



Pangasius

PHILIPPINE PANGASIUUS
(*Pangasius Hypophthalmus*)

- Introducing Pangasius to the Philippines
- Food Safety, Systems, and Issues
- The Pangasius Experience
 - Success Stories
- Pangasius Menus and Recipes



A Publication of the Department of Trade and Industry
Regional Operations and Development Group

EDITOR'S NOTE

Every once in a while, something really fascinating comes along, rejuvenates an entire organization, and in the process, transforms an industry and the people behind it in its path. So it is with the "arrival" of pangasius into our shores.

We, at the DTI, together with other government agencies such as the BFAR, took on the

challenge of spreading the public's awareness for this "new" fish, and are continuing to do so with the publication of this magazine. Within its pages can be found the reasons for this dogged determination, giving us added inspiration to do better, to push ourselves more.

Our kudos to all the players -- such as the Pangasius Philippines, Inc --who, like us, have seen the vision that this new industry offers, and are now

steadily turning this into reality, straight into the homes of every Filipino consumer.

Have a great read!



Dorecita T. Delima
Editor-in-Chief

EDITORIAL STAFF

Editor-in-Chief: **ARD Dorecita T. Delima**
DTI 12, National
Pangasius Champion

Technical Staff: **Rochelle Otoc**
Cheryl Marie Cipriano

Contributors: **Mr. Froilan Pamintuan**
Mr. Arnulfo Ganaan
Atty. Jarrod Goldfeder
Ms. Tess Tawingan
Dr. Ernesto Morales
Mr. Pedro Bimbo Tan
Ms. Amelita Magbao
Ms. Rose Garcia
Ms. Cherry Romero
Ms. Lodie Cadiz
Ms. Gina Regalado
PD Nelly Esperanza
Ms. Rhea Lagradilla
Ms. Teresita Subibi
ARD Sitti Amina Jain
PD Mercedes Parreño

Pangasius Industry Desk Office
National Economic Research and
Business Assistance Center
(NERBAC 12)

G/F R.A. Bldg., South Osmena St.
General Santos City 9500
(+6383) 554-1929/552-8250
pangasiusedesk@gmail.com
nerbac12@dti12.org

WHAT'S INSIDE

Introducing Pangasius to the Philippines

- 1 Pangasius Industry, The New Gold Mine
- 2 Pangasius: Poor Man's Fare, Rich Man's Gain



The Pangasius Experience

- 3 Pangasius, A Sure Winner
- 4 Typhoon Province Finds Pangasius-growing Promising
- 5 Teaching Via Techno-Demo Ponds



Food Safety Systems and Issues

- 7 There's Somebody Who Makes Your Food Safe To Eat
- 8 Seeking The True Standard
- 9 Anti-dumping Of Pangasius Could Be A Philippine Problem Too



Success Stories

- 12 Taking The Risk Further
- 13 Sticking To Time-tested, Hands-on Management

Doctors Discover The Pangasius Potential



- 15 Daring To Be Different
- 16 An Alternative Within Reach

Pangasius Value Chain – Dream Achieved In Compostela Valley

- 18 The Filipino, A Paradox When It Comes To Buying and Eating Pangasius: The RDEX Experience
- 19 The Bounty Of Pangasius
- 20 Menus And Recipes

PANGASIOUS DESK OFFICES

DTI Region 4A | 3/F Marcelita Bldg., Real, Calamba, Laguna | (+6349) 5456169/5457570 | pangasiusedesk4a@gmail.com/dti4a@yahoo.com
DTI Region 5 | 3/F Capitol Annex Bldg., Old Albay Dist., Legazpi City | (+6352) 4805749/2455942 | pangasiusedesk5@gmail.com/dtireg5@globalink.net.ph
DTI Region 8 | Gov't Center, Pawing, Palo, Leyte | (+6353) 3234163/3235680 | pangasiusedesk8@gmail.com/r08@dti.gov.ph
DTI Region 9 | Gov. Ramos Ave., Sta. Maria, Zamboanga City | (+6362) 9913237/9913238/9913232 | pangasiusedesk09@gmail.com/dti09@yahoo.com
DTI Region 10 | Corrales-Luna Streets, Cagayan de Oro City | (+63882) 2722278 | pangasiusedesk10@gmail.com/r10@dti.gov.ph
DTI Region 11 | 3/F Mintrade Building, Monteverde-Sales Sts., Davao City | (+6384) 3760500 | pangasiusedesk11@gmail.com/r11@dti.gov.ph
DTI Region 12 | 4/F De Luz Bldg., Gensan Drive, Koronadal City | (+6383) 5528250/2289837/5200071 | pangasiusedesk@gmail.com/nerbac@dti12.org/ro@dti12.org
DTI Region 13 | 5/F D&V Plaza Bldg., J.C. Aquino Ave., Butuan City | (+6385) 8151273 | pangasiusedesk13@gmail.com/dti_caraga@yahoo.com

Pangasius Industry: The New Gold Mine

Introducing
Pangasius
to the
Philippines

Introducing new products is never easy if one is to measure the activities that need to be undertaken in the name of the new product. Branded products are an entirely different matter. Years ago, one's eyebrows would rise when the word "pangasius" would be uttered. But today, thanks to efforts to introduce the freshwater fish to Pinoys, there is a growing interest to buy and/or culture the potential gold mine.

A number of government offices had been given the task to help this fledgling industry amidst the fish's growing popularity – the Department of Trade and Industry (DTI), Department of Agriculture-Bureau of Fisheries and Aquatic Resources (BFAR), Local Government Units (LGUs), Land Bank of the Philippines (LBP), and Development Bank of the Philippines (DBP), among others.

Pangasius Industry Prospect

Pangasius is such a promising industry that the Regional Operations and Development Group (RODG) of DTI identified it as one of its 8 flagship projects. Since June 2009, RODG has implemented the pangasius project aimed at stimulating economic development in the Philippine countryside through the creation of viable Micro, Small and Medium Enterprises (MSMEs). Aside from addressing poverty through job creation, the pangasius project also impacts directly to the food sufficiency thrust of the government.

According to RODG Undersecretary Merly Cruz: "The government in general and DTI-RODG in particular envision a strongly-clustered pangasius industry backed by technically-sound production, processing and market development initiatives which can boast the competitiveness of the MSMEs that provide employment and nutrition for Filipino consumers."

Realizing the Vision

To realize the vision of the pangasius



Local Name: "Pangga" --Pangasius is served in food chains and restaurants in varied menus and introduced by importers in the market as cream dory. Some local farmers, however, have named it *pangga*. DTI and BFAR support *pangga* instead of cream dory as the latter name misrepresents the pangasius catfish species. The common name dory is shared (officially and colloquially) by members of several different families of large-eyed, silvery, deep-bodied, laterally compressed, and roughly discoid marine fish. Considered an excellent food fish, the *true dories* belong to the family *Zeidae* (five species, including the well-known John dory).
-- [http://en.wikipedia.org/wiki/Dory_\(fish\)](http://en.wikipedia.org/wiki/Dory_(fish))

project, both public and private sectors have collaborated to provide comprehensive assistance to interested individuals or businesses through technology trainings including international immersion on pangasius in Vietnam. Researches have been conducted to determine what the recovery rate is of the locally-grown and processed pangasius including its nutritional value.

One of the notable assistance given to potential pangasius growers was the establishment of a Techno-Demo Pond. This was made possible through the collective effort of the stakeholders of the pangasius industry. Here, the stakeholders pooled their resources. Interested growers may look into the Techno-Demo pond and get all the information they need including the technical aspects in pangasius-growing such as: how deep should the pond be for growing pangasius? What is

the best water for growing this type of fish? Should the pond be aerated?

A group of businessmen in Region 12 found a more creative way to realize the vision of the pangasius industry: they founded the Pangasius Philippines, Inc. (PPI), a non-stock, non-profit corporation bent on protecting the young industry. Mr. Roger B. Rivera, SVP-COO of RDEX Corporation, one of the biggest processors of pangasius in the country, is the elected president.

PPI vows to disseminate information about pangasius culture and processing through the media, especially through publications, interpersonal meetings, and by other means. PPI also promises to provide a forum for fellowship and camaraderie among individuals with whom they share a common interest. This last is a crucial and significant activity, providing a venue not only for friendly interaction but also for the airing of concerns and the sharing of experiences.

Delivering the Promised Results

In a brief span of time since its start in 2009, the pangasius industry has delivered well beyond expectations:

- Investments in pangasius totaled PHP 151.355 million; and,
- The industry spun a total of 210 micro, small, and medium enterprises giving employment to 698 people.

The figures speak for themselves: in a short time, the industry has achieved significant results. This fact demonstrates that indeed, the pangasius industry is the new gold mine.

BFAR Support to the Industry

1. Technology Transfer (Production, Breeding, and Fishpond Management)
2. Conduct of Trainings
3. Financial Access to Lending Institutions
4. Establishment of Hatchery
5. Provision of Pangasius Fingerlings
6. Post-harvest Assistance
7. Market Linkage Facilitation

Poor Man's Fare, Rich Man's Gain

Whoever thought of mass-producing the daily fare, pangasius, of the poor people of the Mekong Delta should be given that nation's highest accolade as pangasius had come to the forefront as one of Vietnam's major exports, raking USD 1 billion in 2010. That is a staggering amount by any reckoning.

A fledgling economy, Vietnam has been posting positive growth during the first decade of this century in spite of the global crisis and even as her neighboring Asian countries were reeling from economic

uncertainties. In 2009, it managed to post a 5.32 percent GDP growth rate and affirmed its upbeat performance by growing 6.52 percent during the first three quarters of 2010.

One will notice that most of this developing nation's exports are raw products. Only a few of these products, such as crude oil, rice, valuable stones, metals, coffee, wood, seafood, textile, shoes and sandals, electronics and computers, have value-added.

Vietnam's total exports in 2010 totaled USD 71 billion with pangasius raking in USD 1.4 billion, almost, if not quite,

reaching the predicted USD 1.5 billion of the seafood exports, according to the Vietnamese Association of Seafood Exporters and Producers (VASEP).

Just 20 years ago, no one gave this species of the catfish any particular attention as it swam the whole length of the Mekong Delta, feeding that nation's needy and hungry. Today, the pangasius industry employs a staggering six million people, in particular those in the aquaculture sector.

Pangasius has a lot of notable characteristics going for it: its years of evolution has made

it hardy and meaty, it can grow in any kind of environment, and its mortality rate is almost nil during harvest. Although primarily freshwater, the Philippines has shown that pangasius can survive in brackish water, too. To top it off, it is rich in Omega 3, DHA, and low in fat – the kind of fish that health-conscious people the world over are seeking.

Today, Vietnam is exporting pangasius to at least 133 countries worldwide. The world has over six billion people and that's a lot of fish to produce by any stretch of the imagination.



Pangasius: A Sure Winner

The
Pangasius
Experience

INTAQ Seafoods, a private conglomerate that decided to go into the pangasius industry in the country, went into the importation and distribution of pangasius in 2007. The company is getting a relatively significant share of the country's average monthly importation of 600 metric tons of filleted fish from Vietnam and distributing these to big-time seafood distributors and re-processors. Later, INTAQ was also able to supply restaurants, hotels, and caterers with pangasius.

These buyers from INTAQ, in turn, are selling pangasius to supermarkets and

seafood distributors. Though the price of this fish is still competitive in relation to other fishes familiar to the Pinoy, the fact that pangasius had made it to the Pinoy consciousness is a feat in itself - salmon, trout, and other "foreign fishes" had never made it that quickly nor that big. INTAQ Seafoods, since it is a wholesale dealer, is able to get the fish from Vietnam at lower price than those who get it in smaller quantities.

Slowly but surely, Filipino consumers, who are not known as adventurous eaters, are now learning to see the plus side of this fish – not only can its white meat fill the protein needs of the average Pinoy, it is also

rich in Omega 3, an ingredient that is good for the heart.

The filleted pangasius is fast-becoming acceptable to the palate of the Filipinos, its white meat transformed into a variety of dishes. For instance, it can be used as filling substitute



in certain seafood dishes like samosa, shrimp purse, shrimp wrapped in potato, curry fish spring roll, mixed pangasius paste, basa (another name for pangasius) sausage, and a host of other favorite menu items.

The meat can also be suited to less-discriminating taste. It can be transformed into breaded nuggets, sticks, fish balls, fish rolls, strips, and such. Any which way the pangasius is cut or cooked, it is a big winner. INTAQ in turn confirmed to buy locally-produced pangasius, provided the market price is at par with that of imported fillet.



Typhoon Province Finds Pangasius-growing Promising

On August 27, 2010 aquaculture farmers attended the Pangasius Business Forum in Naga City, Camarines Sur on invitation of the BFAR in coordination with several entrepreneurs who were also engaged in pangasius-growing. The interest of the invitees had been piqued by the testimonials of businessmen who were already in the business.

This interest in pangasius culture is understandable when one considers that Camarines Sur is one of the provinces in Bicol, a region in the direct path of typhoons. An industry that is recommended for such a province is aquaculture. Many of the province's entrepreneurs are also engaged in the tilapia and bangus industries; both, like pangasius, are all freshwater industries.

Arnold Romeo A. Claveron of the Bureau of Fisheries and Aquatic Resources (BFAR) introduced pangasius as one of the most promising in the modern world – it is hardy, easy to grow, meaty,



A&L Fishpond & Hatchery, Inc., Camarines Sur

adaptable to any water condition, and fast-growing, among others. Above all, its taste is adaptable. While other fishes can only be fried and roasted, pangasius can be cooked in a variety of ways – steamed, fried, boiled, roasted, sauteed, sauced, and transformed into other value-added products like tocino, siamai, etc.

Eugene S. Losanez, operations manager of A&L Fishpond and Hatchery Inc.; Jose Angeles, marketing manager of Vitarich Corp.; and Daniel V. Cabrera, market creation manager of Tateh Aqua Feeds affirmed the presentation of BFAR's Claveron. That forum led to the initial

development of two micro, small, and medium enterprises in CamSur and the referral of five interested investors to the Small Business Corporation for financing. As a further incentive to jumpstart their own farm, A&L owner Augusto E. Tycangco offered to sell fingerlings at the bottom price of a peso per piece.

This year, the future of the industry looks bright even in this typhoon-ravaged province: three more private investors have joined the industry, ROMLEN Farm will pioneer in pangasius fillet processing, and more trainings are in the offing to further the existing know-how of Bicolano entrepreneurs.





Teaching Via Techno-demo Ponds

Tradition and conservative ways are hard to overcome particularly when one is trying to introduce a new concept, a new product, or a new lifestyle. Lectures, briefings, presentations are always never enough. One has to answer the "show me" attitude of targeted investors if one is to succeed in getting people to accept a project. Urging investors, fish farmers, and small growers to try a new product is always a big challenge. Bias, too, is a big factor.

In a way, skepticism should always be viewed with healthy objectivity. After all, investors, big or small, are only protecting their hard-earned money.

Although the introduction and promotion of pangasius as a lucrative livelihood was a breeze since the product itself was easy to sell, maintaining the enthusiasm was an altogether different matter. The saying, "To see is to believe," assumes an entirely different dimension.

In the Davao region, the goal is to grow pangasius to supply the needs of the local market. Davao del Norte

and Compostela Valley have established techno-demo ponds in Sitio Pawas, Barangay Dujali, B.E. Dujali, and in the Sta. Ana small water impounding facility in Brgy. Libasan, Nabunturan. The idea is to show prospective buyers the ease of growing this kind of fish -- it is not just easy to culture but it is almost effortless. Pangasius does not need any special attention or special feeds, and it is a hardy species, among its positive qualities.

The techno-demo pond in Davao del Norte is, by all indications, in good hands. A gentlewoman farmer, Wenita Feller Espartero, has been tending to agricultural crops, as well as aquaculture that includes tilapia and hito for most of her life, when her pond was selected to be a techno-demo pond. Now in her late 50s, her achievements as a farmer has been repeatedly acknowledged and recognized. Among the awards that she has received are the National Outstanding Farm Family Gawad Saka Award (2008), Regional Rural Women Award (2008), and the National Top 10 Rural Women Awardee for the Search for Outstanding Women (2010).

When DTI Davao del Norte conducted an investment opportunity

seminar, Espartero immediately saw the possibilities of pangasius as an income-earner and readily accepted the challenge to let her pond be a techno-demo pond. Although the contract with DTI specified the growing of only 3,000 fingerlings, she upped the number to almost double, so sure was she that under her care, the project will succeed. The wrigglers soon grew to an average of 1 kilo in 6 months, fed by B-MEG and under the watchful eye of Espartero. The contract with DTI also specified a ready market for the produce: RDEX that will process the harvest. The sale of pangasius totaled PHP 175,460.

Government has learned over the years that good intentions are not enough to help the needy, even those who have the finances but lack the necessary know-how, to succeed. It takes a lot of planning, coordination, networking, promotion, training, financial assistance, packaging, marketing, and follow-throughs to let them stand on their own. The circle of assistance sometimes is a never-ending operation.

DTI was able to entice the key players to bond well and to work closely together -- the provincial



government, BFAR, DTI and its many bureaus, and the private sector, in this case B-MEG, a major feeds supplier. The common ground was the production, propagation, and marketing of pangasius. With this collaboration set into motion, they established the pangasius techno-demo fish cage facility in Compostela Valley. The presence of the demo fish cage further buoyed the enthusiasm of small and medium entrepreneurs, along with the seminars that briefed and oriented



them in the lucrative opportunity of pangasius culture.

Today, there are several pangasius growers such as the YK Technologies that has been growing and retailing pangasius at PHP 110 per kilo. Kambilawa Fisheries Corp. has been researching on the viability of the fish; they are now producing breeders. The company will be catering to the needs of growers and hopes to become a reliable source of fingerlings.



To continuously promote pangasius not only as a versatile fish, but a healthy one as well, various taste-tests are presently being conducted in the region.

These are strategic moves that aim to create a demand for the product. Fish growers, wholesalers, retailers, and processors realize the potential benefits when pangasius is processed, resulting in value-added products that make the fish truly a potential money-earner.



PAGRO Techno-demo Pond, Compostela Valley

There's Somebody Who Makes Your Food Safe To Eat

Many might not know it but there is a standard known as the Hazard Analysis Critical Control Points (HACCP) that ensures consumers that what they eat is safe and not harmful to the body.

Since food processing has many stages before it reaches the end product, there is a danger that a careless move anywhere in these stages can pollute the food and cause harm to the imbibers. In actuality, the HACCP is only one part of a multi-component food safety system that includes good manufacturing practices, sanitation standard operating procedures, and a personal hygiene program.

The HACCP system is stringent in its operations – it controls the safety of the product as it is manufactured and not after it had gone through the whole process. This way, assessment is being done by looking into inherent hazards or risks in a particular product or process and redesigning a system to control them.

The Critical Control Points (CCP) are the steps where control can be applied and food contaminants can be prevented, eliminated, or reduced to acceptable levels. Examples of these would be cooking, acidification, or the drying steps in a food process.



What good does this whole complex system denote? Consumer confidence. Safety in the food that people buy is what spells consumer confidence, which could further translate into a successful business undertaking.



Halal Industry: New Business Opportunity

There are 1.8 billion Muslims in over 140 countries worldwide who require halal-certified foods and products. Halal refers to that which is permitted or lawful in the Muslim



world and the label "halal-certified" is fast-becoming a familiar term anywhere one goes – in restaurants, supermarkets, and even in cenderias. Muslims will only eat or use things that are halal-certified.

The scramble for halal certification is understandable, with figures showing a lucrative and burgeoning industry. The World Halal Forum Secretariat said that a research conducted reveals that global halal products are estimated at USD 2.3 trillion; a huge chunk of this, USD 1.4 trillion or 67 percent goes to food and beverage, USD 506 billion or 22 percent is shared with pharmaceutical products, while around USD 230 billion is for cosmetics and personal care products.

For those in the business, there is a race to get the coveted phrase "halal-

certified" embedded in their products. The number of products are not limited to food; yesterday, the items numbered only 500, today, this number has grown to 5,000 products from 500 companies, and counting.

The rush is attributed largely as a market entry strategy for business expansion and product diversification. Three years ago, the Philippine government, realizing the huge potentials, developed the Halal Food General Guidelines with the help of Ulama leaders in the country. The outcome is now known as PNS 2067:2008, and the standard that it embodies

is the national halal food certification system that any industry player in the food production and processing sector can use as guide.

In a country where Muslims are continuously making themselves felt, there is no denying the fact that they are a unique market whose needs should be addressed. For non-Muslims, there is a need to inform them what halal certification means and how they can enter the market by having a thorough understanding of the concept from the perspective of both religion and technology. But before one is fully halal-certified, one must

understand that there is a process one goes through – products must first undergo basic food safety accreditation before it applies for halal certification and not the other way around.

Mindanao holds most of the country's Muslim population. It is also the place where a new product to the country, pangasius, is making waves and is now being cultured. Therefore it is easy to see why breeders of pangasius can make a stab for the freshwater fish to be halal-certified, given the huge market that awaits them once pangasius and its value-added products are halal-certified.

Seeking The True Standard

Webster defines standard as "something set up and established by authority as a rule for the measure of quantity, weight, extent, value or quality."

In the pangasius industry, the relatively sudden rise to fame of this unassuming fish has created a confusion of sorts. And all because of standards. Now exported by Vietnam to different parts of the world, it has become imperative that receiving countries impose their own standards as to the hows, whats, and perhaps whys before accepting the continuous entry of pangasius into their shores.

At present, there are a number of standards being used by different sectors including consumers and buyers in the supply chain. These standards have their own focus and have differing requirements from the standards set by other groups or entities.

Inevitably, the result is a confusing, time-consuming, costly exercise. At the end of the supply chain are the pangasius producers who have to comply with multi-stakeholders and satisfy the standards set by buyers. The result -- added cost to the producers.

Clearly, there is an urgent need to come up with a version that takes into consideration the commonalities among the many standards.

BAP PADB



BFAR-NIFTC Demo Pond, Tanay, Rizal



RDEX Grow-out Farm

Still, of these, there are three standards recognized by the majority in the industry, which comply with one or two of the three sets of standards: Best Aquaculture Practice by Global Aquaculture Alliance (BAP), Aquaculture Based version 4 (AB) by GlobalGap, and the Pangasius Aquaculture Dialogue Standard (PADB).

It is to the credit of the crafters of the three standards that these cover an exhaustive range of issues regarding pangasius like pest and predation, water pollution and effluents, land and water use, sanitation and waste disposal, genetics, disease transfer, among others.

The only issue that remains to be resolved is to find the commonalities among the three standards to achieve a more cohesive and uniform guideline that the industry can follow. Enter the Sustainable Fisheries Partnership (SFP), a conservation non-government organization, which stepped in to address the problem. The SFP will look into the three standards and identify similarities/differences and hopefully find equivalences acceptable to all. The goal is to limit the confusion and lessen costs to producers. (By Dr Ernesto Jack Morales, Aquaculture program director, Sustainable Fisheries Partnership Philippines)

Anti-dumping Of Pangasius Could Be A Philippine Problem, Too

It is a testament to the palatability and adaptability of pangasius that it is creating a stir in places where the fish, filleted and frozen, had gained entry and enticed the palates of fish lovers and even non-fish eaters. Not surprisingly, it had also earned the ire and vexation of fish growers in the country of entry, such as the United States.

Cultivated, grown, and processed by the Vietnamese for decades, pangasius was foreseen early on to be the product that would lift the Vietnamese fisherfolk out of poverty. Hardy and a fast grower, pangasius was mass-produced by the Vietnamese for export, flooding the US market with millions worth of filleted pangasius.

Back in the 1990s, pangasius hardly created a ripple in the US market. But in 2001, the Vietnamese were able to produce and export 30 million pounds of the fish to the United States.

In 2002, the amount exported by Vietnam worldwide totaled 66 million pounds of pangasius, 70% of which or 46 million pounds, landed in the US.



Year after year, until 2009, US fish growers had to contend with the inexpensive pangasius that seem to be coming from all sides. Pangasius was also known by different names – “basa,” “tra,” “catfish.” In 2009, Vietnam’s total exports were a hefty 1.3 billion pounds, which shows the amount of resources they poured in expanding the market. But the US fish

industry had caught on and sought legislated action, saying that fillets of this fish being dumped in American markets were causing losses or diminished incomes for US growers.

In particular, the US catfish industry was hurting, since buyers were shifting to the cheaper substitute. The US government swung into action, directing the

Department of Commerce and the International Trade Commission to investigate the allegation of dumping and whether this was causing injury. It was found out that pangasius had been priced anywhere from 37 to 64 percent below fair market value, causing material injury to the US industry.

As a result, the Department of Commerce imposed anti-dumping duties on entries of frozen pangasius fillets. The said duties are a form of relief from unfair trading practices that are specifically provided for under the World Trade Organization agreements.

To date, however, Vietnam continues to dump pangasius in the American market, causing serious harm to the US industry. This scenario, if not properly checked, could also be a problem in the Philippines and must therefore be anticipated. Only then can the local growers/farmers, food processors, as well as consumers, reap the benefits of pangasius as a thriving local industry.

LEGEND:

● Pangasius Processors

● Grow-out Operators

● Nursery/Hatchery Operators

R3 [3]

R4a [2]

R4a [5]

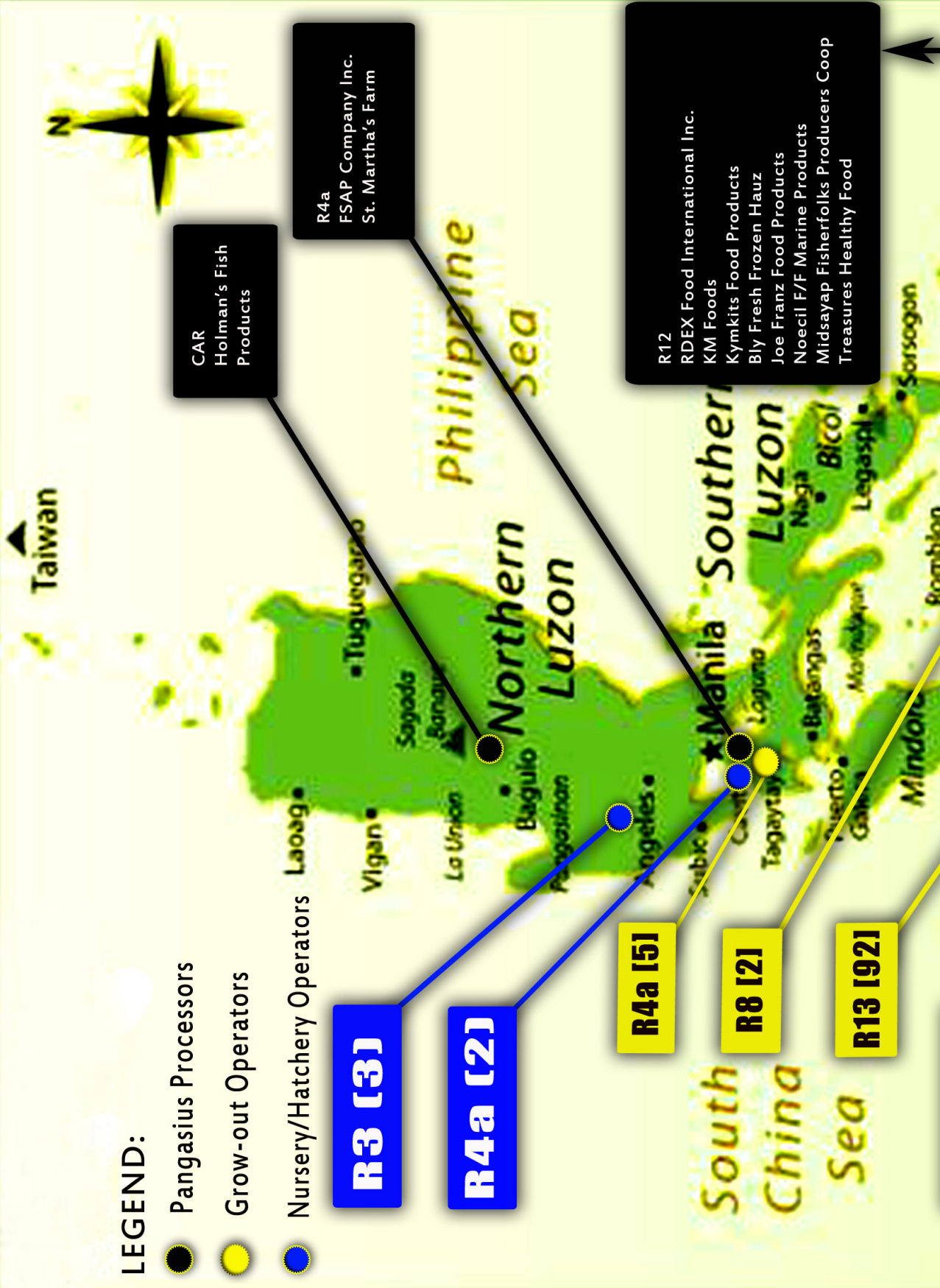
R8 [2]

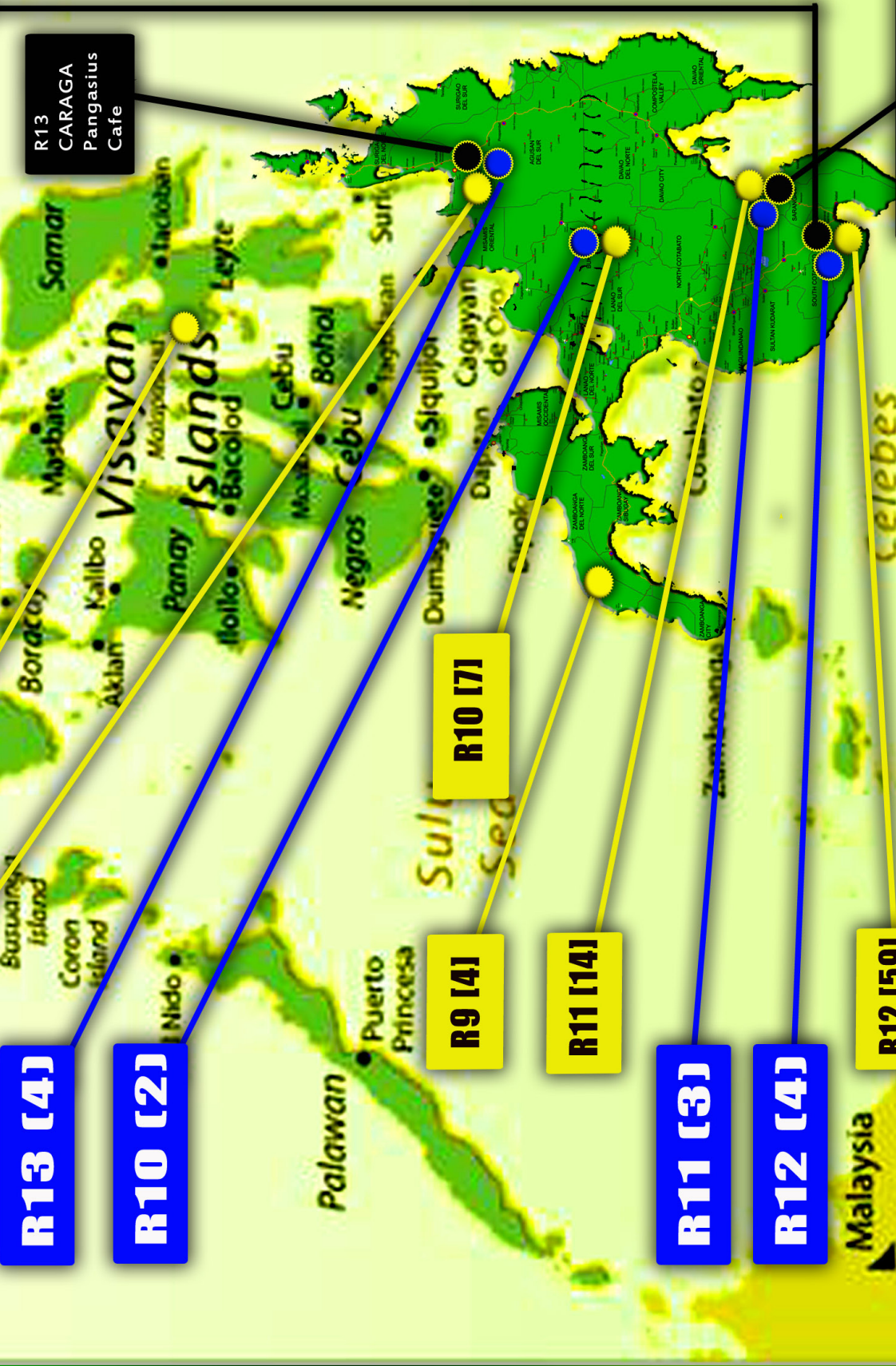
R13 [92]

CAR
Holman's Fish
Products

R4a
FSAP Company Inc.
St. Martha's Farm

R12
RDEX Food International Inc.
KM Foods
Kymkits Food Products
Bly Fresh Frozen Haulz
Joe Franz Food Products
Noecil F/F Marine Products
Midsayap Fisherfolks Producers Coop
Treasures Healthy Food





R13 [4]

R10 [2]

R9 [4]

R10 [7]

R11 [14]

R11 [3]

R12 [4]

R12 [59]

R13
CARAGA
Pangasius
Cafe

R11
Simcard and Maer Agri Ventures
YK Technology
Comval Dama Farmhouse
Jubil's Foodhouse
CL Microtel

REGION IVA

Taking the Risk Further

FEEDS SUPPLIES AND AQUACULTURE PRODUCTS (FSAP):

Panga Royale Brand of Processed / Value-Added Pangasius (Owner Ferdinand de Asis)

Siomai, lumpia, chicharon, tocino, barbeque, nuggets, hotdogs -- these are some of the products under the Panga Royale label. You'd probably say, so what, these are food common in fastfood chains, restos, even cenderias. What would you say if I told you that these are all made of fish, in particular, pangasius?

Proudly, Mr. Ferdinand de Asis brandishes the word *pangasius* as if it were the biggest thing to happen to him and his company. For a good reason: Mr de Asis knew what he was doing when he established his own company in the late '70s as he was once the plant manager of an aqua feed company. Perhaps what he was not prepared for was just how the business would shoot up that fast.

While at the onset he was safely ensconced in the field he knew that would sell -- supplying raw materials to his clients in Bacolod and Bohol -- he soon realized that he had to go back to the product he knew best for his business, aqua feeds, in order to fly. Like most businessmen who rely on their instincts, the decision proved perfect, for fly his company did in many directions. His baby, FSAP, became the parent company of subsequent multi-ventures.

By any reckoning, a 600-m² plant is not a huge undertaking but when one considers that it spews 180,000 bags of feeds annually, one sits up and takes notice. With all that feed, de Asis wondered, why not venture further and grow the fish that feed on it?

One of the many turning points in his life was in 2003 when he decisively went into bangus and tilapia culture. You might have seen a pond or two full of wrigglers, which is nothing compared to 200 cages of fish spread out in Batangas and Pangasinan, requiring 60 full-time caretakers. Such is the time-consuming and exacting science of raising fish that thrive with the mingling of brackish water.

Fishes seem to take it all in whenever they are fed, and may look insatiable. De Asis' *alaga* consume 70% of their monthly feed production. Now that's a lot of feed, the reason why the company had to transfer to a bigger facility in order to fill in the growing demand of clients as well as their own.

Today, the Tanauan Feed Mill plant of the Millenium Aqua-Agri Ventures, an arm of FSAP, sits on a 1.8-hectare lot, churning even more bags of fishmeal. It had relocated from Navotas in order to be closer to its clients, whose ponds and cages are situated nearby.

Like a true-blue businessman that he is, De Asis increased his business to include pangasius, now a byword not only in the business world, but also in the mundane world of Pinoy households that are more familiar with locally-grown bangus and tilapia.

De Asis carefully appraised the virtues of pangasius against local favorites and found that it had sterling qualities that would make it saleable. This imported fish does not have the fishy smell and strong taste of bangus and tilapia, but its foremost selling point is that it doesn't have the tiresome number of bones as that of bangus.

His 200 cages that held only bangus and tilapia before had grown to include 6,000 pangasius breeders. De Asis had risked going to the extent of adding value to his newly-found gold mine -- while others ventured in only filleting the meaty pangasius, De Asis went many steps further. At present, an array of pangasius products greets the senses: fish hotdogs, nuggets, bars, siomai, lumpia, tocino, barbeque, chicharon, all under the trademark of Panga Royale. The outcome had been so positive that restaurants, fastfood chains, and supermarkets avidly wait for

S
U
C
C
E
S
S



their fill of his fish products.

Government had come in amid the company's fast expansion. DTI Calabarzon assiduously assists in promoting the company's products, whether in agro or trade fairs, and in forums and in venues where the company can link up with other businesses. With their help, De Asis is assured of seeing his vision come to fruition. Dealerships are now in the pipeline as a result of linkages and networking. DTI also helps in terms of loans, and in improving the company's productivity – a clear testament to a successful private-public undertaking.

De Asis dreams of more – he wants his pangasius to go mainstream, to reach and be reached easily by the *masa*. He wants to penetrate the wet markets, not just the air-conditioned supermarkets of carefully selected stores and certainly not just limited to the Luzon region. With the ready assistance of DTI by

his side, the emerging pangasius industry may just be an arm's reach away.

Sticking to Time-tested Hands-on Management

S T. MARTHA FARMS: The Canson family owns a sprawling tract of land in Teresa, Rizal, which they put in good stead by setting up a poultry breeder-layer farm. As complement to the by-products of this farm, the Cansons also branched out to other agricultural projects like vegetable production.

The family's no-nonsense approach in handling both the breeder and vegetable farms resulted in healthier, more robust farm produce and products, which caught the fastidious eye of the Bureau of Plant Industry (BPI). Back then, one of BPI's projects was the pick-and-pay scheme, where customers come to the farm to personally select, pick and pay for vegetables on-site, a pilot that was supposed to popularize the scheme. St. Martha's Farms was BPI's first demo farm for the project, attesting to the hands-on management of the Canson family.

Despite this, a huge tract in Sitio Pantay, which the family owns, remained idle, inspiring them to branch out further by going into aquaculture. Updated on modern trends in aquaculture, the family matriarch, Cecile Canson, decided to get in touch with the Teresa Business Owners Association and DTI for advice. The Cansons were bent on growing pangasius, fully aware of its potentials. A comprehensive

business plan was then drawn up as government assistance to the Canson family.

By following the business plan and applying their own brand of time-tested management style, it did not take long for the new venture to prosper. While the hatchery and nursery facilities had been continuously paying off, the new project achieved its own ROI quite early -- producing, in a month, at least a million quality fingerlings. The finger-sized wrigglers are shipped as far as Mindanao and sold to fishpond owners in Luzon. Glut of the produce are turned into fillet, fish nuggets, embutido, sausage, skinned and skinless longganisa, sardines in olive oil and tomato sauce, and fishburger.

The success that the Canson family has reaped in their pangasius venture is another testament to the huge potential that the industry offers.

REGION VIII

Doctors Discover the Pangasius Potential

U.S. Congressman Tom Allen once said, "Family farms and small businesses are the backbone of our communities." This truism befits the diligent couple, Dr. Rolando Carpio, Sr. and Dr. Gilda Carpio, who transformed a family fish farm from a small business into a promising industry. Today the Carpio venture is able to provide jobs to locals in Catarman, Northern Samar.

Both retired physicians,



the Carpios no longer do the rounds and don't have as many responsibilities; they now enjoy the luxury of time. However, very often they would feel that being out of the hospital or clinic has made them unproductive, so they attended social functions of different organizations that would sometimes require them to travel to different places. It was in one of such travels that they came upon a business that would provide jobs to local residents, and one that they would treasure for the rest of their lives.

The hardworking couple took a trip one day to General Santos City to attend a Rotary Club District conference. While in Gensan, the couple joined a site visit to a pangasius farm arranged by DTI VIII Provincial Director for Northern Samar, Stanley C. Tabiando and headed by DTI Region XII Assistant Regional Director Dorecita T. Delima. It was during this tour that the couple had their first taste of the so-called *fish of life*, pangasius -- served fried, sauteed with mongo sprouts, and steamed with coconut milk -- all 3 kilos of it. Their attraction to it was undeniable; their discriminating taste was so captivated by the distinctive flavor of the fish that right there and then they started to conceptualize culturing pangasius as a small farm business. Immediately they inquired from DTI on how to acquire pangasius fingerlings and put up a small fish farm.

In June 2011 they joined a DTI-initiated Pangasius Benchmarking in Region IV. This time they traveled to Batangas, an expedition that included visits to successful hatcheries, grower farms and processing plants. During this visit, they were served with different pangasius

snack foods, products of a pangasius processing plant in Tanauan, Batangas. As they listened to testimonials, they learned that the fish can be a better meat substitute for making hotdogs, burger patties, skewers and siomais. As ingredient, pangasius is more nutritious, more economical, and better-tasting compared to pork or beef. From this benchmarking, the retired doctors were able to purchase their initial 12,000 fingerlings from St. Martha's Hatchery Farm owned by Gen. Joel Canson of Teresa, Rizal. When the couple arrived home, the first thing they did was to provide the newly-delivered pangasius fingerlings with a new habitat. Without wasting time, they converted their kidney-shaped swimming pool to a fish pond and hired two personnel as leg workers to serve as maintenance crew.

The neophyte businessmen did not take their new venture for granted. They exhausted all means to get cost-effective measures on raising pangasius. Aspiring to help local residents, they made sure that they would be able to establish a sustainable livelihood. The couple tapped possible sources that will train them in becoming better pangasius growers. They were able to get the assistance of BFAR, which oriented them on stocking density and proper feeding. Recognizing the couple's enthusiasm, the agency did its part in training them and transferring knowledge to their staff. To show the full support of Samar BFAR to the growing pangasius industry, a memorandum of agreement was signed between their office and the University of Eastern Philippines - Fisheries

Department. The agreement stated that technical assistance would be provided to the Carpios from fingerlings to fish harvest. DOST likewise committed some financial assistance.

Just like any other newly-established business, the Carpios experienced *birth pains*. They encountered early setbacks in the supply of fish feed and substantial fingerling mortality. It was difficult, considering that their new venture is far from the profession they once



had. Instead of losing heart, they were challenged to put their best foot forward. One solution to the problem was to establish more linkages for additional support. They tapped VitaRich Corp. in Bulacan for feeds supply, and acquired techniques in preventing fish mortality. They followed the advice of the Municipal Agriculture - Fisheries Department on the proper handling of fingerlings. Dr. Carpio transferred 2,000 fingerlings to another circular pool to prevent overcrowding, which was one of the reasons for rapid mortality. He also constructed a fish pond in Brgy. Washington, Catarman to accommodate the fast-growing pangasius.

As if this was not enough, the couple sought to acquire more knowledge on the ins and outs of the business by going on a study mission to Vietnam in July 2010. This visit was a big break -- they saw up-close a large-scale pangasius processing plant that produces 400 tons of pangasius fillet and employs a thousand workers. Vietnam exports pangasius

to European and US markets. On the other hand, due to Vietnam's difficulty in coping with the high demand from foreign clients, and the pressing contamination issues that beset their pangasius meat, the country had seen a downgrade in the demand for their fish. With this setback, Europe and the US are searching for new alternative suppliers from other Asian countries. This persuaded the doctors to stand firm on their decision to grow the business and supply various foreign markets.

Today, the Carprios have conceptualized activities for the promotion of the pangasius industry, including a Pangasius Festival, where different pangasius dishes will be served. They are also considering mass production of pangasius fish fillet to be supplied to different supermarkets nationwide. Monterey, a leading meat outlet in the country, is considered as one of its distributors.

Their supportive son, Mayor Rolando F. Carpio, Jr., is

giving his all-out support to his parents and the industry as a whole. In fact, pangasius-growing is one of his priority programs on food security. He plans to introduce pangasius farming to his constituents as an alternative livelihood. Having a range of support groups from different government agencies and with the determination of the people behind Carprios' Pangasius Fish Farm, the realization of attaining a profitable business is no longer far from reality. The existence and stability of this new venture not only brings profit to the proprietors but also gives long-term benefits to the people, especially the local residents of Catarman.

What started as a pastime of the retirees has now grown into a cost-effective business, and is able to provide a source of income for the people. With the positive response of Catarmanons to this business enterprise, it seems beyond doubt that this conscientious couple has helped provide a strong backbone to the Catarman economy.



REGION IX

Daring to be Different

SPDA Vitali Fishpond Estate, Mangusu, Vitali District, Zamboanga City -- One of the reasons why pangasius is causing such a stir is that it is a fish that is easy to grow -- no finicky special feeds, no particular method in its propagation. In Region IX, an area that boasts of a vast expanse of sea, a daring system was established -- to culture pangasius, a freshwater fish, in brackish water. The grower: SPDA Vitali Fishpond.

Several years ago, the Southern Philippines Development Authority (SPDA) distributed titles of fishponds to qualified beneficiaries and further assisted them in livelihood projects like aquaculture. One of the lucky recipients was the Vitali Fishpond Estate (VFE), which opted to culture the newly-introduced pangasius.

Two years ago, an initial 87,000 pangasius fingerlings were released into a 1.4-hectare land that was located near the sea. To maintain the salinity level of 5 parts per trillion (ppt), seawater was blocked and freshwater was pumped from a nearby river to make it brackish. The strategy worked and in a span of only several months, the owners were able to harvest around 20,000 kilos of healthy pangasius. VFE then hired a trainer in filleting from the St. Joseph Marine Products, the company commissioned to produce filleted pangasius.

For some time, VFE was holding 5.4 metric tons of filleted fish and over 50 metric tons of live pangasius ready for harvesting. Ironically, the people from Mindanao are generally not eaters of freshwater or brackish water fish species, since they tend to be more familiar with the seawater varieties that are easy for the picking. The ball is now in the hands of DTI, whose network of buyers will be utilized to help VFE create viable markets for their produce.

REGION X

An Alternative within Reach

Pangasius in a portable

plastic pond: an urban alternative -- Who would have thought that a plastic container the size of a mini swimming pool, 16 feet in diameter and 5 feet in height (the size of a pond for house pet fish) could be used to culture fish for the market?

That's exactly what Demosthenes Du, a corn trader in Cagayan de Oro City, did. A plastic container could hold growing tilapia, but when he learned that in a short period he could harvest one-kilo pangasius, he decided to grow his produce in a portable plastic pond.

The downside of being in an urban area is that cost of utilities, and in this case, water, was pulling down profits. Since there is no drainage system in the plastic pond, one should drain or change water every so often to maintain cleanliness.

Though the plastic pond could hold 1,000 fries, Du decided to raise only a third of that. Imagine fingerlings growing to be 1,000 1-kilo pangasius in such a small space. Supplier Dr. Greg Domingo was so impressed with the idea of a portable plastic pond that he also ordered one for his hatchery. Each plastic container costs P25,000. Other small growers in the area were also eyeing to use the model as it seemed to be cost-effective and profitable.

Du is content supplying fish to friends and restaurant owners. For him, there is no problem in harvesting -- it is all within his reach and leisure. Another negative side to small growers like him who do not use feeds in commercial quantities is that it is more expensive to buy

feeds in small amounts; his selling price is a bit higher than pangasius cultured and sold in bulk. Today, Du is continuously culturing pangasius in the same plastic pond with an average loading of 1,000 fingerlings per container, and is maintaining the supply to some restaurants and hotels in the city. Indeed, an innovative approach to growing pangasius, one that rakes in the profit while bringing much-needed livelihood for the community.



REGION XI

Pangasius Value Chain - Dream Come True in ComVal

Trigger firm plus convergence. This was the time-tested formula why the pangasius industry reached its present status in Compostela Valley. Today, it has just been barely three years after the government introduced pangasius in the

province, spearheaded by the Provincial Government thru the Provincial Agriculturist Office in partnership with the Bureau of Fisheries and Aquatic Resources and the Department of Trade and Industry. DTI's bias for using the industry clustering approach to industry development utilizing basically the value chain as reference for pushing pangasius growth has facilitated the entry of more local players in the Pangasius Value Chain in Compostela Valley.

But such direction advocated by DTI Comval in the area could not have been translated to reality without the passionate response of a local player in the person of former Congressman Manuel "Y Kurat" Zamora. A perfect showcase of a program or an idea turned reality is what former Congressman Zamora (three-termer House of Representatives member for the 1st Congressional District of Compostela Valley) has done to the pangasius industry in Compostela Valley.

Utilizing his fishponds totaling five hectares in Monkayo and Nabunturan for pangasius grow-out operations, he consequently established breeder and hatchery farms, which successfully produced 60,000 fingerlings with 90% survival rate. He also undertook innovative product promotion activities in wet markets: "Kung sumisigaw ang mga fish vendors ng, 'Presko ang isda namin,' to attract customers, ang sigaw namin ay, 'Presko ang isda nila, ang sa amin ay buhay

at lumalangoy na isdang pangasius.'" This was because pangasius were put in aquariums and ad banners were placed in passenger vehicles and side streets. Who can beat that? Both fresh and processed pangasius were done by this local enthusiast who has infected other enterprising spirits like him for the entry of more pangasius players including local catering establishments - a very important processing component of the value chain.

Mr. Jubilee T. Tamot, local restaurant owner in the Municipality of Monkayo became a pangasius player by displaying live pangasius sourced from Y Kurat's pangasius grow-out pond and offers various recipes such as grilled, deep fried, tinola, and sizzling pangasius to motorists and passersby. Mr. Tamot purchases more or less 100 kilos of live pangasius per week to cater to the demands of his growing clients.

Government's push and visibility energized the growth of pangasius in Comval. The Provincial Government, BFAR, DTI, and TESDA collaborated to prime-move the industry in the area. Further indication of the government's intervention to the industry is the monitored combined sales of pangasius for the past three years totaling to PHP 1.14M.

Indeed, pangasius has arrived and is slowly but surely finding its own market niche in this young province, just as the industry is slowly but surely finding its own place in the country.





REGION XII

The Filipino, a Paradox when it comes to buying and eating pangasius: The RDEX Experience

The Filipino is a paradox. He is a discriminating buyer-consumer but at the same time he is just as naïve. This observation seems true when it comes to the buying and eating of pangasius, the phenomenal fish that has taken the Pinoy palate by storm.

RDEX Food International Philippines Inc, one of the pioneers that dared propagate pangasius as a common table fare, was in for many surprises when raising this catfish. Before RDEX came into the picture, only a small number of Filipinos were familiar with pangasius, mostly due to its filleted form and immaculate color.

Although the shift meant a change of preference in lieu of the traditional favorites – bangus, galunggong, tilapia, hasa-hasa, and others – Pinoys took to this Vietnamese export quite easily. What more can they ask for -- pangasius proved to be flexible in the kitchen: it could be fried, steamed, and made into relleno, fish balls, embutido, even longganiza, among others. Above all, the filleted pangasius had neither the frills associated with deboning bangus, nor the anxiety attached to eating the more expensive pink salmon. Also, its white hue presupposes that pangasius has no fishy aroma or aftertaste.

The locally-produced

pangasius of RDEX turned out to have yellowish meat, and if the buyer knew better, he should have accepted it since the local hito is naturally tinged yellow. But the naivete of the Pinoy showed: he turned his back on the local produce.

This was one of the first setbacks of RDEX: how to inform the public that the local product is actually better. That the reason why the slabs of Vietnamese

exports are white and swollen is that these had undergone a chemical transformation. They had been bleached and enhanced, and puffed-up to look appealing.

RDEX had to shift gears in promoting locally-grown pangasius. While the tactic before was to be defensive, the more aggressive stance was taken. The spiel is that, local produce is all-natural, it is not bleached nor enhanced – what



you see is what you get. Furthermore, pangasius raised here is also flexible. To prove this, demos were shown to the buying public how easy it is to prepare the fish and just as adaptable to the recipe it was meant for. The campaign worked. Sales steadily grew. Today, RDEX is the country's top producer and wholesaler of pangasius. Thanks to its tenacity, other local growers are benefiting from the RDEX experience.

REGION XIII

The Bounty of Pangasius

Believing in the dictum that one cannot serve two masters at the same time, Paulino Dennis Getongo of Butuan City, who used to share his ornamental fish culture business with his father, had to sell part of this business (inventory and brood stock) so he could work as a chef in a European cruise ship. After only a few months though, he returned

home due to health reasons.

This proved to be a blessing in disguise because in 2009 the Department of Trade and Industry-Caraga went into partnership with the Bureau of Fisheries and Aquatic Resources to promote and invest in the development of the pangasius industry in Region 13.

Because Dennis, fondly called Tata by friends and family, used to raise hammerhead sharks, mollies, and Japanese Koi for aquarium enthusiasts and pet shops, a friend of a friend invited him to attend a pangasius industry stakeholders meeting. In that meeting, Dennis was identified to be the proponent for the first pangasius techno-demo pond in Caraga.

Located at the back of his residence in Libertad, Butuan City, the demo pond was formally launched on October 9, 2009, with Tateh Premium Feeds as the feed provider. This event was the turning point for Tata and his family. The experience he gained from the demo pond operation paved the way for his full-time business, Den's Aqua Farm, the first supplier of pangasius fingerlings in Caraga.

Eventually his aqua farm became the first Business Development Services provider for the pangasius production project under the Rural Micro Enterprise Promotion Program (RuMEPP) of DTI-Caraga. In less than a year of operation, it clinched a PHP 1.6 million contract, thus exemplifying the 366-year-old words of Miyamoto Masashi, renowned author of *The Book of Five Rings*: "All things entail rising and falling timing. You must be able to discern this." To which Tata can only nod his head in full recognition of how these words of wisdom came to be realized in his life.



Recipes for Pangasius Value-Added

by Cherry Romero and Amelita Magbago
Resources Postharvest Technology Division
Aquatic Product Utilization and Standardization Section
Bureau of Fisheries and Aquatic Resources
Department of Agriculture

FISH NOODLES

Ingredients	Household Measurement	In Grams	% Composition	Cost per Kg
Fish meat	½ cup	125.0	20.41	190.00
Flour	3 cups	345.0	56.33	35.00
Lye	½ tsp	2.5	0.41	240.00
Iodized Salt	3 tsp	15.0	2.45	28.00
Water	¼ cup	125.0	20.40	
Oil for frying				85.00
Flour for dusting				35.00

Yield: 6 pieces | Estimated Cost per Piece: PHP 9.46

1. Sift flour, add minced fish meat, salt and lye and mix thoroughly.
2. Form into a ball.
3. Cut into 6 and pass through the noodle machine for kneading, until about 1-2 mm thick.
4. Pass through the noodle cutter to form into preferred shape (rounded or flat).
5. Fry in deep fat until golden yellow in color.
6. Pack and store at room temperature for future use.



FISH QUEKIAM

Ingredients	Household Measurement	In Grams	% Composition	Cost per Kg
Fish meat	2 cups	500.0	42.8	190.00
Shrimp meat	1 cup	250.0	21.4	500.00
Egg, well-beaten	1 pc	60.0	5.1	4.50/pc
Onion, chopped	½ cup	75.0	6.4	45.00
Celery, chopped	½ cup	70.0	6.0	50.00
Carrots, chopped	½ cup	65.0	5.6	40.00
Turnip, chopped	½ cup	75.0	6.4	30.00
Flour	½ cup	60.0	5.1	35.00
Nguyong powder	½ tsp	1.0	0.1	450.00
White pepper	½ tsp	1.0	0.1	500.00
Salt, coarse	1 tbsp	12.00	1.0	20.00
Taupee wrapper				60/pack

Yield: 20 pcs | Estimated Cost per Piece: PHP 15.04

1. Weigh the fish meat, shrimp meat and all other ingredients.
2. Grind the fish meat and shrimp meat.
3. Add all ingredients and mix thoroughly.
4. Wrap in taupee wrapper.
5. Fry in hot oil.
6. Cut fried quekiam diagonally.
7. Serve with sweet and sour sauce.



FISH SALAMI

Ingredients	Household Measurement	In Grams	% Composition	Cost per Kg
Fish meat	3 ½ cup	900.0	77.05	190.00
Vegetable oil	1/8 cup oil	75.0	6.40	160.00
Rock salt	1 ½ tbsp	18.00	1.5	20.00
Sugar	1 tsp	3.5	0.30	56.00
Curing salt	1/8 tsp	0.55	0.05	28.00
Pepper	1 ½ tsp	2.6	0.22	500.00
Water	½ cup	110.0	9.4	-
Garlic (brown)	1 tbsp	8.0	0.70	120.00
Allspice	3/4 tsp	1.8	0.15	59.00/30g
Raisin	2 tbsp	29.0	2.50	
Flour	2 tbsp	15.0	1.30	35.00
MSG	½ tsp	2.4	0.20	9.50/56g
Phosphate	1 tsp	2.0	0.20	160.00
Food color	10 drops			

Yield: 1,000 grams

1. Measure all the ingredients.
2. Grind the fish meat and pork fat.
3. Mix the rest of the ingredients.
4. Cure inside the refrigerator for one to two days.
5. Stuff into casing.
6. Steam for 30 minutes. Fish salami may be sun-dried for 1 hour.
7. Chill and serve in cold cuts.



FISH HOTDOG

Ingredients	In Grams	Cost per Kg	Component Cost	Cost per Kg
Fish meat	3 1/4 cup	850.0	62.45	190.00
TVP	1/4 cup	37.5	2.75	70.00
Econoblend	4 tbsp	28.6	2.10	235.00
Vegetable oil	1/4 cup	151.2	11.11	160.00
Potato starch	3/4 cup	75.6	5.55	60.00
Frankspice	1/4 cup + 1 tbsp	40.2	2.95	175.00
Ultra cure	1 tsp	4.4	0.32	28.00
Ultra bind	1 tsp	4.4	0.32	140.00
Carageenan	1 tsp	2.0	0.15	450.00
Iodized salt	1 tbsp + 1/2 tsp	17.5	1.28	28.00
Cold water	3/4 cup	150-200 ml	11.00	-

Yield: 28 pcs (48.9 g/pc, 4 inches/28 mm long) | Estimated cost/pc: PHP 7.50

1. Grind the fish thoroughly in a silent cutter.
2. Add salt, followed by other ingredients.
3. Mix well until a sticky paste is obtained.
4. Place mixture in a stuffer and extrude into cellulose casing then tie with a cotton string.
5. Cook at 90°C for 45 minutes.
6. Cool immediately in running water.
7. Pack in polyethylene bags and store in the freezer.



FISH TOFU

Ingredients	Household Measurement	In Grams	% Composition	Cost per Kg
Fish meat	1/4 cup + 2 tbsp	150.00	40.7	190.00
Tofu		150.00	40.7	50.00
Potato starch	3 tbsp	20.00	5.4	
Salt, iodized	2 tsp	10.00	2.7	28.00
Carageenan	1 tsp	2.00	0.5	450.00
Egg white	1/2 egg white from 1 pc egg	15.00	4.1	4.50/pc
MSG	¼ + 1/8 tsp	2.00	0.5	9.50/56g
White sugar	2 tbsp	20.00	5.4	56.00

Yield: 37 pcs (approximately 9 grams per piece) | Price/piece: PHP 1.15

1. Prepare all the ingredients.
2. Mix and blend all the ingredients until a smooth homogenous paste is attained.
3. Form into cubes.
4. Set formed paste at 40°C for 20 minutes.
5. Cook at 90°C for 20 minutes.
6. Deep fry before serving.



FISH SAUSAGE

Ingredients	Household Measurement	In Grams	% Composition	Cost per Kg
Fish meat	2 cups	500.00	81.30	190.00
Salt, iodized	½ tsp	2.00	0.32	28.00
Soy sauce	1 tbsp	30.00	4.9	
White sugar	2 tbsp + 1 tsp	24.40	4.0	56.00
Vinegar	1 tsp	5.20	0.84	
Anisado wine	1 tbsp	14.40	2.30	30.00/300g
Ground white pepper	1 1/2 tsp	2.60	0.42	500.00
Garlic chopped	2 tbsp	13.00	2.11	120.00
Curing salt	1/4 tsp	1.40	0.23	28.00
MSG	1/2 tsp	2.00	0.32	9.50/56g

1. Prepare the fish meat and measure all the ingredients.
2. Add salt to the fish meat and mix. Add the rest of the ingredients and mix thoroughly.
3. Cure for 2 nights at refrigerated temperature.
4. Stuff in casing.
5. Fry before serving.
6. Keep in frozen temperature if not to be consumed immediately.



FISH BACON

Ingredients	Household Measurement	In Grams	% Composition	Cost per Kg
Fish Fillet	2 cups	500.00	80.84	190.00
Salt refined	1 tsp	5.00	0.81	28.00
Curing salt	1/2 tsp	2.00	0.32	28.00
Honey	1 1/2 tbsp	8.00	1.3	176.00/340g
Phosphate	1 1/2 tsp	2.50	0.40	160.00
Vitamin C	1/4 tsp	0.25	0.04	700.00
Bacon Powder	5 tbsp	25.00	4.04	450.00
Isolate	1/2 tsp	2.50	0.40	300.00
Carageenan	1/2 tsp	1.25	0.20	450.00
Water chilled	1/2 cup + 1 tbsp	70.00	11.32	-
MSG	1/2 tsp	2.00	0.32	9.50/56g

1. Select good quality fish fillet.
2. Cut fillet into thin slices.
3. Prepare all the ingredients.
4. Apply the ingredients previously dissolved in water to the cut fillet.
5. Cure at refrigerated temperature for 8-10 hours.
6. Pack in styropor covered with cling wrap.
7. Fry before serving.
8. Keep frozen if not to be consumed immediately.



Pangasius as Raw Material and Food

Pangasius is an important fish food, farmed extensively in many parts of the world. It is slowly being accepted in local markets as consumers enjoy its neutral taste, flavor, texture and low price. It can be processed into varied menus and value-added products. Pangasius is available in public markets, supermarkets, restaurants and food outlets.

The recovery rate of local pangasius fresh/whole and fillet was analyzed by Sta. Cruz Seafoods, Inc. in May 2010. The results of the recovery rate test: whole gilled and gutted (82%), headless (65.5%), and fillet (31%). Further, the first thawing of fillet exhibited yellowish/pinkish color and meat is firm or compact. On second thawing, meat is pale, yellow/pink color is not evident and the meat is not firm. On the analysis of frozen degutted pangasius to be reprocessed into fillet, results showed that pangasius meat after 5 days of blast freezing maintained its initial quality of freshness.

Gutted and round steak pangasius are sold to restaurants while whole fish/fillets are introduced to fish processors as raw material for value-added products. Through the support of BFAR technical staff, fish processors were taught to process/package fresh pangasius into gutted and round steak, and value-added pangasius into surimi, hotdog, noodles, quekiam, bacon, tofu, salami, balls, rolls, embutido, buttered strips, fish fingers, sausage, nuggets, siomai, tocino, patties, breaded fillets, and lamayo.

Composition	Content (Per 100 g)
Calories (kcal)	15.78
Total Fat (g)	0.06
Calories from fat (g)	0.54
Total Carbohydrates (g)	3.75
Protein (g)	17.01
Cholesterol (mg)	- - -
Total Dietary Fiber (g)	0.73
Sodium (mg)	14.86
Calcium (mg)	11.69
Iron (mg)	0.470
Potassium (mg)	493.76
Magnesium (mg)	59.47
Phosphorus (mg)	149.47

SOURCE: Local fillet analyzed by Dole Philippines laboratory on the nutritional value of fresh pangasius (26 November 2010)



Pangga Pangasius

Words and Lyrics by Centerpoint

A
P - A - N - G - A - S - I - U - S (2X)

D *A* *E* *A*
PA PA PA PA PANGGA, PA PA PA PA PANGGA PANGASIOUS

D *A* *E*
PA PA PA PA PANGGA, PA PANGGAA.. PANGASIOUS!!

A
SA T'WING NATATAKAM

D *E*
ANG HINAHANAP KO'Y PANGASIOUS LANG

D *E*
KAY LAMBOT NG KANYANG LAMAN

A
BUONG BAYAN AY NASASARAPAN

D *E* *C#m* *F#m*
SWAK SA PANLASA NG MGA BATA'T MATANDA

D *E* *A*
PANGASIOUS, PABORITO KONG ISDA.

P - A - N - G - A - S - I - U - S

D *A* *E* *A*
PA PA PA PA PANGGA, PA PA PA PA PANGGA PANGASIOUS

D *A* *E* *A*
PA PA PA PA PANGGA, PA PA PA PA PANGGA PANGASIOUS

D *A* *E* *A*
PA PA PA PA PANGGA, PA PA PA PA PANGGA PANGASIOUS

D *A* *E*
PA PA PA PA PANGGA, PA PANGGAA.. PANGASIOUS!! PANGASIOUS!!

(SAME CHORDS AS FIRST STANZA)

DI KA MAGSISISI / KAPAG TINANGKILIK MO
ISANG ISDANG BIYAYA / PATOK SA BULSA MO
SWAK SA PANLASA NG MGA BATA'T MATANDA
PANGASIOUS, PABORITO KONG ISDA.

P - A - N - G - A - S - I - U - S

PA PA PA PA PANGGA, PA PA PA PA PANGGA PANGASIOUS

PA PA PA PA PANGGA, PA PA PA PA PANGGA PANGASIOUS

PA PA PA PA PANGGA, PA PA PA PA PANGGA PANGASIOUS

PA PA PA PA PANGGA, PA PANGGAA.. PANGASIOUS!!

ADLIB (CHORUS CHORDS)

P - A - N - G - A - S - I - U - S (4X)

PA PA PA PA PANGGA, PA PA PA PA PANGGA PANGASIOUS

PA PA PA PA PANGGA, PA PA PA PA PANGGA PANGASIOUS

PA PA PA PA PANGGA, PA PA PA PA PANGGA PANGASIOUS

PA PA PA PA PANGGA, PA PANGGAA.. PANGASIOUS!!

P - A - N - G - A - S - I - U - S (2X)

(SAME CHORDS AS FIRST STANZA)

INIHAW NA PANGGA SOBRANG SARAP

PANGGANG SINABAWAN HINDI TATANTANAN

IPRITO OR STEAM / IT TASTES LIKE A DREAM

MAHAHANAP MO ANG TODO SA BAWAT TIKIM

HAHANAP HANAPIN NG IYONG PANLASA

ANG ISDANG PANGASIOUS / MAGBIBIGAY SAYA