This training was designed to as a walk-through where participants learned the basics of the S+HGP model, with focus on the step-by-step process of establishing locally appropriate models, putting appropriate regard on the unique context of the schools and communities where the project is to be implemented. The 2020 E-training on School plus Home Gardens cum Biodiversity Enhancement (SHGBE) was conducted for DepEd in Busuanga and Coron in Palawan. The e-training course aimed to serve as a platform to educate, exchange knowledge and experiences, and create awareness that shall strengthen the initiation of a school-plus home gardens in the province. The vision of SHGBE is to enhance biological biodiversity while producing food and boosting tourism in Busuanga and Coron islands. On the other hand, the 2023 Training on School Edible Landscaping for Entrepreneurship (SEL4E) conducted on hybrid mode for DepEd in Rizal Province covered the concepts and intersections of school gardens in nutrition, education, and entrepreneurship for the online sessions and edible landscaping and organic agriculture for the onsite sessions.



The 2023 SEL4E training was conducted in hybrid mode, with 36 participants from 11 schools and the division office of DepEd in Rizal.

Aside from SEARCA-organized training courses, the Center also proactively finds other opportunities for Southeast Asians to participate in high-level training courses. Some of these training courses which were participated in by Filipinos include:

- 2010 National Taiwan University (NTU) Summer Program on Biodiversity, Agriculture, and Culture of Taiwan (BACT) – Mr. Lawrence T. Ramos, a research assistant at the World Agroforestry Centre
- 2011 and 2013 SEARCA-Beahrs Environmental Leadership Program – Mr. Rusty G. Abanto, an assistant professor at Camarines Norte State College, Camarines Norte, and Mr. Re B. Lara, Chief of Plans and Programs Section, Department of Agriculture, Zamboanga
- 2013 NTU Summer Program on BACT – Mr. Jeric Castro, a graduate student at the Central Luzon State University
- 2013 SEARCA-FSC Summer School on Sustainable Agricultural and Rural Development for Food Security – Ms. Micah Dee Roque, an MS in agronomy student at UPLB and Mr. Joseph A. Pagtananan, a pollution control officer at the Office of the Vice-Chancellor for Community Affairs, UPLB
- 2014 SEARCA Summer School Program on Food and Nutrition Security in Southeast Asia – Mr. Aries o Ativo, an instructor at the Central Bicol State University of Agriculture in Camarines Sur; Mr. Roden D. Troyo, an instructor at the Visayas State University, Leyte; and Ms. Meryl A. Bernardino, an MS in food science student at UPLB
- 2024 NTU Plus Academy Summer and BACT – Mr. Marco Felix S. Valdez, a graduate student at UPLB

The first SEARCA-UC Summer School was conducted in cooperation with the University Consortium and was hosted by UPLB in July 2015.

From 2014 until 2019, SEARCA conducted a series of overseas comparative study missions for the Philippine Carabao Center (PCC). These study missions were components of the project Capacity Development under Livestock Research and Biotechnology Research and Development of the Carabao Development Program (CDP), which aimed to enhance the capacity of PCC to address the requirements of the Carabao sub-sector and enhance its full potential as a major player of the livestock industry and the region considering the ASEAN Economic Community (AEC) and greater globalization. It also aimed for PCC to have the regional and international perspective and influence in setting the policy recommendations and developing the strategic framework toward a competitive and inclusive livestock sector.

The study missions also aimed for the participants to: 1) identify relevant and specific overseas public and private sector program concepts and strategies needed to strengthen the "i-REB (Intensified Rural Enterprise Build-Up) framework and its operationalization; and 2) forge stronger partnership with international research and development institutions that will enhance generation of major final output relevant to improving productivity through the application of relevant biotechniques, technology transfer, and policy reforms. To achieve these objectives, the overseas study mission participants, composed of PCC officials and staff, visited relevant public and private institutions and organizations in Kenya, Japan, Australia, South Korea, India, Vietnam, and Thailand.

The PCC key officials and staff during their overseas study missions in (clockwise) Thailand, India, Australia, and Kenya.

RESEARCH AND THOUGHT LEADERSHIP

One of SEARCA's main objectives is to conduct and coordinate appropriate and relevant research that promotes accelerating transformation through agricultural innovation (ATTAIN). Central to the Center's resolve to be strategically visible and more relevant for all stakeholders and strategic agricultural and rural ecologies, SEARCA's core program on Research and Thought Leadership undertakes policy analyses, research for development, and facilitate knowledge platforms.

▶ ONGOING RESEARCH PROJECTS AND POLICY STUDIES

Sustainable Agricultural Mechanization in Gender-Sensitive Food Systems Transformation in Asia (SAMGeFS)
The Philippines is one of the seven countries covered by this Food and Agriculture Organization of the United Nations (FAO)-funded project. SAMGeFS aims to examine the different innovative approaches for broader adoption and upscaling of sustainable agricultural mechanization for a gender-sensitive food systems transformation in Asia. The project has three main components, namely, country assessments, case studies, and validation workshop and experts consultation.

Building an evidence base to support the operationalization and scaling of nature-based climate solutions in small-scale aquaculture for inclusive and sustainable livelihoods and food systems

SEARCA is co-implementing this project in with the International Institute of Rural Reconstruction (IIRR) to establish an evidence base and a conducive environment to support action, learning and sharing on gender responsive, socially inclusive and nutrition sensitive nature-based climate solutions (NbCS) in aquaculture in the Philippines.

School Edible Landscaping for Entrepreneurship (SEL4E) in Rizal Province
This project seeks to expand and enrich the SEL4E project through collaborative efforts, ultimately improving nutrition and well-being in Rizal province.

Project Objectives:
- Build Partnerships: Form strong partnerships among Rizal's Local Government Units (LGUs) and partner agencies to support SEL4E's home garden aspect.
- Empower Educators and LGUs: Empower teachers and LGUs with knowledge to effectively teach K-12 students about SEL4E related concepts.
- Engage Communities: Engage households to enhance community involvement.
- Plan for expansion: Develop recommendations for expanding the project sustainably across Rizal's municipalities.

Project Scope:
Component 1: Trainers' Training for SEL4E: Discuss experiences, integrate key concepts, and receive training materials for SEL4E curriculum integration
Component 2: Home Gardening for Better Health: Scaling SEL4E's home garden part involves three phases: scoping, capacity building, and refining protocols
Bridging and Upgrading Mechanisms and Pathways for the Uptake of Biotech (BUMP UP Biotech)
Project funded by the Bureau of Agricultural Research through the Biotech Program Office of the Philippine Department of Agriculture. It primarily aims to identify pathways for the uptake of biotech innovations for food and nutrition security. This also includes the improvement of existing platforms for collaboration among academe, industry, and government actors for sharing research information, technology and policy with local governments and local media.

Specifically, the project aims to:
- Capacitate provincial government units by providing enabling mechanisms to harness up-to-date technology and information;
- Capitalize on knowledge gathered from the academe, industry, and government to support uptake of biotech innovations; and,
- Communicate biotechnology through local media/community radio.

The project will be implemented in the provinces of Oriental Mindoro, Bohol, and Agusan del Norte.

Scaling Up the School-Plus-Home Gardens Project
This project articulates SEARCA's commitment to replicate the benefits of its completed "Participatory Action Research on School and Community-Based Food and Nutrition Program for Literacy, Poverty Reduction and Sustainable Development," also known as "School-Plus-Home Gardens Project (S+HGP)." The project used school gardens as an approach to improve the nutrition, education and economic well-being of schoolchildren. Conducted with UPLB and the Philippine Department of Education-Laguna, the project was successfully implemented and piloted in five elementary and one secondary school in Laguna, Philippines. Three years

after the project ended, the initial six pilot schools have grown to 89 adopted schools in 2020 and continues to spread out.

This project aims to replicate the positive results from the S+HGP to other parts of the Philippines, particularly those with high malnutrition rates and inadequate food security, together with UPLB and Kansas State University (KU) as partners. They have already collaborated on an online training on S+HGP cum biodiversity enhancement for teachers, parents, and key LGUs in Busuanga Island, Palawan. The training outputs include an action plan crafted by the participants toward the establishment and implementation of S+HGP suited to the context of Busuanga Island.

Moreover, experts from the Philippines serve as resource persons in the Trainers' Training for Integrating the School-plus-Home-Gardens in the Establishment of Agriculture Technology Parks (ATPs) and Mini ATPs in Cambodia that runs from December 2021 to February 2022. This online training is a collaboration among SEARCA, the Center of Excellence on Sustainable Agricultural Intensification and Nutrition (CE SAIN), the Kansas State University (KSU), and University of the Philippines Los Baños (UPLB).

Improving the Processes Influencing the Successful Adoption of New Technologies by Coconut Smallholder Farmers in Quezon

SEARCA is scaling up the gains of the ISARD Piloting Project through the replication and application of its implementation model in one of the provinces in the Philippines. SEARCA is now establishing its partnership with the local government of Quezon to create a market-driven coconut industry with empowered and resilient farmers. The scaling up plan envisions to develop coconut-based enterprises contributing to ISARD in Quezon Province. Baseline assessment, scoping visits, planning workshop, and sharing event are among the current activities of the project in collaboration with the Provincial Government of Quezon.

Documenting Linkages between Farmers and the Tourism Industry in Asia and the Pacific

The Philippines is one of the six countries covered by the regional study commissioned by the United Nations Food and Agriculture Organization of the United Nations (FAO) that documents the potential of agri-food tourism for sustainable food systems development. The study aims to contribute to the research on agri-food tourism in Asia and the Pacific with a regional survey on linkages between the tourism industry and local (smallholder) farmers and six detailed case studies.

Identify Opportunities and Developing a Guiding Framework to address Humanitarian-Development-Peace (HDP) Nexus in Hand-in-Hand Initiative in Asia and the Pacific
SEARCA is analyzing cases in selected Asia-Pacific countries, including the Philippines, to come up with recommendations on addressing the HDP Nexus in the Hand-in-Hand Initiative in the region. The project aims to come up with a guiding framework will be developed with approaches and practices that are proven successful in the target countries under study.

▶ PAST RESEARCH PROJECTS AND POLICY STUDIES

SEARCA has worked with various development organizations and research institutions in the implementation of the following completed research and policy studies in the ASEAN region, including the Philippines:

Know The Science (KTS 2): Strengthening Biotech Links

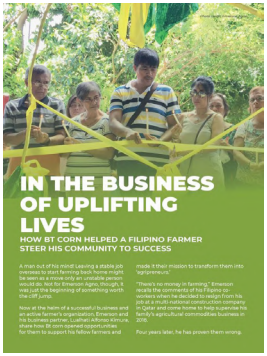
The project, which was jointly implemented by SEARCA and the International Service for the Acquisition of Agri-biotech Applications (ISAAA), Inc., aimed to continue the momentum and successes of previous and current information, education, and communication (IEC) advocacies on biotech crops. The planned activities were designed to counter the strong national sentiment against biotechnology and agri-sciences. It covered various approaches that focused on some elements of a successful IEC strategy, targeting essential stakeholders such as policymakers, the media, the public, and the youth.

SEARCA handled several components of the project that contributed to raising the awareness of the public on biotech crops and strengthening old and newly found links and partnerships inside and outside the biotech space. The team led the development of four policy briefs focused on the regulatory frameworks for genetically modified crops and plant breeding innovations, modern animal biotechnology, and benefits of coexistence farming.

SEARCA also facilitated the translation of seven IEC materials in four Filipino dialects, namely Tagalog, Ilokano, Bikolano, and Bisaya-Cebuano. Another integral aspect of the project managed by the Center was the social media campaign on Facebook, Twitter, and Instagram. The KTS accounts have garnered more than 7,000 followers across the three platforms.

FarmerTalk: Development of Information, Education, and Communication (IEC) Materials Highlighting Biotech Contributions to Farmer Success

Committed to the goal of sharing knowledge to elevate the quality of life of agricultural families through sustainable and resilient livelihoods and access to modern networks and innovative markets, SEARCA and CropLife Asia have partnered to communicate the impacts and contributions of biotech crops through flyers and videos highlighting success stories of farmers in the Philippines, Indonesia, and Vietnam who have experienced first-hand the benefits of using biotech crops. The project featured case stories of seven biotech corn farmers from the Philippines.



A Series of Activities in the Framework of the UN Decade of Family Farming

SEARCA documented and systematically analyzed policies, strategies, initiatives, and programs successfully supporting family farming in selected Southeast Asian countries under Activity 2 of this Food and Agriculture Organization of the United Nations (FAO)-funded project. A case study on the Philippines' Partnership Against Hunger and Poverty (PAHP) and Expanded PAHP Program was one of the six country-level case studies conducted. To support the documentation of some case studies and get the viewpoint from farmers' organizations, SEARCA collaborated with the Asian Partnership for the Development of Human Resources in Rural Areas (AsiaDHRRA).

Agricultural Transformation and Market Integration in the ASEAN Region: Responding to Food Security and Inclusiveness Concerns (ATMI-ASEAN)

The Philippines was one of the five ASEAN Member States (AMS) covered by this International Fund for Agricultural Development (IFAD)-funded project, which was co- implemented by the International Food Policy Research Institute (IFPRI) and SEARCA. The overall goal of the ATMI-ASEAN project was to strengthen the institutional capacity of the AMS to develop and implement policies and sub-regional programs as well as facilitate integration of smallholders in sub-regional agricultural and food markets. This was done through three main components and broad activities (1) Policy studies and expert workshops; (2) High-level policy forums and roundtables; and (3) Technical assistance for planning and policy development.

The Planning, Project Development, and Special Projects of the Department of Agriculture (DA) served as the project's focal agency in the Philippines. DA led the conduct of the policy study and national-level activities in the Philippines to strengthen the competitiveness of small-scale rural producers and support their inclusion in regional agrifood markets. These include capacity building for evidence-based decision making, policy formulation, and monitoring and evaluation. The University of the Philippines Los Baños (UPLB) conducted a policy study on Value Chain Analysis of Selected Pork-Based Processed Products in Luzon, Philippines and developed a national roadmap for pork-based processed products in coordination with DA

under the ATMI-ASEAN project. Moreover, the Philippines also provided inputs to the Maize-Meat Regional Value Chain Assessment that was endorsed by the project to ASEAN Ministers on Agriculture and Forestry (AMAF).

Identify Opportunities and Developing a Guiding Framework to address Humanitarian-Development-Peace (HDP) Nexus in Hand-in-Hand Initiative in Asia and the Pacific

SEARCA analyzed cases in selected Asia-Pacific countries to come up with recommendations on addressing the HDP Nexus in the Hand-in-Hand Initiative in the region. The project aimed to come up with a guiding framework with approaches and practices that were proven successful in the target countries under study. One of the case studies conducted was on the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) in the Philippines.

Implications of ASEAN Economic Community (AEC) and Trade and Investments on Regional Food Security

SEARCA partnered with the Universitas Gadjah Mada (UGM) of Indonesia to implement this project which was identified by the SEARCA-initiated Southeast Asian University Consortium for Graduate Education in Agriculture and Natural Resources (UC) as one of the six priority research and development areas for collaborative undertaking under SEARCA's Umbrella Program on Food and Nutrition Security for Southeast Asia (FANSSEA). The project analyzed the potential impacts of AEC on existing trade agreements, flow of investments, and related commitments among ASEAN member countries, including the Philippines, and across existing ASEAN Free Trade Agreements (FTAs), and its implications on food security in the region.

Scaling Up Effective Models of Inclusive and Sustainable Agricultural and Rural Development

This project took off from the action research project titled "Piloting and Upscaling the Effective Models of Inclusive and Sustainable Agricultural and Rural Development (ISARD)" launched in 2015. Implemented in two sites in the Philippines—Victoria, Oriental Mindoro, and Inopacan, Leyte, the project enhanced the capacity of communities and partner institutions in effective agricultural systems that demonstrated increased benefit for the poor and vulnerable groups, as well as assess the enabling environment, socioeconomic processes, and overall performance in implementing effective agricultural systems through employment of participatory development approached.

SEARCA partnered with Mindoro State College of Agriculture and Technology (MinSCAT) and the local government unit (LGU) of Oriental Mindoro to revitalize the calamansi industry in Victoria, Oriental Mindoro through strengthened linkages among key stakeholders, technical assistance, capacity building, knowledge management, and networking. On the other hand, the ISARD Piloting Project in Inopacan, Leyte was implemented by SEARCA, Visayas State

University, and LGU of Inopacan, Leyte. The project in Leyte evolved in strengthening linkages among farmers, government, and industry sector for ISARD.

The project was implemented from July 2014 to June 2020.

Upgrading the Calamansi Value Chain Towards Improving the Calamansi Industry of Oriental Mindoro

Together with its partners—Department of Agriculture – Bureau of Agricultural Research (DA-BAR), Tokyo NODAI, University of the Philippines Los Baños (UPLB), Mindoro State College of Agriculture and Technology (MinSCAT) and the local government units of Oriental Mindoro, SEARCA aimed to harness the strengths of each partner in addressing gaps along the calamansi value chain through technology utilization/commercialization and marketing.

Specifically, the project had the following objectives:

- Improve calamansi production and fruit quality by utilizing proven technologies and practices in integrated pest management, fertilization, off-season fruiting, and post- harvest handling practices;
- Support the commercialization of calamansi-based products through value chain analysis of processed products, market study, and product and post-harvest handling practices, calamansi processing, and entrepreneurship; and
- Promote faculty and student exchange for R&D and technology promotion/transfer undertakings.

The activities of the project evolved around its four components:

- Expanded Calamansi Value Chain Analysis and Market Study;
- Improving Calamansi Production, Postharvest Handling, and Processing Component;
- Enhancing Calamansi Products and Enterprise Development in Oriental Mindoro; and
- Capacity Building and Faculty/Researchers Exchange.

The project successfully produced the following outcomes:

- Areas of improvement in the calamansi value chain identified and addressed
- Market for calamansi products analyzed and identified
- Productivity and fruit quality improved (Increased production by 20% due to improved pest and disease management and off-season production; reduced postharvest losses by 25% and shelf life of fruits extended)
- Calamansi-based processed products and enterprise enhanced
- Trainings and capacity building of various stakeholders conducted
- Knowledge resources produced and disseminated

This project was implemented from October 2018 to June 2021.

International Benchmarking Study of the Philippine Livestock, Dairy, and Poultry Industries

The overall objective of the International Component of the study, funded by the National Economic and Development Authority (NEDA), Philippines was to determine the comparative advantage of the livestock, poultry, and dairy industries (i.e., hogs, chicken, cattle, and carabao) in other Asian countries (e.g., China, Thailand, and Vietnam) based on parameters including productivity levels, cost of production and structure, among others. As such, the study covered a comparative analysis based on the following:

- Cost and return structure of livestock, poultry, and dairy (cattle and carabao) production in Asian countries (e.g., China, Thailand, and Vietnam) by farm type (i.e., commercial and backyard, if possible);
- Livestock/poultry/dairy production management and marketing practices in the identified Asian countries; and
- Identification and analysis of key enabling policies to strengthen the livestock, poultry, and dairy sector in the identified Asian countries.

The study was able to produce a benchmark report that summarized the comparative advantage of the livestock, poultry, and dairy industries in China, Thailand, and Vietnam based on trends in productivity, inventory, trade, and prices; cost and return structure of livestock (swine), poultry, and dairy (cattle and carabao) production; production management and marketing practices; and regulatory and development policies as enabling instrument to strengthen the livestock, poultry, and dairy sector in these three identified Asian countries.

The key findings of the study are as follows:

- Based solely on trade data during the period 2010-2020, Thailand possesses a comparative advantage in poultry and swine where it has consistently been a net exporter.
- The role of the private sector in adopting technologies that bring about higher efficiency is well established. Partnerships between local and foreign corporate farms were instrumental in the introduction of high-quality animal breeds and, institutional innovations like the contract growing system. The increasing commercialization of these industries in the three countries has been remarkable in the last decade.
- All three countries especially Thailand are currently focusing efforts on achieving this objective. Through farmers' organizations, smallholders can expand participation in the value chain beyond primary production and thereby enabling them to get a bigger share in the benefits derived from the growth of the industry they are involved in.

- In the three study countries, the role of government in promoting poultry, swine and dairy production has been concentrated on upgrading indigenous animals, organizing farmers, providing initial support to nascent industries (e.g., dairy), and disease prevention and control. Economic policies covering trade, tariff, and inputs pricing are likewise adopted with varying results.

The project was implemented from July to October 2021.

AgPractices&Domains Platform: An Integrative System of Information and Modelling for Recommendations Domains of Agricultural Best Management Practices and Technologies

Funded by the University of Southern Queensland, the project endeavored to improve and build the capacity of agriculture researchers in Myanmar and Philippines in using data from different sources to target integrated pest and disease management options through the use of AgPractices&Domains platform.

The project successfully produced and accomplished the following:

- A cloud-based platform tool that used a scalable approach for integration of agricultural data into modelling. This platform serves as portal for collaboration that will enable digital documentation of data collection for pest and disease and a harmonization of data labelling and analysis.
- Drafting of users' and operations manual as e-learning materials and handouts in the use and the application of the tool.
- A report on potential sustainability plan in the future development and scaling of the application and 2 video documentations of the project activities.
- Workshop with researchers and development practitioners on Modeling Management of Climatic Stress in Rice-based Cropping Systems: The Application of the AgPractices&Domains Platforms to:
  - Promote the use of AgPractices&Domains tool to advance agricultural research in delivering technologies and practice improving cropping systems productivity and adaption to climate variability;
  - Train targeted to potential end users of the tool; and
  - Generate feedback on the web-based application interface for further development.

The project ended in October 2021.

Enhancing Food Supply Chain Resilience and Food Security in ASEAN with Utilization of Digital Technologies (Component 3)

The study, funded by the Economic Research Institute for ASEAN and East Asia and in collaboration with the Association of Southeast Asian Nations (ASEAN), aimed to consolidate information on the status of digital technologies that have the potential to increase farm productivity and improve the resiliency of the supply value chain. It was composed of three components focusing on:

- Component 1: Macro data analysis: Estimation of the overall impact of COVID-19 on agricultural production and food value chain resilience in ASEAN;

- Component 2: Assessment of actual status on the application of digital technology in the food and agriculture sector; and
- Component 3: Formulation of a draft guideline on the utilization of digital technologies for the ASEAN food and agriculture sector

SEARCA is specifically assigned in Component 3 for the development of the ASEAN Guidelines for Accelerating Transformation of Food and Agriculture through Digital Technologies and Innovations. This regional guideline will equip the ASEAN region with recommendations and implementation considerations for making an informed decision that will shape the digital transformation of agriculture in the region. More specifically, the guideline will outline conditions and actions needed to make use of digital technologies for agriculture and food system improvements, including interventions to facilitate digital technology uptake in the agriculture and food sector.

The project was conducted from November 2020 to October 2021.

Promoting Climate-smart Land Use through ASEAN Policy Documents and Regional Events

The Climate Smart Land Use (CSLU) project builds on the successes of the Forestry and Climate Change Project (FOR-CC) under the former ASEAN-German Program on Response to Climate Change (GAP-CC), which supported ASEAN in improving selected framework conditions for sustainable agriculture and forestry in ASEAN Member States (AMS). Similarly, CSLU, implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in close cooperation with the ASEAN Secretariat (ASEC), aimed to strengthen the coordination role of ASEAN in making contributions to international and national climate-policy processes for climate-smart land use in agriculture and forestry.

SEARCA was specifically assigned in the development of the ASEAN Guidelines on Promoting CSA (Volume 3). The integrated CSA guidelines is based on a clear framework and will help articulate the contribution of CSA across varying development goals and principles of sustainable agriculture. Central to these goals are:

- CSA practices, tools, and techniques
- CSA policies and programs
- CSA stakeholders' roles and contributions
- CSA scope and scale of implementation

The Volume 3 of the Guidelines primarily aimed to provide guidance on how ASEAN member states can promote the adoption and upscaling of CSA practices such as the ones presented in the ASEAN Guidelines. Specifically, it adhered to:

- Provide assessment guidelines in prioritizing the CSA approaches; and
- Suggest principles for the promotion and adoption of CSA among ASEAN Member States (AMS).

The project was carried out from May to November 2021.

Case Study Researches on Public Policies in Asia and the Pacific – Philippines, Indonesia, and Vietnam

The Philippines is one of the three countries in Asia covered by this International Fund for Agricultural Development (IFAD)-funded project and in collaboration with the Food and Agriculture Organization of the United Nations (FAO). The project aims to provide a comprehensive analysis of the public policy trends related to the promotion and implementation of family farming in the Philippines, Indonesia, and Vietnam. Specifically, the project intends to:

- Assess existing public policies and programs related to family farming in terms of operations, production, drivers, and challenges across the phases of policy development cycle.
- Determine the gaps, opportunities, and lessons along each stage of the policy cycle to develop context-specific suggestions for improving the policy development process.

The results of the policy studies were used to develop a modular program that will contribute to the implementation of the main objective of the UN Decade of Family Farming (UNDFF) and serve as a tool for countries to develop public policies for the support of family farming. In particular, the program will contribute to Pillar 1 of the GAP: Develop an enabling policy environment to strengthen family farming.

This project was implemented from April to October 2020.

Rural Regional Transformation (RRT): Pathways, Policy Sequencing and Development Outcomes in China, the Philippines, and Vietnam

The goal of this project is to provide policy recommendations for stronger and more equitable growth in sub-national regions of China, the Philippines, and Vietnam through rural transformations. The project identified the policy implications for other developing countries through cross-country comparison; and improved the capacity of participating organizations through their collaborative work in the project.

The project was able to accomplish the following:

- Developed paper on typologies of rural transformation in the Philippines that documented the pathway of rural transformation as well as selection of sample rural regions;
- Developed papers on the impacts of the institution, policy, and investment (IPI) on rural transformation in the Philippines; and the impacts of major RRT drivers (i.e., IPIs) on rural development outcomes as inputs to quantitative modelling and the cross-country comparison study
- Produced RRT policy briefs for dissemination to policymakers at regional, national, and international levels and to international development partners
- The preliminary of research results in the Philippines was presented in Inter-Conference Symposium of International Association of Agricultural Economists (IAAE) held in Nanjing, China on 11-13 November 2019.

The project was implemented from September 2017 to March 2021.

ASEAN Working Group on Social Forestry Strategic Response Fund (ASRF) under ASFCC Phases 2 & 3

The Philippines was one of the countries covered by the ASEAN Working Group on Social Forestry Strategic Response Fund (ASRF), which SEARCA implemented as the supporting partner of the ASEAN-Swiss Partnership on Social Forestry and Climate Change (ASFCC). The ASRF is a flexible funding mechanism that aimed to enable the ASEAN Member States Focal Points to quickly respond to emerging issues and challenges and articulate policy recommendations and directions on social forestry as it relates to climate change, food security, and poverty alleviation.

Under the two phases of ASRF, grants were awarded to three projects in the Philippines from 2014 to 2020:

- A Study on the Existing Benefit-Sharing Mechanisms in the Philippine Community-Based Forest Management (CBFM)
- Dialogue among DENR Facilitators towards strengthening capacity on Community-Based Forest Management
- Social network analysis of selected community-based forest management (CBFM) projects in the Philippines

Enhancing Human Resource Development in Agriculture: Imperatives for Regional Food and Nutrition Security

Led by UPLB, the study aimed to take stock of the human resource requirements toward ensuring food and nutrition security in the region, particularly for Indonesia, the Philippines, and Thailand. Specifically, it envisioned to assess the demand and supply potentials of human resources in the agriculture, fishery, forestry, and natural resources (AFNR) arena with an eye to charting the future direction of educational assistance programs and initiatives to promote food and nutrition security.

SEARCA has worked with various development organizations and research institutions in the implementation of the following completed research and policy studies in the ASEAN region, including the Philippines:

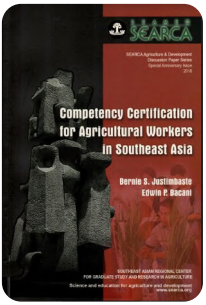
- Postharvest System Improvement – Best Practices in Fresh and Dried Chili
- in Southeast Asia: Quality and Safety Aspect, Kasetsart University
- From July 2015 to February 2016, the project was conducted with Kasetsart University (KU) as lead in collaboration with the members of the UC, specifically UPLB, UGM, IPB, and UPM with country focus on Indonesia, Malaysia, the Philippines, and Thailand. The outputs of the study include:
- Supply chain of fresh chili varies in each country and comprise of pool traders, distributors, wholesalers, retail traders and household;
- Middle-large scale chili farms showed a good adherence to good agricultural practices (GAP) while small scale chili condiment producer revealed noncompliance with all aspects of good manufacturing practice (GMP); and
- GAP guidelines for both fresh and processed chili production need to be disseminated more extensively to small farms and industries in Southeast Asia.

Linking Farmers to the Market: Towards Transforming Subsistence Farms to Commercial Farms

The project was implemented in 2015 for two years and documented the best practices in farm-market linkage and developed recommendations leading to reforms that will improve farm-to-farm market linkage in Philippine agriculture. The project focused on three traditional crops, namely:, rice, corn, and coconut, which account for about three-fourths of the arable land in the country and most of these farms are organized in a subsistence orientation. Funded by DA-BAR, the project evolved in three main components: the first is focused on the existing policies and programs designed to effect linkage of farmers to the market; the second is a household level analysis establishing the extent of market linkage and the level of entrepreneurial competencies of the farmers; and the third is a set of case studies of various entrepreneurial models.

Competency Certification for Agricultural Workers in Southeast Asia

SEARCA had been enjoined by the Southeast Asian Ministers of Education Organization (SEAMEO) in 2017 to conduct a study on competency standards for agricultural workers in Southeast Asia as a step forward in mapping national competency standards among the Southeast Asian countries. SEAMEO promotes technical and vocational education and training (TVET) as one of its seven education priorities. Hence, the collaborative study has been instrumental to the formulation of regional and national qualification reference frameworks and assurance framework, which was recognized to be essential in the harmonization and internationalization of TVET in Southeast Asia.



The results of the project were presented and validated in a regional workshop convened in May 2018 in the Philippines and jointly hosted by SEARCA and the Philippine Technical Education and Skills Development Authority (TESDA). It was participated in by representatives of TVET institutions from Brunei Darussalam, Indonesia, Lao PDR, Malaysia, Philippines, Thailand, Timor-Leste, and Vietnam; SEAMEO Secretariat; SEAMEO Regional Center for Vocational and Technical Education and Training (VOCTECH); SEARCA; the International Labour Organization (ILO); and private sector organizations involved in skills development of agricultural workers. It crafted a four-point recommendation that was subsequently presented and elevated for consideration in the 4th HOM on SEA-TVET held in September 2018.

The four-point recommendation focused on the following:

- Encourage TVET institutions to increasingly assume proactive and transforming roles in assessing, validating, and certifying skills and experience gained through non-formal and informal modes within a lifelong learning framework;
- Strengthen and expand competency certification systems to cover recognition of non-formal and informal learning;
- Encourage TVET institutions to pursue partnerships and alliances with a broader range of stakeholders; and
- Promote support from regional TVET networks and international cooperation.

Review and Assessment of the Agricultural Innovation Systems (AIS) in ASEAN
The Organisation for Economic Co-Operation and Development (OECD) collaborated with SEARCA for the conduct of this scoping study whose results were the basis for the policy dialogue between the OECD and ASEAN countries, including the Philippines, to secure food security in a long-term perspective.

Implemented from July 2015 to June 2016, the study aimed to identify the policy issues to improve agricultural productivity growth and sustainability in ASEAN region. Specifically, it aimed to provide an overview of agricultural innovation system in ASEAN countries, highlighting the need to evolve agricultural innovation system to generate innovative solutions for long-term food security concerns.

Landscape: Inclusive Agribusiness in Southeast Asia
SEARCA conducted a scoping study that assessed and mapped relevant agribusiness players and their activities and roles in the region, with specific attention to Indonesia, Myanmar, the Philippines, and Vietnam. The study evaluated agribusiness innovation trends and highlighted key champions and practices in the ASEAN region. The study results were presented at the Roundtable on Inclusive Agribusiness in Southeast Asia held in Ho Chi Minh City on 23-25 September 2015, which gathered more than 100 key agribusiness practitioners from the private sectors, farmer's groups, government, academe, civil society organizations, and international organizations.

Value Chain Analysis (VCA) of Carabao and Carabao-Based Products in the Philippines
SEARCA was commissioned by the Philippine Carabao Center (PCC) to conduct a VCA of carabao and carabao-based products considering the importance of these products in providing livelihood to farmers and other stakeholders and in improving the nutritional status of the vulnerable populace. The initial phase of the project was implemented in 2015 to analyze the value chains of carabao and carabao-based products in selected regions in Luzon, and recommend specific measures for improvement. The process through which these products pass the different segments in the value chain, together with the resulting variety of products, was examined. After a year of implementation, the second phase of the project conducted the VCA of carabao and carabao-based products in selected regions of Visayas and Mindanao.

The study yielded the following results:
- An overview of the carabao and carabao-based products industry in Luzon, Philippines and description of local production levels, production systems and trends, from national, regional and provincial levels;
- Identification of specific and applicable product forms available for trading in major production and demand centers in the country;

- Product- and commodity-specific value chain maps which identify the specific activities and services, key players and their functions, product and information flows as well as selling and payment schemes;
- An in-depth analysis of markets and market opportunities of carabao products, including market trends and product standards and requirements, (including current and potential markets, as well as domestic and export markets);
- Identification of constraints and opportunities faced by the value chain players by function/ segment;
- Recommendations for policy directions, strategies and enabling environment needed to improve the carabao industry in general, and the specific value chain in particular; and
- Publications on buffalo meat and meat products value chain and on dairy buffalo value chain.

National Action Plans for Mitigation in Rice: Comparative Assessment of Institutional Setting and Possible Entry Points for Intervention in the Philippines and Vietnam

SEARCA collaborated with the International Rice Research Institute (IRRI) on this project, in consonance with SEARCA's focus on the overarching thrust of ISARD in its 10th Five-Year Plan. The project was conducted from July 2016 to January 2017.

The study primarily aimed to identify bottlenecks in the implementation process and entry points for international institutions to support implementation of national mitigation plans inthe rice sub-sector. Furthermore, the project intended to highlight key stakeholders and their roles as well as posit recommendations on how to effectively involve them to successfully reduce the carbon footprint of rice production in the Philippines and Vietnam. The outputs of the project include the following:

- Improved level of understanding of the dynamics of implementation of climate change mitigation policy, particularly in the rice sub-sector, in the Philippines and Vietnam;
- Better grasp of the Intended Nationally Determined Contributions (INDC), national climate change action plans, related initiatives in greenhouse gas (GHG) mitigation in the rice sub-sector and the resources entailed;
- Identified potential bottlenecks in the implementation of national mitigation plans in the rice sub-sector;
- Possible entry points for interventions in support of the implementation of national mitigation plans in the rice sub-sector;
- Understanding how climate change policies developed at the national level are translated to the local level; and
- Recommendations on effectively involving stakeholders to reduce the carbon footprint of rice production in the Philippines and Vietnam.

Improving the Agricultural Insurance Program to Enhance Resilience to Climate Change: Evidence from Rice and Corn Production in the Philippines

SEARCA and the Philippine Rice Research Institute (PhilRice) carried out the project to analyze how good agricultural practices (GAP) adoption among rice and corn farmers could be implemented to compliment the enhancement of agricultural insurance system in the Philippines. SEARCA led the corn component of the study in coordination with the Philippine Crop Insurance Corporation (PCIC), while PhilRice undertook the research on

the rice component. Completed in 2014, the project was able to: (1) identify the existing and matured GAP technologies related to pest and disease resiliency in rice and corn production; (2) determine the extent of awareness of farmers about these technologies and analyze uptake patterns and identify the psychological, socio-economic and demographic determinants of GAP adoption; (3) assess the perception and level of awareness om crop insurance system mechanisms among rice and corn farmers; and (4) identify appropriate policy recommendations and intervention measures to improve adoption of good agricultural practices toward improving the formulation and effectiveness of agricultural program.

Impact of Climate Change on the Philippine Rice Sector: Supply/Demand Projections and Policy

Funded by the IRRI in 2007, the project presented the analysis of the effects and impacts of climate change on rice production in the Philippines. Moreover, it analyzed the effects of global warming on rice crop productivity using available historical data on rice yields and weather data, and also supplemented by crop simulations utilizing a process-based crop model. The project came up with a national rice-climate change modeling framework that can also be used as prototype for assessments in other countries.

Food Reserves: A Comparative Study on Food Reserve Management and Policies in Southeast Asia

The Philippines was among the countries covered by this project, which was a collaboration between SEARCA and the members of the UC. The project was under the auspices of SEARCA's Umbrella Program on Food and Nutrition Security for Southeast Asia 2014-2019.

The project aimed to:

- Define and understand the importance of keeping food stocks and reserves, and the rationale behind countries' decision to stockpile.
- Identify commodities that countries stockpile and the modalities and mechanisms of food stockpiling that have been adopted, including physical, virtual, trade, national, and regional mechanisms.
- Examine the implications of a changing regional trade regime on a country's foodstocks, as well as the impact of individual countries' food reserves on a regional stockpiling mechanism such as the ASEAN Plus Three Emergency Rice Reserve (APTERR).
- Explore the feasibility of establishing other types of regional stockpiles beyond reserves.

In addition to the survey in the 11 Southeast Asian countries, SEARCA organized a workshop involving all countries to determine the role of food reserve management and policies in the region and identify implications of a changing regional trade regime, like the ASEAN Economic Community 2015 (AEC 2015), on a country's food stocks. Countries stockpile food, particularly rice, in different modalities and adopt a mix of trade instruments. Thus, SEARCA chose rice as a starting point to study food reserve management processes and policies in Southeast Asia.

Umbrella Program on Climate Change Adaptation and Mitigation in Southeast Asia

From 2015 to 2020, this program was jointly implemented by SEARCA and the UC with the CGIAR Research Program on Climate Change, Agriculture and Food Security–Southeast

Asia (CCAFS SEA) and the International Center for Tropical Agriculture (CIAT). It covered the Philippines and the 10 other Southeast Asian countries.

Umbrella Program on Food and Nutrition Security for Southeast Asia

The Umbrella Program on Food and Nutrition Security for Southeast Asia was envisaged to serve as a platform for collaborative research on food security among the UC members and partner universities/institutions from the SEAMEO member countries. It aimed to align the program of work on food security of SEARCA and the UC to the development needs in the region and to support ongoing ASEAN-level programs on improving food security. The priority areas for collaboration were addressed through three integrated components: research and development, capacity building through graduate education and training, and knowledge management.

Other Past Research Projects

Many of SEARCA's research projects in the Philippines were conducted in cooperation with various national government institutions, international aid and donor organizations, universities, and private sector. Altogether, SEARCA has conducted at least 240 projects in the Philippines on various topics including:

- Agrarian Reform
- Agribusiness and enterprise development
- Agricultural credit and insurance
- Agricultural human resource and capacity building
- Agricultural information management
- Agroforestry and watershed resource management
- Agro-industrial development
- Aquaculture
- Biodiversity conservation and protected areas management
- Biofertilizer
- Biofuel development
- Biotechnology and gene banking
- Climate Change adaptation and mitigation
- Commodity research of staples and high valued crops
- Commodity value chain analysis and agri-food systems
- Economic and environmental impact assessments
- Ex-ante evaluation of industry strategic S&T plans for inland crops, aquatic resource, and livestock sectors
- Farming systems
- Fisheries resources management
- Food and nutrition security

- Gender roles in agriculture
- Production of organic feeds for native chicken
- Productivity growth in Philippine agriculture
- Assessment of smuggling on selected agricultural commodities

Some of the Philippine agencies that have commissioned and collaborated with SEARCA in these projects are the following:

- Department of Agriculture (DA) and its bureaus and attached agencies
  - Bureau of Agricultural Research (BAR)
  - National Agricultural and Fishery Council (NAFC)
  - Philippine Carabao Center (PCC)
  - Philippine Rice Research Institute (PhilRice)
  - Bureau of Fisheries and Aquatic Resources (BFAR)
  - Philippine Crop Insurance Corporation (PCIC)
  - Quedean Rural Credit and Guarantee Corporation (QUEDANCOR)
  - National Postharvest Institute for Research and Extension (now Philippine Center for Postharvest Development and Mechanization (PhilMech)
  - National Tobacco Authority (NTA)
- Department of Education and its attached agencies
  - Department of Education – Division of Laguna
  - Department of Education – Division of Busuanga
- Department of Agrarian Reform (DAR)
- Department of Environment and Natural Resources (DENR)
  - Protected Areas and Wildlife Bureau (PAWB)
  - Palawan Council for Sustainable Development (PCSD)
  - Laguna Lake Development Authority (LLDA)
- Department of Science and Technology (DOST) and its line agencies
  - Technology Application and Promotion Institute (TAPI)
  - Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development (PCAARRD)
  - National Academy of Science and Technology (NAST)
- College of Economics and Management Alumni Foundation, Inc. of the University of the Philippines Los Baños (CEMAFI-UPLB)
- Climate Change Commission (CCC)
- Land Bank of the Philippines (LDB)
- National Commission for Indigenous People (NCIP)
- National Economic and Development Authority (NEDA)
- National Nutrition Council (NNC)
- Philippine Statistics Authority (PSA; formerly National Statistics Office)
- Philippine Institute for Development Studies (PIDS)
- Technical Education and Skills Development Authority (TESDA)
- Local Government Units (LGUs)
  - Provincial Government of Leyte
  - Provincial Agriculture Office of Leyte
  - Provincial Government of Oriental Mindoro
  - Provincial Agriculture Office of Oriental Mindoro

- Mindoro State College of Agriculture and Technology
- University of the Philippines Los Baños
- Visayas State University
- Alay Kapwa Kilusang Pangkalusugan (AKAP)
- Center for Agriculture and Rural Development, Inc. Mutually Reinforcing Institutions (CARD MRI)
- Century Canning Corporation
- CTI Engineering International Co., Ltd.
- Dyzum Distillery Inc.
- ERGONS Project Marketing Consultants
- Farming Systems Development Corporation
- Lingap para sa Kalusugan ng Sambayanan, Inc.
- Manila Observatory
- Nestle Philippines
- Philippine Long Distance Telephone (PLDT)
- Rural Improvement Club
- United Coconut Association of the Philippines, Inc. (UCAP)
- Woodfields Consultants, Inc.
- Victoria Kalamansi Farmers Federation (VKFF)

In addition, SEARCA's strategic role and position as well as its excellent track record in managing research projects has made it possible to forge partnerships and linkages with multilateral and bilateral agencies and international organizations which resulted to projects that involved and benefited Filipinos and Philippine institutions. The Center therefore becomes a window of various international aid, donor organizations, academic research institutions, and development organizations who wanted to maximize their assistance to Southeast Asia particularly in the Philippines. The international and regional organizations and institutions based in other countries that have collaborated with SEARCA in its research work in the Philippines include:

- ASEAN Working Group on Social Forestry
- ASEAN Secretariat
- Asian Development Bank (ADB)
- Asian Productivity Organization (APO)
- Association of Southeast Asian Nations (ASEAN)
- Australian Agency for International Development (AusAID)
- Australian Center for International Agricultural Research (ACIAR)
- Business School of Harvard University
- Canadian Department of Foreign Affairs and International Trade
- Canadian International Development Agency (CIDA)
- Center for Overseas Pest Research
- Common Fund for Commodities of the Netherlands
- Cornel University
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Deutsche Gesellschaft fur Intenationale Zusammenarbeit (GIZ)
- ETC Foundation
- European Commission
- Ford Foundation

- Groupement d'etudes et de Recherches pour le Developpement de l'agronomie tropical (GERDAT)
- Institut Pertanian Bogor (IPB)
- Institute of Geographic Sciences and Natural Resources Research of Chinese Academy of Sciences (IGSNRR-CAS)
- Institute for Global Environmental Strategies (IGES)
- International Atomic Energy Agency
- International Center for Tropical Agriculture (CIAT)
- International Development Research Centre (IDRC) of Canada
- International Fund for Agricultural Development (IFAD)
- International Food Policy Research Institute (IFPRI)
- International Foundation for Science (IFS)
- International Institute for Environment and Development
- International Labor Organization (ILO)
- International Potato Center
- International Rice Research Institute (IRRI)
- International Institute of Rural Reconstruction (IIRR)
- John D. and Catherine T. MacArthur Foundation
- Kansas State University (KSU)
- Kasetsart University (KU)
- Ministry of Development Cooperation, the Netherlands
- Organisation for Economic Co-operation and Development (OECD)
- Southeast Asian Fisheries Development Center (SEAFDEC)
- Swiss Agency for Development and Cooperation (SDC)
- Tokyo University of Agriculture – NODAI
- United Nations Development Programme (UNDP)
- United Nations Food and Agriculture Organization (UN-FAO)
- United States Agency for International Development (USAID)
- Universitas Gadjah Mada (UGM)
- Universiti Putra Malaysia (UPM)
- University of Guelph, Canada
- University of Computer Sciences Yangon (UCSY)
- University of Southern Queensland (USQ)
- World Agroforestry (ICRAF)
- World Bank
- WorldFish
- World Vegetable Center (formerly Asian Vegetable Research and Development Center (AVRDC))

▶ RESEARCH AND COLLABORATIVE GRANTS

Seed Fund for Research and Training (SFRT)

The Southeast Asian region has a number of promising researchers and scientists whose desire to contribute to the region's development through research and knowledge dissemination initiatives is hindered by lack of funds. This situation serves as a barrier to translating promising research and training into scientific outputs that could be applied to promote development.

To address this concern and in line with the Center's thrust of promoting, undertaking and coordinating research programs relevant to the agriculture and rural development needs of the region, SEARCA will make available a pool of funds to be known as the SEARCA Seed Fund for Research and Training (SFRT).

The SFRT is envisaged to provide chosen research and training project proposals with limited start-up funds intended to enhance chances of securing long-term support from donor agencies. A grant of up to USD 15,000 shall be awarded as seed fund for research/training.

To date, a total of 34 Filipinos received SFRT grants for their research projects, all of whom have completed their research.

Travel Grants Program

To reinforce the Center's efforts and resources in accelerating transformation through agricultural innovation (ATTAIN) and become a leading enabler and champion of excellence in agricultural and rural development, SEARCA provides travel grants of up to a maximum of USD 1,200 to each qualified agriculture and agriculture-related professional, social scientist, or graduate student in Southeast Asia.

To date, more than 100 Filipinos have been provided travel grants under the program.

IFS-SEARCA Collaborative Research Grants

In 2016, the International Foundation for Science (IFS) and the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) implemented a grants scheme for collaborative research called the IFS-SEARCA Collaborative Research Grants Pilot in Southeast Asia. It was open to the nine Southeast Asian countries of Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Thailand, Timor Leste, and Vietnam, and focused on climate change adaptation and mitigation.

As a follow-on collaboration between IFS and SEARCA, in December 2020, the Mentorship Program for Advanced Grants was launched with a Call for Research on Accelerating Transformation through Agricultural Innovation (ATTAIN). Promising scientists will benefit from translating their research and scientific outputs into knowledge that can be applied to promote development, while enhancing their capacities to develop research proposals and conduct research, and also expanding their reach in terms of contributing to the body

of knowledge in their research areas. The purpose of the Mentorship Program is to nurture relationships between established scientists and early career researchers (the IFS-SEARCA grantees) that are intended to help the latter to strengthen their research processes, ensure that their projects are of high quality, and produce useful results.

In partnership with SEARCA, IFS supports Southeast Asians who are enrolled in a PhD degree program or have recently completed a master's or PhD degree within the five years from the time of the call, and with limited research start-up funds. This call, however, gives priority in terms of number of slots to its scholarship alumni; faculty and staff of partner universities and universities under its institutional development assistance program; and other regular employees of development organizations, academic institutions and government agencies of Southeast Asian countries, such as Cambodia, Lao PDR, Myanmar, Philippines, Timor-Leste, and Vietnam.

The implementation of the new Advanced Grant scheme continued. Ten successful applicants received an IFS-SEARCA Advanced Grant to conduct their research within one to three years.

▶ POLICY ROUNDTABLES AND CONFERENCES

Filipinos also participated in various policy roundtables, conferences, and fora with focus on providing evidence-based policy lessons/implications resulting from science-based studies. Likewise, these provide venue for in-depth discussion among stakeholders to address the issues concerning agricultural and rural development in the region.

- Regional Training Workshop on Halal Slaughtering and Certification (23-25 August 2022, Putrajaya, Malaysia)
- First International Conference on School-plus-Home Gardens cum Biodiversity Enhancement Enterprise (SHGBEE1) (8-12 November 2022, Coron, Palawan, Philippines)
- Roundtable Discussion Series on Sustainable Food and Agriculture Systems in Southeast Asia: Digital Economies for the Food and Agriculture Sector (18 April 2023, PICC, Manila, Philippines)
- Regional Policy Forum - From Farms to Schools: Toward Sustainable and Inclusive School-Based Food and Nutrition Programs in SEA (24-25 April 2023, Alabang, Muntinlupa City and via Zoom)
- United States Department of Agriculture-Foreign Agricultural Service (USD A-FAS) 2023 Biotechnology Outreach Series (30 June, 14 July, 8 August, and 15 August 2023, Philippines)
- Regional Workshop cum Roundtable Discussion on ASEAN Economic Integration (28-29 Nov 2019, Bangkok, Thailand)
- ASEAN Multisectoral Workshop on Mainstreaming Biodiversity in Food and Agriculture (4-6 Dec 2018, Bangkok, Thailand)
- Regional Workshop on Competency Certification for Agricultural Workers in Southeast Asia (9-10 May 2018, SEARCA, Philippines)
- International Conference on School Gardens: Leveraging the Multi-functionality of School Gardens (16-18 Apr 2018, SEARCA, Philippines)
- Training-Workshop on Rapid Value Chain Assessment for the ATMI-ASEAN Project (1-3 Nov 2017, Bangkok, Thailand)

- Forum on Promoting Sustainable Agriculture in the Mekong Sub-Region towards Food Security (6-7 Nov 2017, An Giang, Vietnam)
- Regional Workshop on Mainstreaming Biodiversity in Agriculture for Sustainable Development and Food Security in Southeast Asia (12-14 Sep 2017, Chiang Mai, Thailand)
- Policy Roundtable: Rice Policies across Southeast Asia (8 Dec 2016, SEARCA, Philippines)
- Regional Roundtable Discussion and Workshop on the Development of Ecological Monitoring Network in Southeast Asia (24-25 Oct 2016, SEARCA, Philippines)
- Policy Roundtable on Ensuring Food Security through Improving the Agricultural Insurance Program to Enhance Resilience to Climate Change in Southeast Asia (29-30 July 2015, Makati City, Philippines)
- Regional Consultation Workshop on the Umbrella Program on Climate Change Adaptation and Mitigation for Southeast Asia (12-14 May 2015, Hanoi, Vietnam)
- Second International Conference on Agricultural and Rural Development in Southeast Asia (ARD2014) (12-13 Nov 2014, Makati City, Philippines)
- SFRT Grantees Forum (3 Oct 2014, SEARCA, Philippines)
- Policy Roundtable on Biotechnology: Biotechnology for Food Security in a Climate Change Scenario and ASEAN Integration (26-27 May 2014, Hanoi, Vietnam)
- Policy Roundtable on Mainstreaming Climate Change Adaptation in the Agriculture Sector towards Food Security in Southeast Asia (6-7 Feb 2014, Phnom Penh, Cambodia)
- Regional Consultation Workshop: Umbrella Program on Food Security (25-26 Jul 2013, SEARCA, Philippines)

▶ ACHIEVEMENT AWARD IN AGRICULTURAL AND RURAL DEVELOPMENT

In pursuit to honor excellence, leadership, and service in advancing agricultural and rural development in Southeast Asia, SEARCA will launch the young achiever award in ARD, in collaboration with key partners, to exemplary young individuals in the region. The objective of the award is for re-engaging the youth and recognizing young individuals who have advanced ARD in the region through their leadership, innovation, and achievement. These young individuals have demonstrated workmanship and commitment in accelerating transformation through agricultural innovation that contributes to the achievement of the Sustainable Development Goals (SDGs).

Dioscoro L. Umali Achievement Award in Agricultural Development

From 2007 to 2015, SEARCA has awarded the Dioscoro L. Umali Achievement Award in Agricultural Development to recognize exemplary contributions in the field of agriculture and rural development. It is a collaboration among SEARCA, the National Academy of Science and Technology, Philippines (NAST,

Philippines), and Dioscoro L. Umali Foundation, Inc. (DLUF). The achievement award covers a full range of fields including plant and animal sciences, land and water management, environment and natural resource management, technology development, social organization, food security, poverty reduction, economics and business, and policy and governance, among others. In November 2011, Dr. Ramon C. Barba, Philippine National Scientist, was conferred the Umali Award for his distinguished achievement in the field of plant physiology, particularly his mango flower induction technology that resulted in year-round availability of mango fruits and micropropagation of important crop species.

▶ INFORMATION MANAGEMENT PROJECTS

ASEAN Integrated Pest Management (IPM) Network

The ASEAN IPM Network, which started in 1997, was an initiative for regional cooperation in sustainable development of the Philippine government through the Department of Agriculture upon the endorsement of the ASEAN Ministers of Agriculture and Forestry. The Network served as the knowledge communicator of IPM for the national program in each ASEAN Member State. It also aimed to strengthen the capacity of national IPM programs to synthesize IPM knowledge for human resource development and policy advocacy in the region. SEARCA hosted the ASEAN IPM from its establishment in 1997 until 2003.

Agricultural Information Bank for Asia

In 1973, SEARCA established the Agricultural Information Bank for Asia (AIBA) which aimed to serve as a regional documentation center that will meet the need for improved information services in the field of agriculture and allied disciplines. Based in Los Baños, Laguna, Philippines, AIBA served as the regional coordinating center for the Agricultural Information Network-Southeast Asia (AgInfoNet-SEA) and the International Information System (AGRIS) being implemented by FAO. AIBA was also designated by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) as the regional center for the Phase I implementation of its Asia and Pacific Information Network for Medicinal and Aromatic Plants (APINMAP) project. AIBA is composed of national centers in five countries including the Philippines, Indonesia, Malaysia, Thailand, and Singapore.

▶ AGRICULTURE, FORESTRY, AND NATURAL RESOURCES (AFNR) KNOWLEDGE PLATFORM

For almost six decades, SEARCA has been actively working with different like-minded institutions and networks in conducting research that addresses critical issues related to the region's agricultural and rural development. Capitalizing on this knowledge resource, SEARCA is leading the establishment of the Agriculture, Forestry, and Natural Resources (AFNR) Knowledge Platform.

The knowledge platform primarily aims to facilitate and sustain an ecosystem for knowledgesharing that contributes to agricultural and rural development in the Southeast Asian region and beyond. It also ensures access to an accurate, highly credible, sound, timely, and reliable source of information that will fuel future research activities, capacity-

building initiatives, policy development, and technological innovations aimed at accelerating transformation in the region's agricultural sector.

It has three main components: knowledge generation, exchange, and utilization, which support the Community of Practice (CoP). Knowledge generation includes the conceptualization and organization of opportunities for knowledge sharing and learning (conferences, roundtable discussions, webinars, etc). Part of this is facilitating the link with other SEARCA programs and harvesting their knowledge products through the Applied Knowledge Resources Unit (AKRU). While AKRU works on scholarly publications, AFNR will work on popular formats, addressing the needs of our other stakeholders and providing another entry point/access to other SEARCA resources.

The second part is the knowledge exchange, the actual website itself. In this part, the contributions of the programs will be categorized into these thematic areas. These are loosely based on our ATTAIN Priority Areas (our current five-year plan): Food and Nutrition Security; Sustainable Farming Systems and NRM; Value Addition, E-Commerce, and Industry Development; Policy and Thought Leadership; and Training and Capacity Building. There will also be links to other tools/resources like the SEARCA Library, AgPractices, Access Agriculture videos, etc.

The last part is knowledge utilization, the Community of Practice. One of the significant developments for the knowledge platform this year is its integration into the SEARCA Consortium for Agricultural Development, Research, and Extension (CADRE), where it is envisioned to serve as the Knowledge Management (KM) arm of the Research Consortium. The knowledge platform will continue to be client-driven as it caters to the information needs of external stakeholders. Its content will also be designed to stir discussions in the CoP. Regular activities (e.g., an online forum on a certain timely/relevant topic) will also be conducted to keep the CoP active and engaging.

As the KM component of CADRE, the AFNR Knowledge Platform aims to broaden the CoP (and Interest) through a culture of knowledge-sharing, exchange, and engagement. Moving forward, the knowledge platform will advocate D4A (Data for All) that supports data inclusivity access through the development and provision of agricultural data and statistics tools.

EMERGING INNOVATION FOR GROWTH

SEARCA's core program on Emerging Innovation for Growth (EIG) is focused on providing farmers and farming families wider access to innovative products and services as well as business models for increased productivity and income through:

- Project Development, Monitoring, and Evaluation
- Knowledge and Technology Transfer
- Open Innovation and Agri-Incubation

▶ PROJECT DEVELOPMENT, MONITORING AND EVALUATION

Objective: Implement value-driven programs, projects, activities upholding SEARCA brand

EIGD prioritizes innovative programs, projects, and training initiatives, emphasizing diversity across various fields with a regional and subregional focus on agricultural and rural development (ARD) in collaboration with various organizations with same visions in mind.
In 2023, SEARCA has established good project portfolio and management by providing high-quality professional technical assistance and services to various national and international agencies. These projects involved addressing emerging and current issues and challenges in agriculture, rural development, and the well-being of farmers and farming families.

FOCUS: Agri-Business Models for Increased Productivity and Income
PARTNER ORGANIZATION: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

PROJECT: **Baseline and Endline Evaluation using LandScale Framework for the Strategic Alliance for Sustainable Coconut Production (STA Coco)** in Southern Leyte aims to evaluate the impact of the STA Coco project which is expected to support smallholder coconut farmers across Southern Leyte in improving productivity and sustainability. To identify areas for improvement for STA Coco implementation, SEARCA conducted a baseline assessment in 2022 and will initiate an endline assessment by 2025 using the LandScale framework and tools. The LandScale assessment system is a package of an online platform, framework, and a set of guidelines on how to carry out the assessment, verify the results and make claims of investment and impact. Various stakeholders in the seven municipalities of Southern Leyte, Philippines are being consulted and interviewed for the project, including coconut farmers, local government units, and private sectors involved in the coconut supply chain.

Stakeholder consultation at Southern Leyte, Philippines

FOCUS: Transformational Leadership for Agricultural and Rural Development (ARD)
PARTNER ORGANIZATION: Commission on Higher Education and Visayas State University

PROJECT: Supported by the Commission on Higher Education (CHED), SEARCA together with the Visayas State University (VSU) is **Formulating the Five-Year Roadmap for Agriculture Higher Education Program in the Philippines** that aligns with CHED's vision, mission, and goals for the next five years.

Specifically, the roadmap to be developed will: (1) Set policy directions for higher education consistent with local, regional, and international needs and industry trends ; (2) Serve as guide in the formulation and implementation of enabling policies and development initiatives to meet the demands of industry, community, and scholarship needs for socio-economic development; (3) Institutionalize the representation of experts from the government, academe, and industry in direction setting and policy making for higher education; and (4) Ensure accountability, transparency, evidence-based decision making in policy formulation and program implementation.

AgriVision 2029: International Dialogue on the Future of Agriculture Higher Education Program in the Philippines, featuring plenary and roundtable discussion participated by experts in the government, academe, industry, and other stakeholders held on 20 August 2024. Resource Speakers included Dr. Weerapon Thongma, President of Maejo university, and Dr. Nur Azura Adam, Associate Professor of Universiti Putra Malaysia.

FOCUS: Sustainable Farming Systems and Natural Resource Management
PARTNER ORGANIZATION: NIRAS Asia Manila and International Centre for Environmental Management (ICEM) Asia Consulting Pte. Ltd

PROJECT: **TA-10009 PHI: Accelerating Climate Resilience in Agriculture, Natural Resources and the Environment** is an ADB-funded project that aims to help the Philippine government to move forward with the climate resilience reform agenda of the Climate Change Action Program (CCAP), covering agriculture, natural resources, and the environment. It will support the preparation and achievement of relevant policy and institute regional objectives of the ensuing Subprogram 2 of CCAP which focuses on scaling up the effort to increase the resilience of agriculture and ecosystems under the transition to a low-carbon pathway.

SEARCA, in partnership with NIRAS and International Centre for Environmental Management (ICEM), worked together to prepare and augment the implementation readiness of the CCAP, foster capacity building, and offer invaluable policy guidance for the Philippine government for securing the policy-based loan of USD 500 million to be financed from ADB's ordinary capital resources loan. Relevant government agencies namely, the Department of Agriculture (DA), Department of Environment and Natural Resources (DENR), and Philippine Crop Insurance Corporation (PCIC) were closely coordinated and consulted throughout the project.

FOCUS: Transformational Leadership for ARD
PARTNER ORGANIZATION: Department of Agriculture Bureau of Agricultural Research (DA-BAR)

PROJECT: **The Benchmarking of the Agricultural Research for Development (R4D) Management System with Selected Asian Countries** project, funded by the Department of Agriculture Bureau of Agricultural Research (DA-BAR), assessed and analyzed the R4D coordination and management activities among funding and implementing institutions across selected Asian countries. Eight benchmarking activities have been conducted in Thailand, Malaysia, South Korea, Japan, Vietnam, Indonesia, Taiwan, and India which included key informant interviews and site visits to gather comprehensive data, particularly on their R4D grants system. Subsequently, a series of post-benchmarking sessions were undertaken to discuss and refine the collected data, ultimately providing policy recommendations for DA-BAR.

FOCUS: Enhanced ARD towards Climate Resilience
PARTNER ORGANIZATION: United Kingdom Research Institute(UKRI) -Innovate UK, Straw Innovations Ltd, Koolmill Systems Ltd., and Aston University

PROJECT: The **Rice Straw Biogas Hub (RSBH)**, funded by the UKRI-Innovate UK, is a three-year project that aims to lower the significant contribution of rice straw to GHG emissions and climate change. This will be achieved by removing rice straw from fields and converting it to bioenergy such as biogas. Upon completion, the project aims to recommend policy to government institutions that foster an enabling environment to innovative rice straw management, further reducing the agriculture sector's impact on climate change.

Two-day Biogas Training attended by LGUs, farmers, farmers groups, and other institutions, hailing from Nueva Ecija and Laguna, held at SEARCA Headquarters and at Environment Sanitation Center (ESC) in Tunasan, Muntinlupa.

SEARCA-initiated projects
Aligned with its commitment to fostering innovative agricultural solutions, SEARCA undertakes projects that aim to enhance agricultural knowledge and practices while safeguarding the environment.

SEARCA Carbon Footprint
To strengthen its commitment and even showcase its efforts and contribution in addressing global challenges, particularly climate change, towards a more sustainable future through the SDGs, this project aims to assess the carbon footprint of SEARCA through life cycle assessment (LCA) following ISO 14044 – LCA requirements and guideline. With the results of the initial carbon emission assessment reaching to 628.93 MT CO2e, the SEARCA is committed to intensifying its initiative climate change mitigation.

Through this project, the carbon footprint for FY 2022-2023, which served as the baseline year, was calculated. In total, for Fiscal Year 2022 - 2023, the Center has an annual emission of metric tons of 628.93 MT CO2e, bulk of which (54%) came from electricity consumption. This brings the emission intensity in terms of per employee basis at 6.76 MT CO2e / employee-year, which is lower than the global average value. Finally, an excel-based calculator was developed to track the carbon footprint of the Center for the succeeding fiscal year. This study is consistent and will intensify the initiative of SEARCA in contributing to climate change mitigation through its program on "Web-based Integrated Spatial Engine and Smart Ecosystem (WISE) Rice-based Carbon Farming."

SEARCA Carbon Farming Program. SEARCA conducted a scoping study to analyze the current landscape, methodologies, and approach of low-carbon emission farming and the carbon credit market in Southeast Asia. This involved a series of interviews with experts, private companies, non-government organizations (NGOs), and farmers with existing initiatives on carbon farming or carbon emission reduction in agriculture from Cambodia, Philippines, Thailand, and Vietnam. The gaps and opportunities identified served as basis in formulating strategies and initiatives for a robust and sustainable approach to carbon farming and trading for the agricultural sector in the region.

Interviews with various organizations from Cambodia, the Philippines, Thailand, and Vietnam.

Through this program, it is recommended to develop a comprehensive business model that encompasses the financial, operational, and regulatory dimensions of the carbon trading scheme. This will enable a structured approach for implementing and scaling carbon trading initiatives and serve as a practical guide for stakeholders to understand economic benefits and logistical requirements of participating in this market.

SEARCA Platform for Attaining Agri 4.0 Collaboration and Engagement (SPACE)
SPACE is a virtual community designed to foster collaboration and innovation among experts from academia, industry, government, and local communities. The platform connects professionals through an interactive database and open calls for collaboration, creating limitless opportunities for cooperative ventures in agricultural technology and sustainable development.

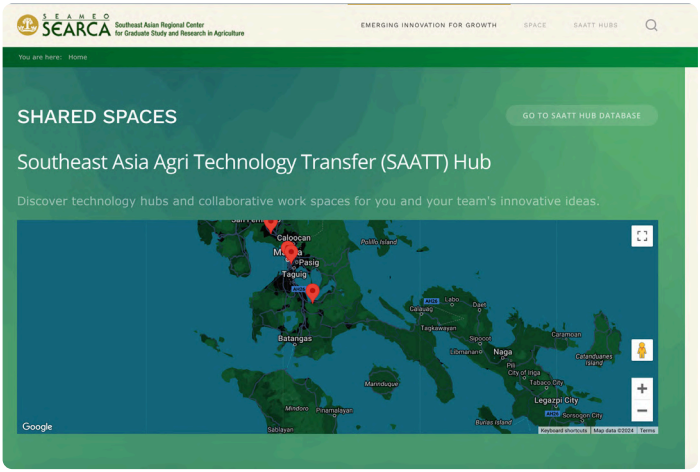
In a recent outreach initiative, 60 emails were sent to a carefully curated list of experts, inviting them to join SPACE's growing pool of professionals. Over 25 experts, representing a diverse range of fields, have already expressed interest in joining this dynamic network. By becoming part of SPACE, these experts are contributing to a vibrant ecosystem of knowledge exchange and partnerships that seek to revolutionize agriculture across Southeast Asia.

With the participation of leading researchers, technology innovators, policy-makers, and community leaders, the platform offers a unique space where cutting-edge ideas and practices can be shared to accelerate the adoption of Agri 4.0 solutions. Through its expert pool, SPACE facilitates collaborations that address key challenges in agriculture, from increasing productivity and food security to implementing sustainable practices and advanced technologies.

Southeast Asia Agri-Technology Transfer (SAATT)
The creation and development of the Southeast Asian Agri-Tech Transfer (SAATT) Hub website hosted by SEARCA shall establish SEARCA as a champion and enabler in the agri-tech transfer landscape. The SAATT Hub shall be SEARCA's contribution to the aggressive brokerage of already existing or upcoming innovations in agriculture by serving as the virtual central hub where agribased and agri-related technology transfer institutions and stakeholders from the academe, industry, and government could promote and showcase innovative products and agri-technologies. The SAATT Hub shall also serve as a platform for agricultural cooperatives, farmers, and farming families in the region to gain access to SEARCA's IP and tech transfer assets, modern agri-technologies, and disruptive solutions to transform mindsets and agricultural systems ushering Agri 4.0.

After its integration at the SEARCA website in June 2024, more than 25 of the invited experts confirmed their participation and interest in the SPACE platform. With this, 12 institutions across Southeast Asia also agreed to be part of SEARCA's network of Tech Hubs under SAATT.

Some of the institutions from the Philippines that have expressed interest in being part of SAATT include SEARCA, Caraga State University-Navigatu TBI, ISAT U-Kwadra TBI, Upgrade Innolab Inc., UPLB Technology Transfer and Business Development Office (UPLB TTBDO), and Villgro Philippines.



SAATT webpage available at https://saatt.searca.org/

▶ KNOWLEDGE AND TECHNOLOGY TRANSFER

Objective: Enhance Partnership and leadership in priority areas and emerging concerns

Farm-level technology transfer: Automated Calamansi Sorter (ACS)
Under EIGD's Knowledge and Tech Transfer initiative is the facilitation of the adoption and transfer of emerging and innovative agritech innovations and linkages. SEARCA promotes

the adoption of innovative agri-tech solutions at the farm level to enhance agricultural productivity and sustainability. Through partnerships with academic and research institutions, SEARCA facilitates the development and dissemination of technologies that address specific challenges faced by farmers. This initiative focuses on practical solutions that improve efficiency and profitability at the farm level, ensuring that innovations are accessible and beneficial to smallholder farmers across the region.

Recent studies in Oriental Mindoro's calamansi production identified the sorting activity as one its challenge. To help address this issue, SEARCA, in consultation with University of the Philippines Los Baños (UPLB) and Mindoro State University (MINSU), help fabricate an Automated Calamnsi Sorter which aims to sort based on color of the fruit.

Digital Agriculture Platform

SEARCA is modernizing agriculture through digital platforms that connect farmers directly with markets, ensuring fair trade and improved livelihoods. These platforms leverage technology to streamline the supply chain from farm to fork, benefiting both farmers and consumers. In an increasingly digital world, SEARCA's Digital Agriculture Platform bridges the gap between farmers and markets, enabling smallholder farmers to thrive in a competitive landscape. By integrating technology into traditional farming practices, SEARCA is helping to secure a sustainable and profitable future for agriculture in the region.

Introduction of this initiative in the Philippines ventured on efforts linking farmers to market by tapping industry partners. An example is the "Development of Pilot Digital Agriculture Platform in the Philippines Project," in collaboration with APPGeese, Inc. The project aimed to modernize traditional farming and improve the livelihood of smallholder farmers through the digital agricultural exchange platform that allows fair trade via farm-to-fork system, thus securing for farmers their profit while serving fresh produce to consumers through e-commerce.

Another tech company that SEARCA worked with is the Project Zacchaeus, a grassroots-driven tech company that seeks impact-focused opportunities to eradicate poverty by optimizing innovations and developing a servant leadership culture. With its impact-focused community-based and farm management platform, known as FarmKonekt, SEARCA worked with the company to continue supporting farmers in Liliw, Laguna in relation to the marketing of agricultural produce of the farmers in the municipality.

Agri-robotics activities

SEARCA is dedicated to bringing about agricultural transformation through the adoption of a new concept of agriculture, Agri 4.0, redefined by modern technologies, processes, and dynamics. Moreover, SEARCA is committed to the development of the next generation of agriculture leaders and professionals.

A SEARCA intern demonstrated with his visiting classmates how to use VEX Robotics and how it can be used in the agriculture sector.

With this vision, SEARCA partnered with FELTA Multi- Media Inc. to support the participation of select students in the Philippine Robotics Olympiad in Laguna, Philippines. Apart from this, SEARCA also conducted AgriRobotics and Agri-Innovation Sessions with Dagatan Family Farm School. Focusing on the discussion of Computer Integrated Manufacturing, students were able to strengthen their design engineering skills by solving complex and real-world problems of computer-controlled machines.

Development and Piloting of Agri-Robotics Module
Envisioning to accelerate transformation to Agriculture 4.0 by nurturing innovations, SEARCA invests in empowering and equipping the youth and by developing and making innovative programs available and accessible to spark their interest in agriculture through new and creative approaches to complex problems in food production. One way of doing this is by building the capacities of school teachers and equipping them with resources that they can use to integrate Agriculture 4.0 in their lessons under the K-12 curriculum. To accomplish this, SEARCA collaborated with the Central Philippine State University. Using VEX Robotics kits, SEARCA and CLSU is collaborating to in develop an agri-robotics curriculum to help students pursue pathways toward agri-technology.

Agri-mechanization through Tractor Development
SEARCA is advancing agricultural mechanization by promoting open systems manufacturing, which allows for the customization and scaling of farming equipment to meet the specific needs of smallholder farmers. This initiative focuses on developing and deploying innovative, locally adaptable machinery to enhance agricultural productivity. Empowering farmers with the right tools is essential for sustainable agricultural growth. Through its Agri-Mechanization initiative, SEARCA is collaborating with global and local partners to bring innovative, open-source machinery to the fields, tailored to the unique needs of smallholder farmers in the region.

SEARCA has partnered with Kansas State University (KSU) and the UPLB Center for Agri-Fisheries and Biosystems Mechanization (UPLB-BIOMECH) to increase agricultural mechanization in the region through the development and scaling out of an open source and innovative tractor suitable for use of smallholder farmers. Through the partnership, the Ronnie Baugh (formerly Oggun) Tractor, developed by Cleber LLC using the Open System Manufacturing (OSM) model was introduced to the Philippines. The RB Tractor is currently being evaluated and tested by UPLB-BIOMECH while also developing implements for the tractor that are suitable to the region. The project has also partnered with an industry partner, RU Foundry, for prototyping and fabricating the developments to the tractor and its implements before introduction to farming communities.

To cascade this technology to farming community, SEARCA partnered with the Central Philippines State University (CPSU) to identify farmer group that will pilot the utilization of the open system in the local setting of Negros Occidental. The collaborative study will be identifying the adoptability and usability or the locally fabricated and manufactured to the actual agricultural activity in the province.

Locally manufactured tractor being tested for adaptability in farming, emphasizing usability for all, including women operators.

Developed content for various knowledge products
With an aim to help solve the triple burden of malnutrition in the Philippines, SEARCA, in partnership with DOST-Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) and National Academy of Science and Technology (NAST) launched Food and Life Exemplified: Planetary Health Diet (FLExPHD), a mobile application development competition that promotes mindful eating pattern. Out of 37 app developer who joined the competition, four winning team were able to launch their app during the 1st National Youth Science, Technology and Innovation Festival last 27 October 2023.

▶ OPEN INNOVATION AND AGRI-INCUBATION

Grants for Research Towards Agricultural Innovative Solutions (GRAINS)
GRAINS is a SEARCA program started in 2020 supporting agri-entrepreneurial minds by providing short-term starter funds to innovative agricultural concepts, prototypes, and ventures, supporting sustainable agriculture and rural development across Southeast Asia. By 2023, GRAINS supported 25 total projects hailing from Indonesia, Philippines, Malaysia, Thailand, and Myanmar.

In 2023, GRAINS supported the development of the **Spatial Decision Support Tool for Predicting Soil Moisture in Agriculture Using Sentinel-2** in the Philippines. The project, led by Ms. Mary Grace Gasco, CEO of SpaceCrop Technologies, Inc., aims to enhance irrigation management and crop resiliency by leveraging satellite data and artificial intelligence. An advanced algorithm was developed to predict soil moisture and its impact on crop growth, with features that integrate detailed weather forecasts, irrigation schedule alerts, and tracking systems for water and energy consumption. Currently, cacao farms in Mindanao are participating in market validation for the tool's application.

Open innovation and knowledge exchange
By facilitating two open innovation and knowledge exchanges in 2023, EIGD institutionalized partnership and collaboration among parties towards a synergistic innovation ecosystem and knowledge exchange and strengthened innovative and entrepreneurial mindsets.

The Southeast Asia Agri-Innovation Forum was a hybrid online and offsite event that showcased multi-country projects from new grantees funded by GRAINS. Chosen from hundreds of applications, these projects aim to tackle critical challenges faced by farming communities and drive agricultural transformation across Southeast Asia. Grantees from Indonesia, Malaysia, Myanmar, the Philippines, and Thailand presented their project concepts, inviting feedback and insights from our panel of experts.

AgriTech Field Day. Farmers' Exchange Program with GRAINS startup grantees. The onsite event, organized by SEARCA in collaboration with the Center of Excellence on Sustainable Agricultural Intensification and Nutrition (CE SAIN) in Cambodia, brought together farmer leaders and agritech startups in Cambodia and Europe. Startups supported by Impact Hub Phnom Penh, namely ADSA, DamDoh App, and Chalatex, and other innovators such as S.E.C. Solar Energy and SpaceCrop Technologies – Hungary, explored potential synergies within the Southeast Asian and European innovation ecosystem. The event provided a chance to share technologies and innovations, including demonstrations at the CESAIN Agricultural Technology Park, for the benefit of farmers and rural communities.

SEARCA Center Director Glenn B. Gregorio toured the visitors from Kaoshiung Medical University to the SHARING Museum.

Modern Agri-Education at Learning Hubs. To facilitate the exchange and dissemination of modern agricultural knowledge among youth, the SEARCA Hub for Agricultural and Rural Innovation for the Next Generation (SHARING) webpage was launched in 2023. The SHARING website features information about the onsite SHARING museum and the SHARING Café, which can host activities such as ideation sessions, hands-on learning, and internship programs focused on agrobotics.

These modernized learning approach and learning events focused on skill development and capacity building for the youth by providing and equipping the participants with practical knowledge and skills in technologies and innovation in agriculture. Such activities also exposed the youth to career opportunities and income-generating activities in agricultural technology, further igniting their interest in the critical fields of food security.

Through these learning events, SEARCA strengthened its impact on stakeholders and further contributed to the advancement of sustainable agriculture and rural development.

Agripreneurship and startup acceleration

To foster the growth of startups in the agriculture sector, we launched acceleration projects in collaboration with industry partners and business incubators, starting with the Philippines and Cambodia. Our goal is to mentor agriculture-focused startups throughout the region, helping

YABONG participants during their first face-to-face session at East-West Seed farm in Bulacan.

them advance to the next stage of growth and ultimately benefiting farmers and farming communities across Southeast Asia.

YABONG Bootcamp and Innovation Fair. In the Philippines, SEARCA in partnership with East-West Seed, organized the Young Agripreneurs Building Opportunities, Nurturing Growth (YABONG) Bootcamp. Through the implementation support of East-West Seed Foundation, the bootcamp developed young entrepreneurial talent for sustainable vegetable production. Seventeen young farmers, out of 160 applicants, enhanced their farm production and entrepreneurial expertise through a blend of 20 hands-on and theoretical learning sessions over three months.

At their graduation, the young agripreneurs showcased their plans and products at an open innovation fair. In a pitching competition focused on business plans, the top five agripreneurs were each awarded PHP50,000.00 to kickstart their farm enhancement. The event also increased the participants' market visibility, paving the way for business expansion, networking, and collaboration in advancing their farms.

YABONG participants during their first face-to-face session at East-West Seed farm in Bulacan.

Unveiled Impact Stories of Innovation

To continue disseminating stories of agri-innovation from projects funded by SEARCA GRAINS, three new video packages were created to inspire the adoption of best practices and to draw lessons toward successful project implementation. A total of seven stories are accessible through SEARCA website (www.searca.org/grains#stories) and social media platforms such as YouTube and Facebook.

Bioplastic Shifts Agrowaste into Sustainable Solution. presents scientists at the University of San Carlos (USC) using discarded shrimp shells to create bioplastic, a biodegradable and low-carbon alternative to combat plastic pollution. This enables redirection of agro-industrial waste from landfills to a circular economy. The story was also repackaged by SEARCA and USC Cebu into a one-minute 'Science in Shorts' entry titled "Unusually sustainable - bioplastics from shrimp shells plus mango waste!" The video premiered at the Curious2024 - Future Insight conference in Mainz, Germany, and garnered the Top 10 Nature Awards out of 250 videos submitted by researchers across the world.

ARCHIE: Agricultural Robot for Crop Health in Insect Control. highlights the creation of an agricultural robot that revolutionizes pesticide application with AI-based, real-time monitoring technology, and remote deployment mechanism.

YOUTH FORCES FOR AGRICULTURAL INNOVATION (#Y4AGRI)

The Young Forces for Agricultural Innovation (#Y4AGRI) is SEARCA's banner youth engagement initiative. Guided by the principle of "by the youth, for the youth, and with the once youth," the program aims to nurture young people as partners and leaders for agricultural innovation.

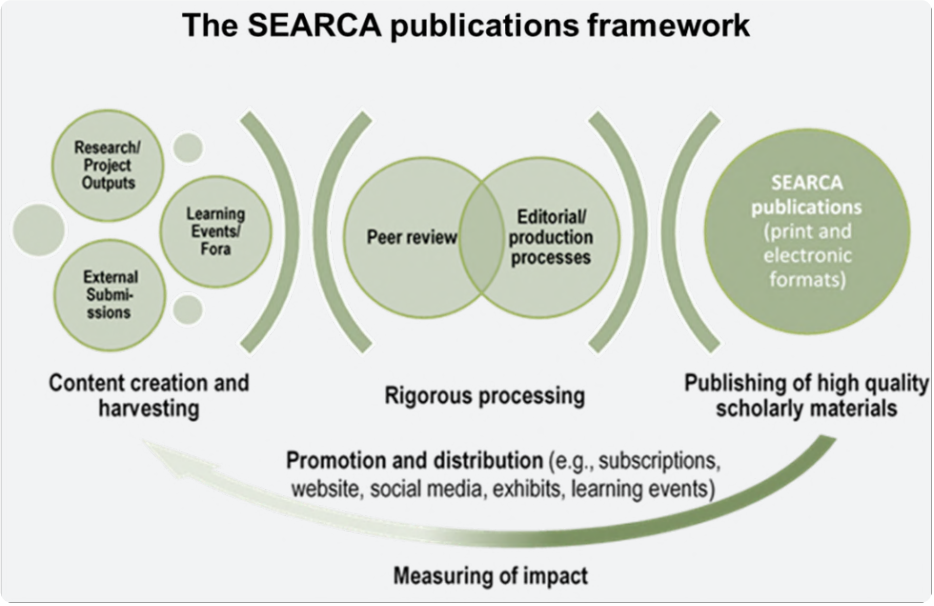
It also aims to step up efforts in promoting agriculture among Southeast Asian youth and showcase it as a viable career opportunity. Among the initiatives to support this mission is the Sowing Seeds: Cultivating Youth's Future in Agriculture, an orientation program for senior high school (SHS) students on the different career paths in agriculture, including the option to take up agriculture and related courses in college or explore entrepreneurial opportunities in agribusiness. As of September 2024, four sessions of Sowing Seeds have been successfully conducted in the Philippines (2), Malaysia (1), and Thailand (1).

Another initiative is the Youth in Agri Talk Show, a non-academic and non-conventional approach to learning to promote agriculture and its importance to Southeast Asian youth, particularly those in primary and secondary education. The first episode on "Agri 101 for the Youth" with guest Dr. Glenn Gregorio, SEARCA Center Director, was participated by students from two Philippine-based schools—Colegio de San Juan de Letran Calamba and Dagatan Family Farm School. Meanwhile, the second episode, titled "Winged Warriors: The Unsung Heroes of Agri-Land" with guest Dr. Nur Azura Adam, SEARCA Deputy Director for Programs, was participated by Colegio de San Juan de Letran Calamba in the Philippines, HFSE International School in Singapore, and SMK Seri Jempol in Malaysia.

In terms of capacity building, #Y4AGRI presented the 1st Virtual Youth Camp in June 2021 and the Pista ng Pagkain at Kabataang Pinoy or "Pistang PagKaPinoy" (Festival of Food and the Filipino Youth) in October 2021. A training titled Digital Storytelling for Young Agrinnovators was also conducted on 21-22 April and 4 May 2022 via Zoom. It aimed to equip young farmers, researchers, and development practitioners involved in research, teaching, and extension projects in agriculture in digital storytelling as an approach for agricultural extension and marketing. Twenty-eight Filipino youth stakeholders were trained to produce online stories and multimedia content that promote agriculturerelated technologies, research, or advocacy on digital platforms.

The Philippines was the most active participant in the SEARCA Youth COVIDeo Contest 2020 and 2021, which involved 435 youth from Southeast Asia, 355 of whom were Filipinos who were high school/university students, young professionals, and agriculture advocates.

In 2022, SEARCA Youth COVIDeo was rebranded into the SEARCA Youth Stories Competition. It received 32 video entries, 27 coming from the Philippines, with representatives from Luzon, Visayas, and Mindanao. #Y4AGRI has also supported 10 youth and youth-serving organizations in the Philippines whose activities align with SEARCA's priority focus on gender and youth engagement in ARD.



▶ PUBLICATION

SEARCA publication provides one important avenue for knowledge creation in ARD. This ensures that research results, policy discussions, and best practices from the field, among its primordial knowledge sources, are packaged and broadly shared. SEARCA aims to publish high-quality professional, intellectual, and scholarly output in ARD with scholars, researchers, and policymakers as intended readers. A broad spectrum of ARD themes is published through a number of serial and non-serial SEARCA publications that include books, journal articles, monographs, discussion papers, and policy briefs.

Publishing for over half a century now, SEARCA has a publication pipeline of materials primarily sourced from outputs of its staple programs. External contributions are also welcomed, notably for the Center's priority thematic content. All materials submitted for publication as books, monographs, or journal articles undergo rigorous peer review and editorial processes to ensure high quality.

Over 500 various publications are curated in SEARCA's knowledge inventory system (mostly those published year 2000 onward). The Philippines is one of the more prolific sources of

materials that SEARCA has been publishing for the past half century, understandably as it is accessible being the Center's host country and that more Filipino authors contribute their writings. As of September 2024, 242 titles either focused on the Philippines or included it in its country of coverage have been published by SEARCA. These include books (20), monographs (65), abstract (1), discussion paper series (24), briefs and notes (60), proceedings (12), and journal articles (60).

Agroforestry Status, Trends, and Outlook in Southeast Asia

The World Agroforestry (ICRAF) and SEARCA recognize the momentum brought by the adoption of the ASEAN Guidelines for Agroforestry Development and would like to harness this development by heeding the call of the ASEAN food, agricultural, and forestry (FAF) sector to produce the first Agroforestry Status, Trends and Outlook for Southeast Asia. The report published in 2021 gathered the relevant perspectives from key stakeholders in the sector to respond to the challenges and ensure resilient interventions in agroforestry. This will further guide development efforts and sustainable policies that can shape leadership roles, produce more responsive institutional arrangements, and enhance governance.

Under the Technical Cooperation Program of the Food Agriculture Organization of the United Nations (FAO) and the ASEAN Secretariat on "Scaling up Agroforestry for food security and environmental benefits in Southeast Asia," the ASEAN Food, Agriculture and Forestry sector is requesting a report that encapsulates the status, trends and outlook of agroforestry in the Southeast Asian region. Such report will:

- Provide information on agroforestry practices, concepts, programs, policies, training, education and research, industry, issues/challenges, impacts and other relevant aspects.
- Draw an outlook of agroforestry into the future toward a resilient Southeast Asian region.
- Have an accompanying monitoring and reporting design for ASEAN Member States, which include the Philippines, to report on contributions and progress toward achieving resilience through agroforestry in the region.

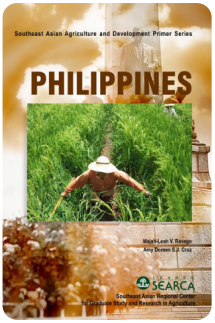
Farms, Food, & Futures: Toward Inclusive and Sustainable Agricultural and Rural Development in Southeast Asia

Dubbed as Agriculture and Rural Development (ARD) Book 2016, SEARCA spelled out in this publication the nuances of productivity-enhancing interventions moving forward, carefully drawing from in-depth analyses and syntheses of lessons, experiences, and empirical evidence on Asia's ARD. The book provided an overview of the complex issues and challenges, as well as opportunities arising from the structural transformation and market integration happening in the region. For the ARD Book 2016, SEARCA assembled eminent experts and thought leaders working in ARD in the region, and together authored the book with four cross-cutting and contemporary ARD themes, namely: inclusive growth; sustainability; regional integration; and institutions, governance and transformation.

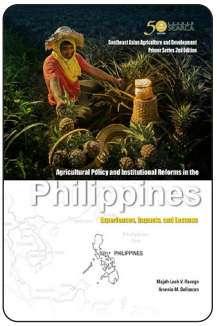
Agriculture and Development Primer on the Philippines

SEARCA published the Thailand primer as part of the "Southeast Asian Agriculture and Development Primer (SAADP) Series" which featured Southeast Asian country's state of agriculture in a holistic, yet concise form.

Published in 2004, the first edition of the Philippine primer was authored by Dr. Majah-Leah V. Ravago of the UP School of Economics, and Ms. Amy Doreen S.J. Cruz of the Department of Economic Research of the Central Bank of the Philippines. It presented the country's state of agriculture in a holistic yet concise form and shows the institutions, structures, policies, and other areas affecting the sector's performance over the past three decades.



The second edition of the primer on the Philippines was published in 2016. It included most recent data as well as emerging issues and concerns in the region focusing on Policy Reforms and Institutional Innovations in Agriculture: Experiences, Impacts, and Lessons. The authors of the second edition are Dr. Majah- Leah V. Ravago and Dr. Arsenio M. Balisacan.

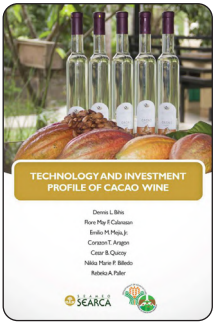


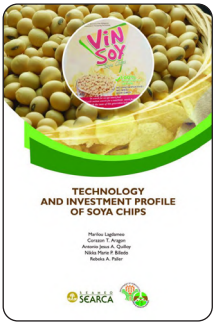
Other Publications

SEARCA has published books, monographs and other publications on various topics related to Philippine agriculture, including the following:

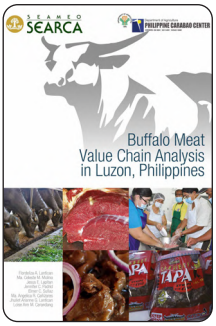
- Transforming Pathways: Working with Farmers in Agri-Food Systems Case Studies from Indonesia, Philippines, and Vietnam
- Rural Transformation in the Philippines: A Development Agenda
- Coping with Extreme Climatic Events: Stories of Resiliency in the Philippines
- Adapting to Climate Change: Strategies of Albay, Philippines
- Climate Smart Disaster Risk Management in the Philippines
- Benchmarking the Livestock and Poultry Industries: A Cross-country Analysis of the Philippines and Four Other Southeast Asian Countries
- Lessons from Disasters in the Philippines: The Project NOAH Experience
- Assessing Vulnerability of Coastal Fisheries in the Philippines to Climate Change Impacts: Tool for Understanding Resilience of Fisheries (VA-TURF)
- The School-Plus-Home Gardens Project in the Philippines: A Participatory and Inclusive Model for Sustainable Development
- Meso-Level Analysis on Rice-Farmers' Adaptive Measures for Slow Onset Hazard: The Case of Saltwater Intrusion in the Philippines and Vietnam
- Social Network Analysis of Selected Community-based Forest Management (CBFM) Projects in the Philippines
- An Upland Community In Transition: Institutional Innovations for Sustainable Development in Rural Philippines
- Dairy Buffalo Value Chain Analysis in Luzon, Philippines
- Buffalo Meat Value Chain Analysis in Luzon, Philippines
- Improving the Agricultural Insurance Program to Enhance Resilience to Climate Change: Evidence from Rice and Corn Production in the Philippines
- Endangered Beauty: Mt. Malindang and its Environs in Mindanao, Philippines
- Why Does Poverty Persist in the Philippines? Facts, Fancies, and Policies

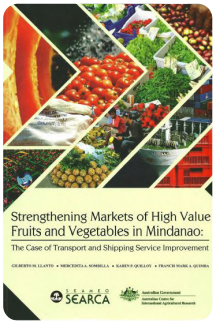
- Simulating the Hydraulic Effects of Climate Change on Groundwater Resources in a Selected Aquifer in the Philippines Using a Numerical Groundwater Model
- Survey and Characterization of Indigenous Food Plants in Ilocos Norte, Philippines
- Coastal and Marine Resources Management in the Philippines: An Analysis of the Political Economy of Banate Bay
- Post-logging Ban Timber Tree Planting in Thailand and the Philippines
- Mangrove Rehabilitation in Ticao Island, Masbate, Philippines
- Economic Implications of Juvenile Siganid Fishery on Local Fishing Communities in Pangasinan, Philippines
- Ecological Succession in Areas Covered by Gold, Copper Mine Tailings in Benguet, Philippines
- Enhancing the Adaptive Capacity of Indigenous Peoples by Promoting
- Sustainable Resin Tapping of Almaciga (Agathis philippinensis) in Palawan and Sierra Madre, Philippines
- Agricultural Insurance in the Philippines: Enhancing Resilience to Climate Change
- Scaling Up Agroforestry Promotion for Sustainable Development of Selected Smallholder Farmers in the Philippines
- Community-Based Approach to Sustainable Stingless Beekeeping in Sorsogon, Philippines
- Strategic Policy Response to Climate Change in the Philippines Vol. 1: Portfolio of Climate Change Policies in Agriculture
- Strategic Policy Response to Climate Change in the Philippines Vol. 2: Exploring How Climate Change Policies are Translated into Local Actions in the Agriculture Sector
- The Impact of SEAMEO SEARCA Graduate Scholarship Program on Fellows of Selected Institutions in the Philippines
- Gender Concerns in the Post-production of the Selected Horticultural Crops in the Philippines and Thailand: Issues and Perspectives
- Empowering Farmers: The Philippines National Integrated Pest Management Program (Second Edition)
- Credit Assistance Program for Migrant Women in Jala-jala, Rizal, Philippines
- Pilot Testing of NAPHIRE's Livelihood and Nutrition Training Program in Isabela, Philippines: Women in Postproduction Systems
- Pilot Testing of ViSCA's Improved Cassava Processing Technology in Mabagon, Hindang, Leyte, Philippines: Women in Postproduction Systems
  Environmentally Sustainable Rural and Agricultural Development Strategies in the Philippines (Lessons from Six Case Studies)

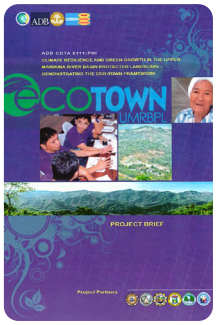


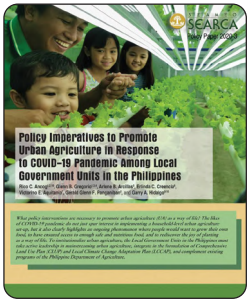


- Grounding Science Communication: Experiences and Lessons from the Biotechnology Information Center (BIC) in the Philippines
- Socioeconomics of Climate Change in the Philippines: A Literature Synthesis (1990-2010)
- Good Agricultural Practices (GAP) in the Philippines: Status, Issues, and Policy Strategies
- Characteristics of Farm Holdings: Evidence from the Philippines' Census of Agriculture
- Estimating the Demand Elasticities of Rice in the Philippines
- Climate Change Vulnerability Mapping of Selected Municipalities in Laguna, Philippines
- Compendium of Climate-Resilient Agriculture Technologies and Approaches in the Philippines
- Many hands make light work: Solving the Philippines' ailing educational system
- What will it take to get the Philippines out of its poverty trap?
- Indigenous Food Plants (IFPs) for Increased Food Sufficiency in Ilocos Norte, Philippines
- Forging Alliances toward Better Coastal Resource Management in the Philippines: The Case of Banate Bay
- Food Security under Climate Risk: Conservation Farming and Upland Corn in the Philippines
- Landslide Occurrences in the Philippines: Contributing Factors and Implications to Local Governance
- Legislative Actions and Operational Reforms toward a Smuggling-free Agriculture Industry in the Philippines
- Adoption of Good Agricultural Practices (GAP) in the Philippines: Challenges, issues, and policy imperatives
- Economic Implications of Juvenile Siganid Fishery on Local Fishing Communities in Pangasinan, Philippines
- PBS 2017 2017 Building networks for sustainable community-based forest management: Lessons from the assessment of selected CBFM projects in the Philippines
- Food Security Potentials of Agroforestry Systems in Selected Upland Farming Communities in the Philippines
- Smallholder Commodity Systems in High-Value Crops: The Case of Calamansi and Jackfruit in the Philippines
- Smuggling of Selected Agricultural Commodities in the Philippines
- The School-Plus-Home Gardens Project in the Philippines: A Participatory and Inclusive Model for Sustainable Development
- Policy Imperatives to Promote Urban Agriculture in Response to COVID-19 Pandemic Among Local Government Units in the Philippines



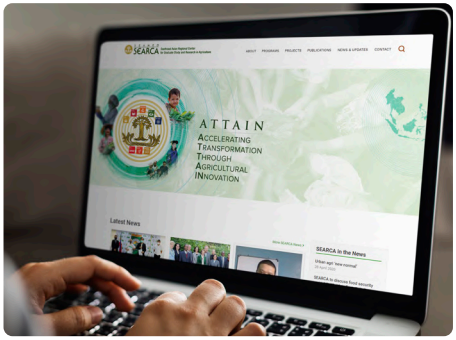






- Proceedings of the First National Congress on Philippines Lakes
- Growth of Aquaculture Productivity in the Philippines
- Agricultural Productivity Growth and Environmental Externalities in the Philippines
- Human Capital and Agricultural Productivity: The Case of the Philippines
- Southeast Asian Agriculture and Development Primer Series: Philippines
- Agricultural Policy and Institutional Reforms in the Philippines: Experiences, Impacts, and Lessons

▶ PROMOTION AND DISTRIBUTION



The Center has, in recent years, been investing on ensuring that its publications and other knowledge products maximize their intended use and not gather dust on a shelf. As it were, its momentum for more visibility online has proven more relevant than anticipated during the pandemic that started in 2020. The situation resulted to lessened printing and suspended the traditional distribution of physical copies and face-to-face knowledge exchanges/interactions.

The SEARCA website complemented by its social media presence are the current channels in which the Center's knowledge creations are accessed. Almost all publications are downloadable for free; learning/knowledge events and presentations are also freely accessible. As of 30 June 2024, a total of 53,683 publications have been downloaded from searca.org, SEARCA's official website. Over 28,000 people from 169 countries have downloaded these knowledge materials. The most downloaded types are refereed journal articles, books and monographs, and various briefs and notes. The Philippines is consistently the topmost downloader of SEARCA publications with over 16,779 as of June 2024.

▶ LIBRARY AND ARCHIVES

The SEARCA library, which houses a collection of over 16,300 agriculture and development-related references, serves primarily SEARCA scholars and staff, but it also accommodates other users. The references are also listed in SEARCA's online library information system (LIS) https://lis.searcaapps.org/lis/ to facilitate faster access and search. The LIS also includes theses and dissertations of SEARCA scholars as well as web links to various online resources, such as articles on the latest updates in agriculture and development.

The Center's archives have digitized all vital records for efficient information processing, storage, access, and dissemination. Over 7,400 SEARCA documents have been digitized, including personnel and scholars' records, project reports, publications, financial statements, agreements, directors' exit reports, five-year plans, memorandums, and contracts.

MANAGEMENT

The Philippines is currently represented in the SEARCA Governing Board by Jose V. Camacho, Jr., UPLB Chancellor. The SEARCA Governing Board is the Center's highest policymaking body composed of representatives of the 11 SEAMEO member countries.

At present, the SEARCA Center Director is Dr. Glenn B. Gregorio. The Deputy Director for Programs and the Deputy Director for Administration are Dr. Nur Azura Binti Adam and Assoc. Prof. Joselito G. Florendo, respectively.

Printed in September 2024