

R&D FOR SUSTAINABLE AQUACULTURE DEVELOPMENT TOWARDS FOOD AND NUTRITION SECURITY IN SOUTHEAST ASIA

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Evelyn Grace de Jesus Ayson is a Scientist at the Southeast Asian Fisheries Development Center/Aquaculture Department (SEAFDEC/AQD), and is involved in R&D projects on the breeding, hatchery, nursery and grow-out production of marine fish (e.g. grouper, snapper, seabass, pompano, milkfish and rabbitfish) including evaluation of the impact of climate change on reproduction and recruitment of marine fish larvae. She also oversees the marine fish breeding and hatchery operations at SEAFDEC/AQD. Dr. de Jesus Ayson was the Head of the Research Division from 2006 until 2011 and from 2015-2017. As Head of the Training and Information Division from 2012-2015, she was responsible for implementing the various training programs and information dissemination activities of the Department, as well as developing strategies to enhance its information dissemination initiatives and improve the visibility of SEAFDEC/AQD to its stakeholders. She is actively involved in the technology transfer initiatives of SEAFDEC/AQD and serves as a resource person in SEAFDEC/AQD's national and international training courses.

Dr. de Jesus Ayson obtained her Master of Science and Ph.D. degrees from the Ocean Research Institute (now Atmospheric and Ocean Research Institute) of the University of Tokyo, while receiving scholarships from the Japanese Ministry of Education, in 1990 and 1993, respectively.



ABSTRACT

The Aquaculture Department of the Southeast Asian Fisheries Development Center (SEAFDEC/AQD) is one of the Technical Departments of SEAFDEC, a regional treaty organization established to promote fisheries development in the region. AQD's mandates include the pursuit of research to generate aquaculture technologies; develop managerial, technical and skilled manpower for the aquaculture sector; and produce and disseminate relevant information. The programs of AQD address important constraints to aquaculture development including 1) supply of good quality seeds; 2) development of high quality feeds, evaluation and promotion of the use of alternative ingredients that can replace fish meal as a protein source, and promotion of sustainable feeding practices; 3) health management; 4) maintaining environmental integrity; 5) adaptation to climate change; and 6) ensuring that technological developments benefit all segments of the aquaculture production sector, including small-scale farmers. These are aligned with the needs and priorities of ASEAN Member States (SEAFDEC Member Countries) identified during the "Regional Technical Consultation on Sustainable Aquaculture Development for Food Security in Southeast Asia Towards 2010 and the ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security Towards 2020: Fish for the People" that was convened in 2010 and 2011, respectively. AQD programs cover several aquaculture commodities (fish, crustaceans, mollusks) and farming systems for both large- and small-scale aquaculture. The capacity building programs include training which could be 1) regular or specialized training courses conducted either on station or on-site that are designed for specific commodities and culture phases, in consideration of the requirements and needs of the requesting stakeholder; 2) internships; or 3) on-the-job training for students of fisheries and aquaculture programs/technical assistance designed for institutional capacity development as well as for entrepreneurs. SEAFDEC/AQD is an equal opportunity workplace. The realization of its work programs is anchored partly on the significant contribution of its female workforce in research, technology development, technology dissemination and capacity building programs for the region and beyond.

KEYWORDS

Capacity building, Information dissemination, Sustainable aquaculture, Women in aquaculture

REFERENCES

- Acosta, B.A., Coloso, R.M., de Jesus Ayson, E.G.T., and Toledo, J.D. (eds.). (2011). Sustainable Aquaculture Development for Food Security in Southeast Asia Towards 2020. Proceedings of the Regional Technical Consultation on Sustainable Aquaculture Development for Food Security in Southeast Asia Towards 2020; March, 17-19, 2010; Bangkok, Thailand; Tigbauan, Iloilo, Philippines: SEAFDEC Aquaculture Department; 169 pp.
- SEAFDEC Secretariat. (2012). Proceedings of the ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security Towards 2020: "Fish for the People 2020: Adaptation to a Changing Environment", June 13-17, 2011; Bangkok, Thailand. Volume I: The Conference Proceedings. Bangkok, Thailand: Secretariat, SEAFDEC.
- SEAFDEC Secretariat. (2012). Proceedings of the ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security Towards 2020: "Fish for the People 2020: Adaptation to a Changing Environment", June 13-17, 2011; Bangkok, Thailand. Volume II: Thematic Panel Sessions. Bangkok, Thailand: Secretariat, SEAFDEC.



R&D for sustainable aquaculture development
towards food and nutrition security in
Southeast Asia



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Outline

- SEAFDEC/AQD's R&D Programs
- Capacity Building Programs
- Contribution of women to SEAFDEC/AQD's programs

SEAFDEC/AQD's mandate



- promote and undertake aquaculture R&D that is relevant and appropriate to the SE Asian region
- develop human and institutional resources for sustainable aquaculture development
- disseminate and exchange information on sustainable aquaculture

SEAFDEC/AQD's Facilities/Stations



Tigbauan Main Station, Iloilo



Dumangas BW Station, Iloilo



Binangonan FW Station, Rizal



Igang Marine Station, Guimaras

SEAFDEC/AQD Programs

- ✓ Department Programs
- ✓ Programs under the Fisheries Consultative Group (FCG) Mechanism



Programs under the FCG mechanism

- ✓ Reinforcement and optimization of fish health management and effective dissemination in the SE Asian region
(5 research projects and 1 region-wide capacity building program)
- ✓ Environment-friendly, sustainable utilization and management of fisheries and aquaculture resources
(4 research projects, 2 training programs)

Department Programs

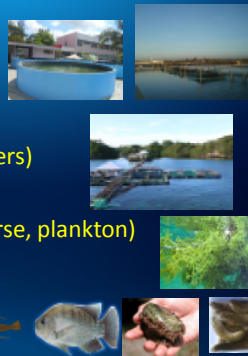
- ✓ Producing quality seed
(breeding and seed production)
- ✓ Promoting healthy and wholesome aquaculture
(nutrition and feed development; feeding and health management; food safety)
- ✓ Maintaining environmental integrity
(farming systems; environmental impacts; mitigation)
- ✓ Adapting to climate change
(impact on breeding, farming; mitigation)
- ✓ Meeting socio-economic challenges of aquaculture
(community/PO/family-based; livelihood; TURFs)

Challenges to Sustainable Aquaculture

- ✓ Seed supply
- ✓ Feeds
- ✓ Diseases
- ✓ Environmental impacts
- ✓ Inclusive growth and development

Commodities

- ✓ Marine fish
- ✓ Freshwater fish
- ✓ Shrimps and crabs
- ✓ Mollusks (abalone, oysters)
- ✓ Seaweeds
- ✓ Others (sandfish, seahorse, plankton)



Approach

- Full-cycle aquaculture
- Captive breeding
 - Seed Production
 - Nursery
 - Growout
- * in all appropriate culture environments
- * Feed development for various life stages
- * Health management
- * Economic feasibility

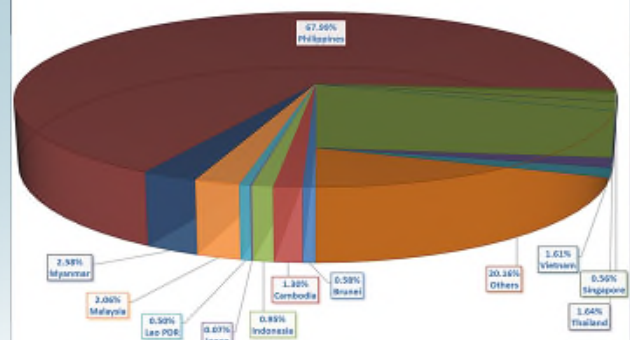


Capacity Building Programs - Training

- Regular training (commodity-based)
- On-site training
- Specialized training
- E-Learning
 - aquaculture nutrition
 - fish health management
- On-the-Job Training
- Internship



COUNTRY DISTRIBUTION, 1974 - 2018



From 1974-2018: 11,637 trainees; @ 68% are Filipinos

Capacity Building Programs – Technical Assistance

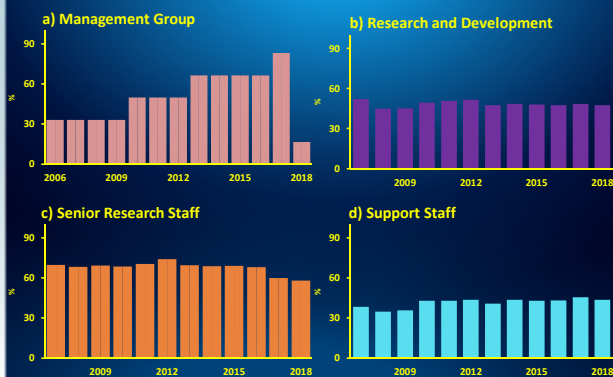
- Institutional Capacity Development for Sustainable Aquaculture (ICDSA)
 - partnership with LGUs, NGOs, POs, academe, government agencies
- Agree-Build-Operate-Transfer AquaNegosyo (ABOT)
 - for entrepreneurs



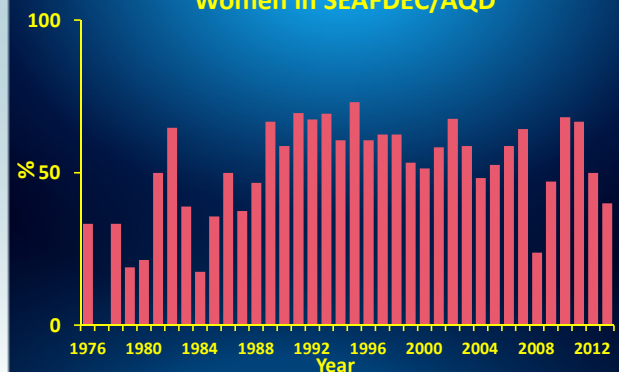
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Women Involvement in SEAFDEC/AQD



Primary Publications Authored by Women in SEAFDEC/AQD



SEAFDEC/AQD's Women in Technology Extension Services



- Introduced technologies on:
- Cage culture of milkfish and other marine fish, especially grouper
 - Nursery and grow-out culture including fattening of mud crab
 - Grow-out culture of oyster
 - Seaweeds farming
- Also introduced seaweeds recipes for small business enterprise for women or for home consumption

SEAFDEC/AQD's Women in Technology Dissemination Activities



- Full cycle aquaculture of Mudcrab
- Establishment of mud crab hatcheries, grow-out farms and softshell crab production facilities in the Philippines
 - Technical assistance to the Governments of India, Bangladesh, Timor Leste and Tanzania

SEAFDEC/AQD's Women in Technology Dissemination Activities



Seaweeds farming

- Field testing of plantlets from clonal production and tissue culture in different regions in the Philippines
- Training of BFAR staff and technical assistance in the establishment of seaweeds tissue culture laboratories in major seaweeds production areas

SEAFDEC/AQD's Women in Technology Dissemination Activities



Promotion of community-based aquaculture and stock enhancement programs

- Resource enhancement of abalone and sandfish
- Integrated multitrophic aquaculture (milkfish, seaweeds and sandfish)
- Integrated hatchery and grow-out culture of giant freshwater prawn

