REVIVAL OF THE SHRIMP INDUSTRY. SEAFDEC/AQD achieved successful experimental runs in producing tiger shrimp using its own high-quality hatchery-bred postlarvae and the utilization of environment-friendly schemes for grow-out ponds. Full story in front page. ***PHOTO BY N FAILAMAN***

aqdmatters

November-December 2019

Newsletter of the SEAFDEC Aquaculture Department, Tigbauan, Iloilo, Philippines

Matters inside

Revival of tiger shrimp farming gets boost from PH government

SEAFDEC/AQD technicians harvest shrimp at the Dumangas Brackishwater Station of the Southeast Asian Fisheries Development Center last 13 November 2019. *PHOTO BY RD DIANALA*

SUPPORT is mounting for the revival of tiger shrimp farming in the Philippines as another 4.4 tons of the prized seafood were recently harvested in Dumangas, Iloilo.

The Philippine Bureau of Fisheries and Aquatic Resources (BFAR) lauded the series of harvests by the Southeast Asian Fisheries Development Center (SEAFDEC) which last 28 October 2019 also hauled 2.8 tons of the shrimp, known in the country as *lukon* or *sugpo*.

"Impressive, because *amo gid ni ang gusto ko makita – kung ano ang* performance of *sugpo* culture," (Impressive, because this is really what I wanted to see – the performance of tiger shrimp culture) remarked Remia

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Aparri, BFAR-6 regional director, who came to witness the harvest at SEAFDEC's Dumangas Brackishwater Station last 13 November 2019.

Aparri expressed support for the *Oplan Balik Sugpo* initiative of SEAFDEC, the banner program of its Aquaculture Department chief Dan Baliao that aims to revive tiger shrimp farming in the Philippines which was a multi-million-dollar industry in the nineties.

"The fact that it's almost two decades that we stopped in *sugpo* farming, this will provide information to fisherfolks, clients, LGUs and to BFAR so that we can now, again, culture *sugpo,*" Aparri added.

The recent harvest of 4.4 tons attained a survival rate of 89.7 percent after 120 days of intensive culture in an 8,000 square meter experimental pond. In October, the survival rate was 93 percent after 113 days of semi-intensive culture in a 5,000-square meter pond.

Aparri said that while SEAFDEC is still to present the detailed culture parameters and the ROI, "if in terms of survival rate, it is really a *balik sugpo* program."

The regional director also mentioned that the technology from SEAFDEC/AQD, once verified and proven effective, will be adapted by BFAR-6 to be demonstrated in their technology outreach stations in Negros and Aklan, and will be introduced to fish farmers who would wish to venture in the farming of *sugpo*.

The data on the cost and return analysis as well as the biosecurity measure requirements and the protocols of the operations will also be given attention.

Aparri requested SEAFDEC to continue with the culture of the shrimp to prove the consistency of the program especially that these will help BFAR towards achieving its goal to help the fisherfolk in their farming activities to contribute to the income of the region and the whole country.

According to Baliao, the recent harvests in the Dumangas facility of SEAFDEC were the last for this year but operations will continue next year to promote the revival of *sugpo* culture.

— J GENILZA / RD DIANALA

Dir. Remia Aparri (second from left) of the Bureau of Fisheries and Aquatic Resources (Western Visayas) with Southeast Asian Fisheries Development Center consultant Angelita Tillo (leftmost) and other guests after a harvest of tiger shrimp at the Dumangas Brackishwater Station last 13 November 2019. *PHOTO BY JF ALDON*

More breeders boost AQD's drive to help develop milkfish industry

SEAFDEC/AQD is stocking up on milkfish breeders, locally called *sabalo*, as part of the push to reduce the Philippines' reliance on imported milkfish fry.

Forty-nine milkfish, each weighing between 3 to 5 kilograms, were recently acquired for conditioning at the Tigbauan Main Station to augment the stock of milkfish breeders used for research projects.

"The Philippines requires about 3.5 billion milkfish fry each year, but local hatcheries can only supply roughly half the demand," said SEAFDEC Aquaculture Department chief Dan Baliao who added that the rest are imported from Indonesia and Taiwan.

To close the gap, SEAFDEC has been building its reserve of breeders and is working with the Bureau of Fisheries and Aquatic Resources (BFAR) to establish multi-species hatcheries around the country, each with a capacity to produce 25 million fry annually.

"It takes time for *sabalo* to mature, about three to five years wherein they reach at least 3 to 5 kilograms in weight, so we are developing breeders as soon as possible," said Baliao.

Last year, SEAFDEC also acquired 78 milkfish to develop into breeders. In all, more than 300 milkfish breeders are already housed in SEAFDEC Aquaculture Department's headquarters in Tigbauan and Igang Marine Station in Nueva Valencia, Guimaras.

SEAFDEC holds the record for being the first in the world to develop captive milkfish breeders, some of which are still in its care. The oldest *sabalo* in Tigbauan is over 36 years old, more than 18 kilograms, and still spawning.

— J GENILZA / RD DIANALA

AQD technical assistant holds a sedated milkfish prior to weighing upon arrival at SEAFDEC's broodstock facilitiy. The fish is one of 49 recently acquired for conditioning to become breeders. *PHOTO BY N FAILAMAN*

Scientist invents new hatchery tech to save endemic 'ayungin'

THE DECLINING population of the silver therapon (Leiopotherapon plumbeus), a freshwater fish also called *ayungin* in the Philippines where it is endemic, is set to get a boost after a scientist devised a new system of growing its larvae in captivity.

The hatchery technique was developed by Dr. Frolan A. Aya, a scientist of the Southeast Asian Fisheries Development Center, and granted a patent by the Intellectual Property Office of the Philippines (IPOPHIL) last 17 October 2019.

"Silver therapon, locally known as *ayungin*, is regarded as one of the most valuable edible native freshwater species because of its tasty flesh. Despite the declining trend in wild stocks of silver therapon, demand for this food fish species remains high. It is sold from Php 200 to Php 800 per kilo when dried and around Php 500 per kilo when fresh depending on the season and catch," said Dr. Aya.

The hatchery technology, just like other technologies developed by the Aquaculture Department (AQD) of SEAFDEC, will be for free and open to fish farmers interested to venture in *ayungin* culture.

Hatchery-bred and reared silver therapon broodfish. *PHOTO COURTESY OF FA AYA*

Moreover, according to Dr. Aya, the hatchery protocol he developed can support the Philippine government's "*Balik Sigla sa Ilog at Lawa* (BASIL)" program through the production of *ayungin* fry for stocking in Laguna de Bay to increase the wild population.

Information from the Philippine Statistics Authority reveal that *ayungin* catch in the country has declined from 4,765 metric tons in 2002 to only 1,408 metric tons in 2018.

Dr. Aya said that he will continue to do some refinements on the technology for seed production and rearing of *ayungin* and later demonstrate the technology to fisherfolk. Also, a manual on the biology and hatchery rearing of *ayungin* is already in the pipeline.

"It is also my plan to do the commercial production as well as the development of nursery and grow-out technology for this important fishery resource," he added.

The patent, which was published in Volume 22 Number 124 of IPOPHL's official gazette released on 20 November 2019, was made possible through the efforts of SEAFDEC/AQD's Innovation and Technology Support Office headed by Dr. Roger Edward Mamauag. a

—RH LEDESMA

Environment-friendly tiger shrimp farming pushed

BACOLOD CITY – With its premium flavor and superior economic value, tiger shrimp is being pushed as an alternative species to farm alongside the popular whiteleg shrimp or *vannamei*.

Locally known as *lukon* or *sugpo*, the tiger shrimp's potentials were underlined by Dan Baliao, chief of the Aquaculture Department of the Southeast Asian Fisheries Development Center (SEAFDEC/AQD) during the 12th Philippine Shrimp Congress.

"Tiger shrimp has good attributes of its own like better taste and better price compared to *vannamei*," said Baliao during the opening of the congress on 20 November 2019.

Baliao said shrimp farming in the Philippines was a multi-million-dollar industry in the 90s with the country ranking among the top 10 shrimp-producing countries in the world with a production of about 40,000 tons per year.

"However, the industry was ill-prepared for intensification. There were no guidelines to support the rapid expansion of the shrimp industry," he added.

The use of unapproved chemicals and release of

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Dan Baliao, chief of the Aquaculture Department of the Southeast Asian Fisheries Development Center, pushes for environment-friendly tiger shrimp farming during the 12th Philippine Shrimp Congress in Bacolod City on 20 November 2019. *PHOTO BY JF ALDON*

untreated wastewater into the environment was rampant then, triggering a series of different diseases that plague the industry until now.

Environment-friendly schemes

"We have learned our lessons. Even before the year 2000, we have started to advocate environment-friendly shrimp aquaculture of tiger shrimp," said Baliao.

"We encourage the farming of other shrimp species, especially tiger shrimp in polyculture with finfish species to cater to farmers who prefer to farm extensively, or in monoculture using the semi-intensive method."

The SEAFDEC/AQD culture method uses green water technology that stabilizes water quality and naturally suppresses the harmful luminous and other Vibrio bacteria that cause massive mortality in shrimp. This is achieved by stocking tilapia and milkfish in the same water where shrimp are grown.

SEAFDEC/AQD demonstrated the success of the technology when they harvested 2,800 kilograms of 30-gram tiger shrimp from a half-hectare pond after 113 days of culture.

"Mucus secretions of tilapia and milkfish cultured in the corners and center of the pond create green water that suppresses luminous bacteria count," he said.

The fish are contained inside sludge collectors at the center and corners of the pond which serve to collect waste that otherwise deteriorate the quality of the water.

Meanwhile, water discharged from shrimp ponds are first treated by a series of baffles (that help settle suspended particles) and bioremediators such as seaweed and the filter-feeding oysters and mussels.

"These methods are socially equitable and more environmentally sound which improves the sustainability of shrimp farming," added Baliao.

Improved pond management

The SEAFDEC/AQD chief also stressed the importance of proper pond management and the observation of proper biosecurity to keep out the pathogens that can potentially wipe out entire ponds.

"Strict implementation of proper hygiene and sanitation in the pond facility reduces the risk of introducing shrimp pathogens."

Foot baths for personnel and tire baths for vehicles must be installed at every entrance while crab fences around shrimp ponds and bird scare devices keep out crabs and birds that have been found to be carriers of diseases.

Water and shrimp samples are also religiously monitored for physico-chemical parameters and pathogens from stocking of the larvae until harvest.

— J GENILZA / RD DIANALA

The different components of environment-friendly shrimp farming by SEAFDEC/AQD is illustrated in a diorama at the 12th Philippine Shrimp Congress in Bacolod City. *PHOTO BY JF ALDON*

Private company partners with AQD; aid members of a coastal community

Participants tour the facilities of AQD's Igang Marine Station at Guimaras last 19 November 2019. *PHOTO BY EV ANTOLINO*

TO FULLY develop the potential of marine fisheries in coastal barangays, SEAFDEC/AQD conducted two batches of training courses on aquaculture technologies on milkfish, mangrove crab, and abalone last 18 to 20 and 25 to 29 November 2019.

Forty-five trainees from Aroroy, a coastal municipality in Masbate, were invited and funded by Filminera Resources Corporation (FRC) and Philippine Gold Processing & Refining Corporation (PGPRC) to attend the training courses as part of their social development and management programs.

"This is the first time that a private company sponsored local fish farmers to be trained here with us at AQD. We acknowledge this initiative of wanting to help the people in coastal barangays of Masbate," said AQD chief Dan Baliao during the closing ceremonies of the course.

FRC and PGPRC aimed for the selected beneficiaries to learn effective and efficient aquaculture technologies from SEAFDEC/AQD and avoid relying on natural stocks in the wild.

"*Ang makasama sa mga training na ganito ay isa sa matagal na naming kagustuhan. Nagpapasalamat ako na kami ay nakitaan ng potensyal at kakayanan ng aming barangay para makadalo dito* [We always wanted to join training courses such as this one. We would like to thank our barangay for seeing our potential and ability to learn from this training]," said Mr. Roque Betita, a fisherman from Aroroy and one of the training course participants, in his message during the closing ceremonies.

During the five-day training course, experts from AQD shared the useful and practical information like biology and ecology of the aforementioned commodities as well as efficient technologies on seed production, hatchery, nursery, and grow-out.

Trainees also experienced the actual hatchery exercises done in the facilities in AQD's Tigbauan Main Station.

"*Nagpapasalamat po kami sa aming mga* trainers *at* instructors*, na masisipag sumagot sa aming mga katanungan* [We would like to thank our trainers and instructors who were very patient in answering all our questions]," Betita added.

Despite being a short-term course, trainees still appreciated the knowledge gained from the experience. Concepts and practices learned from the course is the perfect introduction for further training.

"I hope that the trainees here can join one of our full-length training courses to continue the improvement of your knowledge in farming milkfish, mangrove crab, and abalone in your area," said Baliao.

— JM DE LA CRUZ

Participants visit SEAFDEC/AQD's Integrated Marine Finfish Broodstock and Hatchery Complex in Tigbauan, Iloilo. *PHOTO BY EV ANTOLINO*

FAO sends Tanzanian technical staff to PH for mangrove crab and milkfish culture training

UPON the request of the Food and Agriculture Organization (FAO), the Southeast Asian Fisheries Development Center/ Aquaculture Department (SEAFDEC/AQD) organized a crab and milkfish culture training for four Tanzanian technical staff in Tigbauan, Iloilo, Philippines.

The purpose of the specialized training was to enhance the knowledge and skills of Tanzanian fisheries officers and technicians on crab and milkfish culture who will be in-charge of the marine hatchery being set up in Zanzibar, Tanzania by FAO.

Tanzanian trainees who attended the Milkfish Hatchery Operations Training Course learned about the concepts and approaches in sustainable aquaculture; status of the milkfish industry; biology, ecology, and broodstock management; milkfish hatchery operations; culture of natural food, feed preparation, and health management among others.

"This training is a vital tool in our aquaculture sector in Zanzibar because through knowledge and new skill and modern techniques we are going to spread and to share to our technician and also throughout the aquaculture sector in Zanzibar," said Said Juma Shaaban, trainee of the milkfish training course.

On the other hand, trainees of the Mangrove Crab Nursery and Grow-out Operations were taught about the status of the mangrove crab industry, biology and hatchery operations, impact of climate change on aquaculture production, site assessment and pond preparation, marketing practices, disease management, water and soil management, and concepts and approaches in sustainable aquaculture among others.

Tanzanian trainees learn to prepare feeds for milkfish on 6 November 2019 at SEAFDEC/AQD's Feed Laboratory in Tigbauan, Iloilo. *PHOTO BY TRAINING SECTION*

Trainees identify the parts of a mangrove crab during their practical activity on 5 November 2019 at SEAFDEC/AQD's Training Laboratory in Tigbauan, Iloilo. *PHOTO BY TRAINING SECTION*

"We hope we are going to apply this knowledge in our country so as to improve the industry of mangrove crab and to reach in a good level especially to our hatchery," said Khamis Hassan Ali, a mangrove crab trainee.

Both training courses were conducted simultaneously from 4 to 13 November 2019 with lectures and practical activities conducted by SEAFDEC/AQD experts. a

— RH LEDESMA

PH is ready for new innovations in aquaculture

Dr. Maria Rowena Eguia, AQD scientist and genetics expert, discusses about 'Aquaculture 4.0' during the 2nd International Research and Development Conference last 5 to 7 December 2019 at the Courtyard by Marriot Hotel in Iloilo City. *PHOTO COURTESY OF MRR EGUIA*

ILOILO CITY – SEAFDEC/AQD presented the great potential of the Philippine aquaculture industry once available innovations and technologies are applied to current practices during the 2nd International Research and Development Conference last 5 to 7 December 2019 at the Courtyard by Marriot in Iloilo City.

With the theme "Science and Technology at the Forefront of Industry 4.0", AQD scientist Dr. Maria Rowena Eguia said that the Philippines is ready for Aquaculture 4.0.

"The world is now gearing towards the Fourth Industrial Revolution (FIRe) and the country needs to join this wave of innovation and technology," she said.

According to Eguia, FIRe encouraged the use of advanced robotics, artificial intelligence, data analytics, biotechnology, the Internet, and genetics which can be used in aquaculture.

"There are many advanced and digital systems for aquaculture in the Philippines and all we need to do is embrace them," she said.

She cited various Philippine innovations such as microcontroller-based aquaculture system of Mapúa University, Crabifier app of De La Salle University, TATEH Aquabiz by Santeh Feeds Corporation, disease detection kit for shrimp by the University of Santo Tomas, and FISH-I of the University of the Philippines-Diliman.

AQD innovations

As a genetics expert, Eguia highlighted how important genetic intervention is to the production of various commodities. With this, she presented some of AQD's projects that focused on the advancing molecular genetics and genomics in tilapia.

"The Philippines has developed improved strains through research and development including Genomar Supreme tilapia, salt-tolerant BEST tilapia, cold-tolerant tilapia, FAST tilapia, SaltUno strain, and others," she shared.

AQD has conducted DNA-marker based studies on tilapia, milkfish, and abalone. Collaborative work on mangrove crab genomics is also on-going.

Eguia also mentioned a new innovation developed by AQD which is a non-invasive technique that allows easier determination of the sex of a giant grouper.

AQD's continuous efforts in creating awareness of shrimp diseases were also highlighted through the presentation of the Online Philippines Shrimp Pathogen Information Resource (OPSPIR). It is a database of information on shrimp diseases such as white spot syndrome virus, luminous bacteria, and others.

The conference was attended by researchers, scientists, and academics with the objective of sharing updates on the advancement of research and development and to strengthen their research linkages and collaborations.

It was organized by the Japan Society for the Promotion of Science (JSPS), the JSPS Alumni Association in the Philippines, Inc., and the Department of Science and Technology.

— JM DE LA CRUZ

Conference participants have their photo taken with plenary speakers and poster presenters at the Courtyard by Marriot Hotel in Iloilo City last 5 December 2019. *PHOTO COURTESY OF MRR EGUIA*

Tuna farming soon in PH as research project takes off

Freshly caught tuna being sold in a market at San Joaquin, Iloilo. The lower two are mackerel tuna which is the type that SEAFDEC hopes to begin breeding this year in the Philippines. *PHOTO COURTESY OF K MORI*

JAPANESE technology on farming mackerel tuna, locally known as *tulingan*, is set to be adopted in the Philippines with a Japanese researcher already procuring breeders to establish a hatchery in Iloilo.

Experimental runs on hatchery and grow-out will be conducted beginning this year through a Japanese-funded project and are expected to perform well given the tropical climate in the Philippines.

"The Philippines has the optimum condition for rearing mackerel tuna as it requires 20 to 28 degrees Celsius of water temperature to achieve rapid growth," shared Dr. Koh-ichiro Mori, deputy chief of the Southeast Asian Fisheries Development Center Aquaculture Department (SEAFDEC/AQD) based in Tigbauan, Iloilo.

"Compared to Japan, the seedstocks here will grow to the market size of 2.5 kilograms within only six months," said Mori who is also leader of the project.

Mori and his team are in the process of procuring wild mackerel tuna around the west coast of Panay Island to start breeding the fish, also known as *kawakawa*.

"We have identified Antique and Iloilo as top potential suppliers of breeders which makes it easier for fish farmers surrounding these two provinces to start culturing the commodity," Mori said.

After breeding the tuna for one or two years, he said they hope to carry out seed production in 2021 or 2022 and achieve "full cycle aquaculture" in the Philippines with eggs from hatchery-bred breeders ideally hatching by 2023 or 2024.

After the technologies are adapted to local conditions, the information will be packaged and disseminated to local fish farmers by SEAFDEC/AQD.

Practical species to farm

Mackerel tuna has a comparable taste with bluefin tuna, a highly prized fish, and is becoming popular in Japan as sashimi and ingredient for sushi costing around JPY 3,500 (approximately Php 1,600) per kilo.

According to Mori, mackerel tuna (*Euthynnus affinis*) is more practical to farm compared to yellowfin tuna, another popular tuna species.

"Yellowfin tuna grows larger compared to mackerel. It requires bigger cages and consumes a bigger quantity of feeds which would be difficult on the part of small-scale farmers," he explained.

Mori says that to farm mackerel tuna, small-scale fish farmers may already use small cages that are around 10 square meters for grow-out.

Dan Baliao, chief of SEAFDEC/AQD, hailed the five-year project (2020-2024) which is supported by the Government of Japan Trust Fund.

"The best way for Japan to extend help in the Philippines is to share its successful technologies tailored to the country's conditions. Through SEAFDEC/AQD, it can be achieved," he said.

— JM DE LA CRUZ

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2019 SEAFDEC/AQD CHRISTMAS CELEBRATION

ALL PHOTOS ARE BY DEVCOM SECTION

SEAFDEC/AQD family welcomed the holiday season 'Filipino-style' as staff donned their best '*Paskua sa Baryo*' outfits last 13 December 2019 at AQD's Multi-purpose Hall.

True to the tradition of Christmas celebration in the Philippines, staff and friends of the Department spent the entire day filled with fun games, exciting raffle, and good food.

THANKSGIVING MASS

The day-long celebrated started with a Thanksgiving Mass held at AQD's Multi-purpose Hall.

SEAFDEC/AQD family awaits the lighting of the AQD Christmas Tree

CEREMONIAL LIGHTING

SEAFDEC/AQD became merrier and brighter during the annual ceremonial lighting of the AQD Christmas Tree at the SEAFDEC/AQD Field.

Deputy Chief Dr. Koh-ichiro Mori and Administration and Finance Division head Ms. Amelita Subosa shared some heartwarming and inspirational messages to the staff for this Christmas season.

A fireworks display capped off the program with a bang.

Mr. Clark Daniel Macalde and Ms. Micah Danielle Lojera hosted the afternoon's festivities

AFD head Ms. Amelita Subosa and Deputy Chief Dr. Koh-ichiro Mori extends their Christmas wish to the AQD community during the Christmas Tree Ceremonial Lighting at the SEAFDEC/AQD Field.

Students from Kinaadman Elementary School perform various Philippine folkdances during the Christmas Program.

CHRISTMAS PROGRAM

True to its concept of '*Paskua sa Baryo*,' the Christmas Program highlighted a sense of community as the AQD family gathered at the Multi-Purpose Hall to share a meal and spread some cheer.

AQD Nurse Mr. Al Edward Omar Limoso and LFAAT staff Ms. Justine Rose Silayro won as Fiesta King and Fiesta Queen.

Chief Dan Baliao, in his speech, expresses his gratitude to the staff's hard work in 2019 and recognizes that there is still a lot of work to be done in the coming years.

Mr. Felix Javero, resident technician of Dumangas Brackishwater Station, takes home the grand raffle prize.

SEAFDEC/AQD's Executive Committee (left to right) Dr. Roger Edward Mamauag, head of Technology Verification and Extension Division; Dr. Edgar Amar, head of Training and Information Division; Chief Dan Baliao; Ms. Amelita Subosa, head of Administration and Finance Division; Deputy Chief Dr. Koh-ichiro Mori; and Dr. Leobert de la Peña, head of Research Division.

AQD presents research plans for 2020

SEAFDEC member-countries, departments, and partner institutions gather for the 42nd Program Committee Meeting in Chiang Mai, Thailand. *PHOTO COURTESY OF SEAFDEC SECRETARIAT*

Chiang Mai, THAILAND – To ensure the sustainability of its programs and activities, SEAFDEC/AQD presented its plans for next year during the 42nd SEAFDEC Program Committee Meeting (42PCM), 22nd Fisheries Consultative Group of the ASEAN Strategic Partnership (22FCG/ASSP), and Department Chief's Meeting (DCM19) last 11 to 16 November 2019.

AQD chief Dan Baliao explained that AQD will be gearing towards the harmonization of relevant research and development studies with its partner-agencies in the Philippines including the Bureau of Fisheries and Aquatic Resources (BFAR), National Fisheries Research and Development Institute, Department of Science and Technology, as well as academic institutions such as the University of the Philippines.

"We believe that these institutions including the private sector could help in accelerating the transfer of technologies being developed in our end. We wanted the stakeholders to immediately reap the benefits from the work we've been doing," said Baliao.

To support the demand of the industry, AQD will also focus more on refining and improving its technologies to produce safe and good quality multi-species seedstocks in sufficient quantity. Priority species will include tiger shrimp, milkfish, and mangrove crab.

"For 2020, we will guarantee that our scientists and researchers will focus on the priority areas which are geared towards aiding and assisting our fish farmers," he said.

Baliao also opened the idea of inviting visiting scientists, both local and international, to work with AQD in attaining its mandates. External experts will be tapped to conduct studies within the priority research and development studies.

Although the plans generally address the priorities of the Philippines, the results could be shared with and adapted by other member-countries.

"On behalf of the Philippine government, we commend AQD for undertaking numerous activities that support the aquaculture industry in the country. Rest assured that the experiences and technologies generated by AQD would also benefit the other SEAFDEC member-countries," said Mr. Rafael Ramiscal, SEAFDEC national coordinator for the Philippines and chief of BFAR's Capture Fisheries Division.

Regional Program

Deputy Chief Dr. Koh-ichiro Mori presented a new program funded by the Government of Japan – Trust Fund (GOJ-TF) and to be undertaken by AQD. The goal of the proposed program is to attain sustainable aquaculture by developing cost-efficient culture systems and effective management of aquatic animal health.

"AQD has acquired useful information and skills on culture development and fish health management which are helpful in practicing sustainable and responsible utilization of aquatic resources in the country and in the entire Southeast Asian region," said Mori.

This is already the seventh cycle where the Government of Japan will fund SEAFDEC studies on emerging and relevant issues on fisheries and aquaculture.

Dr. Leobert de la Peña, head of the Research Division of AQD, also presented the conclusion of the project on aquatic emergency preparedness and response system which was funded by the Japan-ASEAN Integration Fund and implemented by AQD.

He reported the successful development of the guidelines, which were already adopted through various meetings and convention by the ASEAN, on an early warning system for aquatic animal health emergencies suited to the needs of ASEAN member-states. Recommendations were also presented to ensure the sustainability of the project.

"In order to move forward, we wish to create contingency plans for high-profile diseases, manual, and other toolkits which are needed in the proper implementation of the guidelines," said de la Peña.

At the end of the meetings, AQD's achievements for 2019 were noted and the plans for 2020 were endorsed by the Committee. a

— JM DE LA CRUZ