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The Philippines -Fisheries and Aquaculture

A famous Jewish rabbi and scholar, Maimonides, once said “Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime.” This quote has rung true for centuries. However, today, when the men who have learned to fish to provide for their families and communities go out in search of the lifetime of food they were promised, they come back with less and less fish. This problem can be seen most acutely in places that rely on fish as a cornerstone of their diets; places like the Philippines.

The Philippines, or the *Republic of the Philippines,* is a Southeast Asian archipelagic country; this means that it is made of thousands of islands, around 7,000 to be precise, with a population of roughly 114,500 people (Britannica). According to a 2022 demographic and health survey, 95% of households have electricity and 97% have access to drinking water within a 15-minute walk. The average Filipino household is around four people, with children typically living at home until marriage (2022 Demographic and Health). The average family’s income in 2023 was around 353,000 Philippine pesos, or about $6,000 USD (2023 Statista).

The average Filipino diet is made of primarily rice, produce, and fish; with fish being the primary protein source for the country (Johnson-Kozlow). Roughly 5% of the country’s workforce works in the fishing industry. Many Filipino families rely on smaller scale fishers selling at local wet markets for their seafood supply, especially in the more rural parts of the country (New Fisheries). In recent years, the amount of fish that have been pulled up by these local suppliers has become smaller and smaller. This can be attributed to the plummeting fish stocks in the waters surrounding the Philippines and the whole Asia-Pacific region.

The world’s largest international ocean conservation advocacy organization, Oceana, reported that, based on the National Stock Assessment Program report, 88% of the Philippines' fish stocks were depleted. This lack of fish has led to a crisis for small-scale producers. Low fish stocks means less catch to sell and eat, this has led to 353k fishing families falling below the poverty line in 2023, with 93,000 of them being so poor that they can not afford food (New Report). Fishing families are unable to feed themselves, and Filipinos are losing access to their primary source of protein, a cornerstone of their diet.

The drop in wild stock of fish is due to a multitude of factors including: pollution, ocean acidification, parasites and diseases, and invasive species. If you dig deeper you will see that these are just the tip of the iceberg. Illegal, unregulated and unreported fishing, or IUUF, has left

the wild stocks surrounding the Philippines depleted (Bliss). Many fishing practices fit under the umbrella of IUUF, including falsely reported catch.

When a fishery does not report their catch, it is likely because they are using other illegal practices that harm the fishes' habitats such as: blast or chemical fishing (using explosives or chemicals to kill or disable fish for easier collection), bottom trawling (use of heavy nets to scrape across the sea floor, destroying the habitats of many sea creatures), and muroami fishing (divers use heavy objects to pound on coral reef to scare fish out of hiding and into waiting nets, often leaves coral decimated and has led to multiple drowning deaths). Additionally, many of these practices lead to bycatch. This is when other animals besides the intended one are caught. Even if these sea creatures are returned to the water, they are likely already dead or as good as dead due to suffocation, pressure changes, and physical trauma. This loss leads to decreased diversity, ecosystem instability, and habitat damage (Bliss).

According to Oceana, all of these fishing practices have been outlawed by the Republic of the Philippines with the signing of Republic Act 10654 in 2015, amending the Philippine Fisheries Code of 1998 (Amended Fisheries Law). However, the government has done a poor job of enforcing this ruling as many sources report that there has been a lack of management of fisheries by the government and that larger, commercial fisheries do what they please with little fear of government push back or repercussions for their destructive practices. More recently, in 2023, there was a proposal to ban fishing in specific areas for a few years to allow the fish stocks there to be replenished (like rotational grazing, but for fishing), although the government has not acted on this either (Fishermen in the Philippines).

A more successful attempt by the government to combat the threat to an essential element of the Filipino diet is the stimulation of aquaculture, the farming of fish. According to the 2025-2030 aquaculture development and management plan, after government support and development programs, aquaculture makes up around 56% of the Philippine's fishery production. This is, of course, according to the numbers of the fisheries who are actually cooperating with the government and not illegally failing to report (ADMP). These numbers may be inaccurate, according to the International Collective in Support of Fishworkers and the Food and Agriculture Organization. Aquaculture in the Philippines only accounts for around one third of the country's total fishery production. This discrepancy is likely due to catch fisheries not properly reporting their catch to the Filipino government. Even so, the stimulation of aquaculture has allowed for more stability in the availability of fish.

However, aquaculture comes with some drawbacks and challenges, too. Environmental changes are causing complications for the farms that rely on natural bodies of water, and so many of the same species of fish in such close quarters increases the risk of disease and parasite outbreaks. Not to mention, smaller catch fisheries have a hard time competing with the low prices the farms

can offer due to the high yield to input ratio. While farm fisheries do help lessen the burden on the wild fish stock it still strips people of their livelihoods; as they are unable to compete with the large capture fishing companies and farms. Additionally, farms employ less people than capture fishing which may lead to a shortage of jobs in the Philippines' aquaculture sector. This all leaves much to be desired when trying to find a reasonable, balanced solution that will restore the wild fish stocks, stabilize the Philippines' fish production, and provide a livelihood for the smaller fishermen put out of business.

To meet all these necessary requirements I propose a multi-part solution that includes stricter regulations and punishment for IUUF, a program to transition catch fishermen to fish farm employees or owners, and government benefits for fishers who are following regulations.

In the proposed system, one of the key problems with Republic Act 10654, a lack of swift and strict enforcement, would be solved. The first step would be for the government to train the Philippine Coast Guard on what fishing practices are and are not legal according to their laws. Once the coast guard is trained, they should be sent on patrols and maybe a biannual inspection of the vessel to ensure that the laws are being followed. When they catch an offending vessel, they would seize the boat and take all on board into custody. The boat would only be released after a heavy fine (depending on boat size/value) and the people in charge of the operations on the boat would be criminally charged. After the boat has been released, the business that owned the vessel would be investigated. If everything seems clear then the company would be placed under probation. While on probation, a portion of the company's earnings would be garnished by the government and coast guard observers would be assigned to each vessel for an appropriate amount of time. If no illegal practices are observed, the company would be permitted to continue fishing. They would, however, have a strike on their record. Every vessel caught breaking the law is another strike. After a period with no offenses a strike shall be removed. For each successive strike the fine shall increase by 10%. If a company reaches 5 strikes the company would be immediately taken over by the government and the company would be disbanded and a thorough investigation would be made into the leadership of the company, with appropriate sentences for all offenders. Companies with no strikes receive some sort of incentive, be it lower shipping rates or tax cuts, only if they are without strikes for 6 months or more.

Another beneficial government program to put into place would be one that helps fishermen transition away from catch fish production toward fish farming. Since many small fisheries would be hard pressed to match the low prices and high availability of farms or bigger companies, they would be out of a job with no way to provide for their families. Since these fishermen will already have an innate understanding of fish, transitioning them into fish farm workers would allow them to use this knowledge to earn a stable income. The government already owns and operates multiple fish farms, breeding centers, and hatcheries, meaning that they have ample training opportunities (National Aquaculture Sector). They could offer learning

programs for fishermen who are put out of a job, allowing the government an ample supply of workers and providing the workers new skills and enough money to put food on the table.

All the fishermen who have lost out to farming and larger fisheries cannot work for the government after they have been trained as that would prevent the government from taking on new students and would cause the cycle to grind to a halt. To prevent this the government could offer subsidies and grants to farm fisheries that are starting out, to encourage them to grow, and that hire newly government trained workers. This would provide an incentive for the continued growth of the aquaculture industry and a job for fisher folk who have fallen on hard times.

How will all these new programs and enforcement training be paid for? These operations will be funded by the fines for the return of the offending vessels, the sale of the vessels and tools seized from the offending companies, and the operation of fishing vessels owned by the government. When a vessel is seized it shall be decided whether or not the government wishes to sell it (for below market value) or keep and operate it as a fishing vessel. These government-run vessels would employ many of the fishermen who can no longer operate independently, thus providing them with a stable income without them having to learn any new skills.

In order to measure the success of this plan the government would monitor the state of the fish stocks with the same method that revealed the depleted state initially. Improvement in the fish stocks would show the successful prevention of harmful fishing practices. Additionally, the rate of employment in the aquaculture and fishing sectors would be monitored. With the implementation of the training program and government grants for entrepreneurs starting fish farms, there should be an increase in the percentage of people employed in these sectors. Increased employment would show that more people are staying, coming back to, or even joining the fish production/procurement industry. An increase would mean that job opportunities and financial stability will have increased and that the government programs are working!

In order to secure fish as the cornerstone of the Filipino diet, ensure jobs for those in the declining fishing industry, and to protect the oceans, the Republic of the Philippines should follow this plan; Enforcement of Republic Act 10654, government stimulation of the fishing and aquaculture industries, while continuing to monitor the fish stocks and industry employment.

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