



SEAFDEC 45th ANNIVERSARY



aqdmatters

45th Anniversary Special Issue

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

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A tribute to the prime movers in the establishment of SEAFDEC/AQD

This year is the 45th anniversary of SEAFDEC/AQD. It is significant because the celebration will include unveiling of the two markers dedicated to the two important figures that made SEAFDEC/AQD what it is now. The two buildings will be named after them as a gesture of gratitude for their valuable contribution to the establishment of Aquaculture Department as the third technical department of SEAFDEC right here in Tigbauan, Iloilo.

In January 1968, the Philippines became a signatory to the Agreement Establishing the Southeast Asian Fisheries Development Center (SEAFDEC). During the Third Ministerial Conference for the Economic Development of Southeast Asia in the same year, SEAFDEC considered the establishment of a new



Dr. QF Miravite showing Pres. Ferdinand Marcos experimental facilities at SEAFDEC/AQD.

department to deal with freshwater and brackishwater fish culture. In a meeting in Singapore on March 1969, the SEAFDEC Council agreed in principle to establish a new SEAFDEC department. This paved the way for the

Philippine Government to submit in 1971, a position paper to the SEAFDEC Council formally inviting SEAFDEC to establish a regional aquaculture project in the Philippines.



A series of surveys in the Philippines was conducted to identify the appropriate site of this new Department. The survey team was headed by Dr. Katsuzo Kuronoma, former president of Tokyo University of Fisheries. Dr. Kuronoma, through the Japanese Overseas Technical Cooperation Agency, conducted the survey mission from 1969 to 1971. The Aquaculture Department would then be established in Iloilo Province, Panay Island, Philippines.

AQD was to undertake aquaculture research in the region, and training of researchers and technicians in aquaculture. The Mindanao State University (MSU), which at that time had already developed the technology for breeding penaeid shrimps under the guidance of Dean Domiciano K. Villaluz of its College of Fisheries, was designated as implementing agency of the project for the Philippine Government. Although shrimp culture was given priority in the initial project plan, it was also agreed that the new Department could undertake, whenever feasible, the culture of other coastal and brackishwater species, and in a subsequent stage, freshwater fish culture.

The initial implementation of aquaculture projects in the



DK Villaluz acknowledging guests during the formal inauguration of SEAFDEC/AQD in 1975. Dr. QF Miravite is seated on the right.

Philippines was entrusted to MSU following a conference with then Department of Agriculture and Natural Resources (DANR) secretary Arturo Tanco, Jr. and His Excellency Japanese Ambassador Toshiobe Urabe in 1972.

A very interesting story enveloped the stay of HE Urabe during his stay in Mindanao. It was the time when Marawi was under siege by rebels. How he was kept safe until he was flown out of Marawi is another one good story.

The Government of Japan expressed its unwavering support to the operations of the new SEAFDEC Department. The SEAFDEC Council, during its Sixth Meeting on July 1973

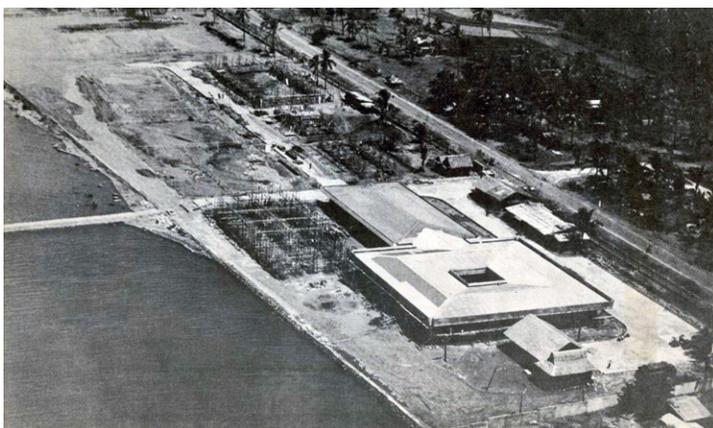
in Kuala Lumpur, agreed to establish the Aquaculture Department in Iloilo, Philippines. It also adopted the corresponding Plan of Operation and Program of Work and approved the appointment of Dean Domiciano K. Villaluz as the first Department Chief.

SEAFDEC/AQD in 1973 was one of the three SEAFDEC departments organized under the six-nation SEAFDEC Agreement along with Japan, Thailand, Malaysia, Singapore and South Vietnam. The two other departments were the Training Department (TD) in Marine Engineering in Thailand and Research Department in Marine Biology

in Singapore.

True to its word, the Aquaculture Department has since then been pursuing programs on sustainable development and responsible stewardship of aquaculture resources in Southeast Asia. Research and development programs of AQD geared towards generating and promoting appropriate aquaculture technologies and socio-economic strategies, putting emphasis on the sustainability of the aquaculture industry in the region.

/MET Aldon



Tigbauan Main Station showing buildings under construction in 1973

The role of QF Miravite in the establishment of SEAFDEC/AQD



SEAFDEC/AQD owes its establishment to Dr. QF Miravite, a dark-skinned, petite intellectual guy, very well known as Qui-ting. The skills of QFM in planning and development programs were recognized even before SEAFDEC was established. At

Mindanao State University where he was the Vice President for Academic Affairs, QFM was instrumental in the physical and operational enhancement of its marine research laboratory at the College of Fisheries at Naawan, Misamis Oriental. The laboratory would later become the birthplace of the Sugpo Revolution in the country.

Dr. QFM would display his expertise in 'back channeling and secret maneuverings' when in 1968 he worked out for the integration of the Lanao Technical School in Iligan with MSU and would later become the first external and autonomous campus of the MSU system. Now Iligan Institute of Technology, it is a globally competitive institution of higher learning committed to excellence in science and technology for the sustainable development of the Southern Philippines. It recently

celebrated its 40th charter day.

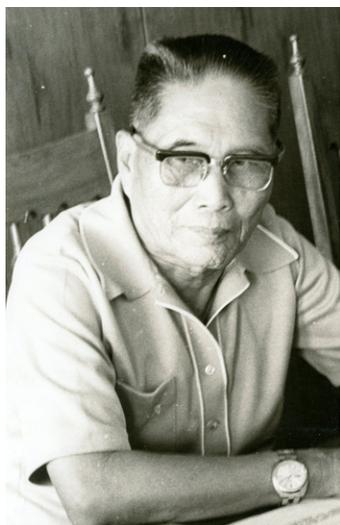
The same expertise of Dr. QFM would later be shown to make SEAFDEC what it is now. It is well recognized that Dr. QFM significantly contributed to the construction of its research and administrative complexes and facilities in Tigbauan, Iloilo; the freshwater fishery and lake ecology research station in Binangonan, Rizal; the experimental and production shrimp farms in Leganes, Iloilo; the Pandan Bangus Breeding Station in Antique; and the Igang Shrimp Spawner Culture Substation in Guimaras. He also spearheaded the ground-breaking strategy of engaging the end-users in hastening the development of the giant tiger shrimp, *Penaeus monodon*, technology through a guided partnership in experimental research and production in their private shrimp hatcheries and farms. His vision and his tireless

efforts essentially made possible the world's first spawning of captive milkfish, *Chanos chanos* and the world's first maturation of captive giant tiger shrimp. AQD would later dominate the entire regional program of SEAFDEC. With a direct telephone line with the then President Marcos, QFM would obtain national funds to expand the facilities of SEAFDEC/AQD. The vast new research and training center and a number of field sites throughout the Philippines were attributed to him. His tireless efforts allowed SEAFDEC/AQD to truly become a regional institution, create linkages with other agencies and attracted international funding.

/MET Aldon



Dean Domiciano K. Villaluz as the first AQD Chief



When SEAFDEC established the Aquaculture Department in 1973, the SEAFDEC Council wanted to focus its R&D program on tiger shrimp. Domiciano K. Villaluz, then the Dean of the College of Fisheries of the Mindanao State University, was appointed first AQD chief in recognition of his track record in shrimp research.

At MSU, DKV spearheaded the development of the pioneering technology in the mass production of tiger shrimp fry in hatcheries and culture in brackish ponds in the early seventies at Naawan. In fact, no less than another household name in prawn culture, Dr. Jurgenne H. Primavera, acknowledged this in AQD's first manual in prawn culture.

He took both his Bachelor of Science in Education, major in zoology (BSE, 1931) and his Master of Science in Zoology (MS, 1937) from the University of the Philippines. From 1939-1941, Dean Villaluz was a government student in Japan and a scholar of the U.S. State Department in the University of Washington in 1946-1947.

Instead of pursuing his childhood dream to become a doctor, he opted to become a fishery scientist. He worked as a

fishpond supervisor at the Rehabilitation Finance Corporation. He also worked as a fish culturist at the Bureau of Fisheries. It was at this time when he conducted researches and wrote both scientific and popular articles in fisheries.

It may be important for the young researchers to know that one of the earliest Filipinos to study the biology and culture of tiger shrimp or sugpo was Dean Domiciano K. Villaluz and Dr. Deogracias V. Villadolid, known as the father of Fisheries Education. Their research work was published in 1951 in *The Philippine Journal of Fisheries* where the morphological structure of sugpo was described. It also included sugpo's feeding habits, the migration of sugpo fry, the sugpo fry fishery, and the cultivation of sugpo. But even before that, in 1938, Dean Villaluz and F. J. Arriola published a paper on *Penaeus* taxonomy in the *Philippine Journal of Science*. He also presented a paper in 1950 at the Second Meeting of the Indo-Pacific Fisheries Council in Sydney on sugpo cultivation in the Philippines. Thereafter, a lot more papers about sugpo were either published or presented in different conferences, both national and international.

The distinguished contribution of Dean DKV to fisheries was aptly recognized by

different awards given to him. In 1974, he was awarded the Gregoria y Zara Scientist Award by the Philippine Association for the Advancement of Science and the National Science Development Board, and the Outstanding Service Award from the Philippine Federation of Fish Farm Producers. Then President Ferdinand Marcos in October 1976 awarded him the Rizal Pro Patria Award. In 1977, he received the UP Alumni Award from the UP Alumni Association. Another award came in 1979, when he received the Pantas award given by the Philippine Council for Agriculture, Forestry and Natural Resources Research and Development, DOST for his pioneering research on prawn culture.

DKVs success in prawn research convinced the National Science Development Board (NSDB) of the very bright prospect of shrimp culture in the country. The NSDB then awarded DKV and a colleague in 1979, a research grant for a three-year project on shrimp and the construction of a pilot laboratory. The successful experiment on shrimp culture inspired other institutions and private investors in succeeding years to put up commercial hatcheries and provided bright prospects for a new dollar-earning aquaculture industry.

The shrimp industry has benefited from the hatchery technology that DKV developed. Today, Filipino farmers learned from him that any small piece of land can be made productive through technology adaptation coupled with strong determination. His legacy as a pioneer researcher in sugpo culture lives on as he is perpetually honored in the annual Dean Domiciano K. Villaluz Memorial Lecture where fisheries scientists deliver lectures on various topics in fisheries.

Dean Villaluz was working on the artificial propagation of tiger shrimp at about the same time that Dr. Liao, another world-renowned shrimp aquaculture scientist, was doing the same at Tungkang Marine Laboratory and Taiwan Fishery Research Institute. The technologies that DKV developed on tiger shrimp hatchery and grow-out were promoted through training and extension.

Over the years since the development of sugpo culture technology, sugpo and other penaeid production increased significantly around the world up to the 1990's when it declined due to disease problems. Present efforts in coming up with solutions will hopefully improve the situation and render the whole shrimp industry more sustainable. /MET Aldon



The Markers

The unveiling is an act of erecting the name of an individual carved in stone, either a monument, landmark, piece of art or anything that allows others to honor and to recall the memory of a person. It is a chance to continue to reflect

upon the significance of that person's life, his or her accomplishments, and the people who were important. Most of the younger generations now do not know the two persons SEAFDEC/AQD is acknowledging for their role

in the establishment of the institution that became the source of livelihood for many. In a sense, through the unveiling, the memory of their life is presented, permanently carved, to serve as a landmark and become part of the memory of the

SEAFDEC family. This is a way to give thanks to them to whom these markers are lovingly dedicated. In honor of Dr. Q.F. Miravite and Dean Domiciano Villaluz, realizing that their memories remain in the heart of those they have touched. /MET Aldon

This
Administration Building
is dedicated to

Dr. Quiterio E. Miravite



in recognition of his strategic role in the establishment of the Aquaculture Department of the Southeast Asian Fisheries Development Center (SEAFDEC/AQD) in the Philippines. His vision and his tireless efforts in securing funds for the construction and operation of the research and administrative complexes in Tigbauan, Iloilo; Leganes, Iloilo; Pandan, Antique; Igang, Guimaras; and Binangonan, Rizal; were essential to research and development works which made possible, among others, the world's first spawning of captive milkfish, *Chanos chanos* and world's first maturation of captive giant tiger shrimp, *Penaeus monodon*.

Dedication done on July 13, 2018

This
Nutrition & Reproductive Physiology Building
is dedicated to

Dean Domiciano K. Villaluz



for accepting the daunting challenge as the first Chief of the Aquaculture Department of the Southeast Asian Fisheries Development Center (SEAFDEC/AQD). He played a pivotal role in setting the research direction of the Department; and for his guidance to the pioneering staff in undertaking research and development in milkfish, *Chanos chanos* and the giant tiger shrimp, *Penaeus monodon* which resulted in the spawning and maturation of captive stocks which eventually made hatchery operation and seed production for both species commercial realities.

Dedication done on July 13, 2018



Tributes



DKV or Domiciano K. Villaluz was the epitome of the saying, "Silent water runs deep." I've known him since my MSU days, when I was still a student in the 60s and later as a member of the MSU faculty. He was always at hand to give anybody pieces of advice, that's why we used to call him Daddy Villaluz. In his own quiet way, he set a very good example of a fine gentleman caring for his family, including us whom he considered his children.

In spite of his placid manner, deep inside he was very passionate, physically and scientifically. He had a passion for the science and practice of fisheries and aquaculture. He was a passionate believer in the bright future of AQD and the sustainability of aquaculture, being an aquaculturist himself, spearheading the breeding of the famous *Penaeus monodon*.

He was the thinker – the planner, and tactician – feeding QFM, the executioner, his insights and plans about AQD, knowing well that QFM was a doer. He complemented QFM in many ways, in their beliefs and interests in the making of AQD, like two peas in a pod.

Kudos to these two gentlemen who made AQD great!

Virgilia Sulit,
Technical Fisheries Officer
SEAFDEC/SEC



Dean Domiciano Villaluz was a gentle person, soft spoken, and had a ready smile. He treated us as if we were also his children. DKV and QFM gave us the opportunity to obtain our masters degree. For this I am grateful.

Teresa de Castro-Mallare,
former Researcher



I learned so much from Dr. Miravite. He was an exemplar for his having accomplished monumental achievements – the founding

and nurturing of Mindanao State University and SEAFDEC/AQD. His pioneering vision, courage, intelligence and unparalleled persistence enabled him to put plans into action and successful fruition.

He helped developed MSU in the culturally challenged region in the cogon hills of Marawi into what it is now – just as he initiated the establishment of SEAFDEC/AQD into what it is now.

Dr. Miravite, as Vice President of MSU, accepted the challenge to establish SEAFDEC where he and Dean Villaluz stretched the limits of resources of the MSU research project on prawn aquaculture to provide the seminal beginnings of SEAFDEC/AQD. The eventual transfer of SEAFDEC/AQD, due to his farsighted vision to advance the frontiers of aquaculture in Southeast Asia, is bearing fruit.

On a personal note, I consider Dr. Miravite a special person for his unequalled concern for his superiors and fellow workers, for his patience in teaching others critical lessons in management and for his loyal adherence to the mandate of institutions he belonged to.

Dean Rufino Ignacio,
former Director for
External Affairs



I never got the chance to have Dr. QFM as my professor at MSU but I've known him to be a good leader. He was a progressive thinker and strategist. He planned way ahead than anybody else thought. You take one step, he takes two. He was someone to beat in any game plan.

Sylvia SJ Corro
former Head, General Services Section

QFM is the famous Quiterio F. Miravite of AQD, whom I worked with for decades in the late 70s and beyond. To me, he had not only a split personality but also multiple personalities.

He was God-fearing – he believed in God although he did not practice any religion.

He was a family-man – he cared for his wife and family very much and provided lavishly for their needs. In some instances when he could not make peace with wife Rose, he would ask me to talk to her.

He was a slave-driver – driving us (AQD Manila Office staff) to work until wee hours in the morning to get things done, "For the good of the organization," so he used to say, which is AQD.

He was very generous – especially with food, feeding us to more than satiety while working overtime, making us fat while patronizing lomi and siopao from Ma Mon Luk, for he would say: the best way to the brain is through the stomach.

He was very convincing – and in some ways, a manipulator to get the best results. He always got what he wanted for the sake of AQD.

He had eagle's eyes – could spot a mistake in one's writing even from far. We had to be always careful and always be on our toes. He used to tell us to make sure our drafts are written clearly and correctly because typists are not guessers nor magicians.

He was a perfectionist – would not appreciate half-cooked reports with unexplained details. He can spot a lie from the truth, very easily.

He was a doer – he did what he preached, and made sure that AQD projects should have impacts on humankind.

He was a mentor, a mason, an architect – he knew what an organization should be and he made it happen to AQD.

In summary, QFM was: A visionary – that is why we have AQD as what it is today.

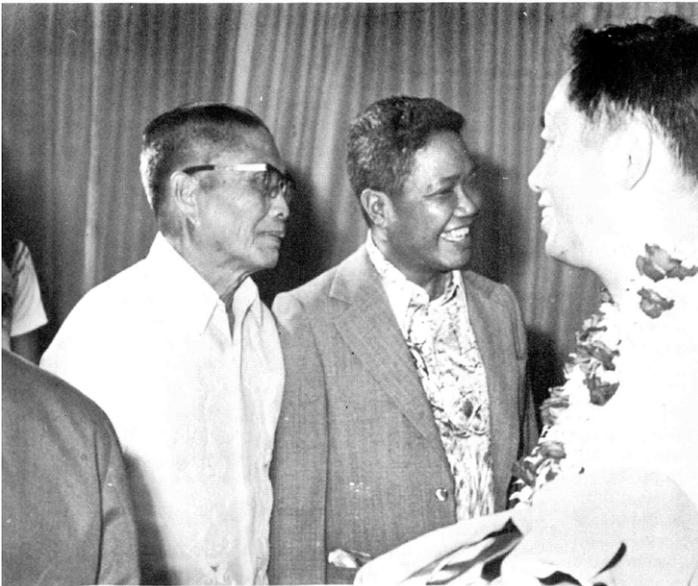
Virgilia Sulit,
Technical Fisheries Officer
SEAFDEC/SEC



Then SEAFDEC Secretary General Arporma Sribhibhadh (third from right) confers with Dean DK Villaluz, Architect Salvador Arcenas and Dr. QF Miravite on its research physical facilities at the project site in Tigbauan, Iloilo.



Dr. QF Miravite (2nd from left) and Dean DK Villaluz (4th from left) submit a report to Philippine President Ferdinand Marcos.



Dean DK Villaluz and Dr. QF Miravite receiving Vietnamese visitors.



Signing of Memorandum of Agreement between UP Los Baños and SEAFDEC/AQD.



Dean DK Villaluz (5th from left) receives a check from Philippine Agriculture Secretary Arturo Tanco representing proceeds from the sale of Japanese-donated rice. Dr. QF Miravite is second from left.

AQD Commodity Milestones

1973

Establishment of SEAFDEC/AQD

1975 - *(Tiger shrimp)* Life cycle first completed in captivity with eyestalk ablation

1976 - *(Milkfish)* First induced spawning of adults from the wild

1977 - *(Tiger shrimp)* Mass production of fry in the small scale barangay hatchery

1979 - *(Tiger shrimp)* Hatchery-reared fry used by private pond operators

1980 - *(Milkfish)* Maturation and natural spawning of captive broodstock in floating sea-cages

1980

1981 - *(Mangrove crab)* Grow-out culture in brackishwater ponds

1982 - *(Milkfish)* Successful larval rearing in the hatchery

1983 - *(Bighead Carp)* First induced spawning and successful fry production

1983 - *(Milkfish)* Completion of the milkfish life cycle in captivity

1984 - *(Bighead Carp)* Techniques for spawning, incubation, and fry production

1984 - *(Seabass)* Technology for culture in brackishwater ponds

1986 - *(Bighead Carp)* Completion of life cycle in captivity

1986 - *(Bighead Carp)* Grow-out established in many private farms

1989 - *(Catfish)* First induced spawning of adults from the wild

1989 - *(Grouper)* Broodstock raised in floating net cages and concrete tanks

1990 - *(Catfish)* Completion of the catfish life cycle in captivity

1990 - *(Grouper)* Maturation and year-round spawning and larval rearing

1990 - *(Seabass)* Developed hatchery technology

1990

1991 - *(Milkfish)* Mass production of fry in private and commercial hatchery

1992 - *(Catfish)* Breeding techniques established for captive adults

1994 - *(Abalone)* Wild broodstock maturation, spontaneous spawning in captivity

1994 - *(Grouper)* Completion of the grouper life cycle in captivity

1995 - *(Tilapia)* Improved strain developed

1996 - *(Abalone)* Completion of abalone life cycle under captive conditions

1996 - *(Mangrove crab)* Wild broodstock maturation and spontaneous spawning in captivity

1998 - *(Mangrove crab)* Mass seed production technique was developed

1998 - *(Milkfish)* Establishment of Integrated Milkfish Broodstock & Hatchery Demo Facility

1998 - *(Tiger shrimp)* Mangrove-friendly shrimp farming techniques were developed



2000

- 2002 - (*Abalone*) Sea ranching and stock enhancement begun experimentally
- 2004 - (*Freshwater Prawn*) Successful cage culture of the giant freshwater prawn in cages in Laguna de Bay in experimental set-up
- 2005 - (*Tilapia*) DNA markers for genetic stock characterization
- 2006 - (*Abalone*) Transfer technology to the private sector. A pilot demo hatchery was established in Oton, Iloilo
- 2006 - (*Indian White Shrimp*) First generation of captive shrimp produced in 2006
- 2006 - (*Sandfish*) Pilot hatchery production
- 2006 - (*Seaweed*) Improved *Eucheuma denticulatum* strain developed
- 2007 - (*Sandfish*) Pilot culture in cages, pens and sea ranch
- 2008 - (*Marine Fish*) Vaccine against VNN developed
- 2008 - (*Shrimp*) Recombinant vaccine against WSSV developed
- 2008 - (*Seaweed*) Microplantlets from *Kappaphycus* spp. successfully produced by tissue culture
- 2009 - (*Abalone*) Development of techniques for sea ranching
- 2009 - (*Seaweed*) SEAFDEC's *Kappaphycus* strain shown to be adaptable to higher temperatures (25 and 35°C)

2010

- 2011 - (*Abalone*) Release of juveniles into marine reserve for community-based resource enhancement
- 2011 - (*Feeds*) SEAFDEC-USB feed (soybean replacing 40-50% of fish meal) shown to be better than commercial diets
- 2013 - (*Feeds*) Fermented cowpea found to be able to replace 40% of fishmeal in milkfish feed
- 2013 - (*Sandfish*) Community-based sandfish sea ranching with onsite nursery initiated
- 2014 - (*Tiger shrimp*) Establishment of Online Philippine Shrimp Pathogen Information Resource
- 2015 - (*Oyster*) Hatchery production and grow-out culture of single oysters
- 2015 - (*Milkfish*) Molecular markers and DNA marker-based broodstock management scheme developed
- 2015 - (*Sandfish*) Incorporation with abalone
- 2017 - (*Tiger shrimp*) Oplan Balik Sugpo towards reviving the tiger shrimp industry launched
- 2017 - (*Tiger shrimp*) PHB-accumulating probiotic strain *Bacillus* spp. shown to improve robustness of postlarvae
- 2018 - (*Feeds*) Launch of Regional Database on Alternative Feed Ingredients in Aquaculture

2018



**SEAFDEC AQUACULTURE DEPARTMENT
Anniversary Celebration
9-13 July 2018**

*Research and the Industry united towards meeting the challenge
to attain the full potential of aquaculture*

**JULY
06**

Coastal Cleanup

Coastal area from Buyu-an Bridge to Nanga Bridge | 7:00 AM

Do Day

Offices and Division Assigned Area

**JULY
09**

Opening of the Anniversary Week

SEAFDEC/AQD Quadrangle | 8:30 AM

Zumba

Multi-purpose Hall

Bingo

Multi-purpose Hall | 1:30 PM

**JULY
10**

**Blood Letting
Free Eye Check Up**

Multi-purpose Hall | 8:00 AM

Gift-Giving Program

Multi-purpose Hall | 1:30 PM

**JULY
11**

Farmers' Forum and Aquaculture Clinic

Multi-purpose Hall | 8:30 AM

- Promoting cost-effective feeds made with locally available ingredients by Dr. Roger Edward Mamauag
- Giant freshwater prawn farming by Dr. Ma. Lourdes Aralar

- Shrimp Farming: Then and Now by Mr. Victor Emmanuel Estilo

- Tilapia Breeding and Farming Basics and Updates by Dr. Maria Rowena Eguia

Pampering and Wellness Day

TID Conference Room

Coastal Cleanup and Release of Pawikan

Igang Marine Station, Nueva Valencia, Guimaras

**JULY
12**

**26th Dean Domiciano K. Villaluz
Memorial Lecture**

Multi-purpose Hall | 1:30 PM

Aquaculture of Black Tiger Shrimp: Perspective and Future Directions by Dr. Siri Ekmaharaj

**Book Launching and Turnover of Virtual Library Box to Fisheries Schools
Launching of Online Alternative Feed Ingredients Database**

**JULY
13**

**Thanksgiving Mass
Building Dedication Program**

AFD Building Lobby | 8:00 AM

**Unveiling of Commemorative
Markers**

In front of AFD Building and Nutrition Building

Anniversary Program

Multi-purpose Hall | 4:00 PM

Special Message:

Eduardo Gongona
BFAR National Director

State of SEAFDEC/AQD Address:

Dan D. Baliao
SEAFDEC/AQD Chief

Keynote Message

Mr. Joseph Martin H. Borromeo
PAFPI President

Dinner | 6:00 PM

Fellowship Night | 7:00 PM



Iloilo Gov. Conrado Norada (right) offers a toast in honor of His Excellency Ambassador Toshio Urabe of Japan (middle) with Dean DK Villaluz during the cornerstone laying at AQD's project site in the town of Tigbauan.



Tigbauan Main Station with completed buildings in 1977.



Dr. QF Miravite and Dean DK Villaluz with Philippine President Ferdinand Marcos at Tigbauan Main Station.

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This special issue is prepared on the occasion of the unveiling of the commemorative markers in honor of Dean DK Villaluz and Dr. QF Miravite held during SEAFDEC/AQD's 45th Anniversary.

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