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Hong Kong SAR (China): Helping Food Crisis through Sustainable Fishery Management

Hong Kong SAR (China), also known as the Pearl of the Orient, is a beautiful city that is full of diversity, from its people to its food. Commonly referred to as the “Culinary Paradise”, Hong Kong restaurants are famous for exotic foods that are not found anywhere else. People from all over the world travel to Hong Kong in order to gain an experience that they wouldn’t be able to anywhere else. Surrounded by oceans, the people of Hong Kong have depended on seafood as the main protein source even as early as the Song Dynasty in about 1000 A.D. (Localiiz) With both untouched natural wonders as well as bustling cities, Hong Kong completely covers the entire spectrum. However, underneath the glamorous buildings and amazing foods, there are problems that lurk.

Over 3,300 tonnes of food waste are deposited in landfills every day in Hong Kong. (Foodlink Foundation) The scale of food that is thrown away is astronomical, and this value is only projected to increase due to ever-growing populations. The population of Hong Kong rapidly increases as immigrants from China migrate to Hong Kong in hopes of making a new life for themselves. And the number of immigrants is not surprising, given that Hong Kong is known for having one of the lowest tax rates in the world, with only 2-17% (Investopedia) as compared to the U.S. which reaches up to 37%. As the population of Hong Kong increases, the costs of housing and food have been greatly increasing. Most people would not expect that poverty and hunger would be a problem for Hong Kong since the city radiates elegance and advancements.

The average household size for Hong Kong is 2.65 members, with a monthly income of 25,500 Hong Kong dollars per month (equivalent to US\$3,270). However, the housing in Hong Kong is roughly HK\$184,000 (US\$23,589) per square meter for permanent housing, (Statista) making it one of the most expensive places to set up a home. To take the magnitude of these values into perspective, it would take an entire family working for slightly over a year in order to buy two square meters of housing. And this is assuming that all the money earned is saved for buying a few meters to live on. Rents for an apartment in Hong Kong are double those in New York City. According to Numbeo, people pay an average rent of HKD 17,360 (USD 2,211) in the city center and HKD 11,857 (USD 1,510) outside of the city center on average for a 1-bedroom apartment of about 300 sq feet. When taking into account other household essential expenses such as utilities, transportation, and children’s expenses, this leaves very little money left over for food.

Furthermore, wages have not been able to catch up with housing expenses in Hong Kong. The minimum wage value for Hongkongers (HK\$37.5 or US\$4.81) is not nearly enough for both reliable housing and food, which is contributing further to the food crisis situation. The Annual Poverty Situation report conducted in Hong Kong during 2020 found out that “roughly one in five Hongkongers, or 1.65 million people, are living in poverty – the highest number in 12 years.” (YP Discover) Most of these families live in “coffin” tiny apartments or “cage” homes,

and are not able to have 3 meals per day. The income of an average family is not nearly enough for them to afford nutritious food after all other expenses are accounted for. Expensive housing and low wages are the key factors to the food crisis in Hong Kong. After the events of the pandemic, unemployment rate (5.4% as of April 2022) and the poverty level were record high (Bloomberg). As more people become unemployed during the pandemic, the poverty situation is worsening.

Despite Hong Kong being one of the world's major trade and financial centers, the city is limited by space and limited natural resources. Over 90% of its food supply is imported and mainly from China. For generations, fish has always been the staple food to every family in Hong Kong because of its low cost and nutrition value. China is one of the largest seafood export countries and Hong Kong is one of its largest destinations of export. In order to maintain the fact that fish is still the lowest and affordable cost for protein source in Hong Kong, we need to address two main problems: the marine habitat destruction and the overexploitation of the fishing industry in Hong Kong and China. The fish brought in by the local Hong Kong fleet is still the major source of wild caught fresh marine fish. By implementing sustainable fishery management, the costs of healthy fish would actually decrease due to the yield increasing. The two problems are linked, and regulating the fishing industry would allow the ecosystem to flourish which would also allow the fishery industry to thrive.

The operations of the fishing industry contain many problems that are damaging the ecosystem, as a result, reducing the diversity and the number of fish in the area. First of all, the methods of fishing have greatly damaged the marine environments of Hong Kong. One such method would be trawling, in which boats drag large, heavy nets along a large area. This has been the most efficient and quickest way to collect large amounts of fish in a single trip. This method yields high amounts of fish as well as many different species, all of which can be sold individually to fish markets. However, this method is extremely damaging to the ecosystem on the ocean floor. Trawlers often target reefs as those are the places where most fish lurk. Trawling is indiscriminate of all species; it does not distinguish between different fish species and many undesired species are actually discarded by fishermen. Everything that is in the way of the nets are swept up by the fishermen, including corals and vegetation that are needed for the aquatic ecosystem to thrive. Trawling often leaves permanent destruction to the habitat, which prevents fish from ever being able to inhabit the trawled region again. This destruction of the ecosystem is tragic, since it often alters aquatic populations in ways that cannot be recovered which brings up another problem with trawling: overexploitation of fish. Due to the large amount of fish that are caught in trawling nets, the fish populations often suffer a severe blow. The time it would take for the fish to reproduce and completely recover after the trawl is astronomical, at 5-15 years. (Elsevier) Furthermore, trawling has been linked to climate changes in Hong Kong, since carbon is released from soil sediments and causes the formation of carbon dioxide gas. (Blue Ventures) And trawling is just one of many problems of the fishing industry. When considering illegal fish trade, exploitation of prohibited areas, and the unsanitary conditions that fish are kept in, it makes finding a reliable source of clean fish to eat extremely difficult. Even though trawling has been banned at Hong Kong and China neighborhood marine environments, illegal trawling activities have always been very active in the area and also beyond China's territorial waters (Environmental Justice Foundation).

Over 90% of the live freshwater fish consumed at Hong Kong are imported from China. In recent years, fish prices have been escalating because of increasing demand and declining supply. The population of wild-caught fish has decreased tremendously even though China has attempted different measures to remedy the problems (Eason 2019). The construction of dams and bridges causes sediment flow into the water, which disturbs the natural habitat. The constructions usually take long periods of time in which the breeding grounds of fish are destroyed. The depletion of fish in China coastal territories also pushed the China vessels to fish in areas belonging to other countries. As a result, fishing conflicts arose between China and neighboring countries like Vietnam and the Philippines. To maintain the fishery industry, China has established aquaculture farms but those proved unsuccessful for several reasons. Due to pollution, the aquaculture farms often have contamination in which fish are raised in unsanitary conditions. This leads to increased antibiotic use, which results in fish that are loaded with antibiotics and illegal drugs. As a result, these fish are extremely unhealthy for consumption.

As the local Hong Kong fleets are still the main supply of live marine fish to the city, a proposed solution is for Hong Kong to establish clean and sustainable aquaculture while the oceans have time to recover from the damage suffered from overfishing and pollution. First, the oceans must be prevented from fishing for a certain period of time so that the coastal environment can be restored and the fish populations can recover. While under one country, two systems, the fishing moratorium policy only applies to the South China Sea and Hong Kong does not have a policy of fishing moratorium in the local marine area. Fishing moratoriums have proved to be successful in increasing fish population and diversity. Establishing fishing moratoriums in regions that need to recover will deter people from fishing, but stricter rules also need to be implemented. During the period of moratorium, the government should subsidize the fisherman by providing grants in addition to the current loan policy. The grants can provide living expenses to the fishermen and can be used in improving the fishing equipment and tools which support fishing sustainability. Education of sustainable fishing can be provided to the fishermen during this period.

Even though China has rules and policies to restrict fishermen's activities to revive the fishery industry, the government fails to strictly implement them. For example, although China has implemented a fishing moratorium, there are still violations and fishing in illegal areas. A solution that is proposed would be to have water patrols scouring the moratoriums for any fishing boats regularly. Boats that are illegally fishing during this time will result in a heavy fine in order to prevent people from taking the risk and violating the law. The time period needed for recovery will not be short as there has been an overexploitation of the oceans for a very long time. During this period, China will need to subsidize the fishermen who are being impacted and should educate and help the fishermen switch to reliable aquaculture, both marine and freshwater, in which fish are kept in clean conditions. Norway, being the second largest seafood exporter, is an example of managing fishery sustainability successfully (Oceaneos). Working teams from other countries like Norway can be invited to China to evaluate the system and suggest detailed plans to manage sustainable fisheries. China can easily follow in other successful nations' footsteps on sustainable fisheries.

Establishing more aquaculture farms will increase the yield of fish. Some of the problems that have been encountered with aquaculture is the high population of fish living in an extremely

small space, leaving lots of opportunity for bacteria and infections to spread between fish, which calls for extensive use of antibiotics. To combat this problem, the aquaculture farms should be managed responsibly. Policies and rules should be provided from the government to the fish farmers to ensure aquaculture farms are operated under appropriate guidelines. This means that the fish are given enough space to thrive, fed clean diets, and no unnecessary antibiotics or illegal drugs are used. Managing the aquaculture farms in this way will ensure that all fish harvested during the recovery period are high-quality and nutritious.

One potential cons could come from this method, which is that the fish farmers in China will earn much less due to the decrease in fish yield and thus fish prices would rise. This problem can be addressed through subsidizing any fish farmers that are farming responsibly. By reinforcing positive operations and ensuring that fish farmers have enough financial support, it will encourage more people to take up the aquaculture industry and thus address one of the problems with poverty. It would also be a good opportunity to increase the minimum wages of the workers, which will alleviate some of the population who are not making enough to support their livings.

People in Hong Kong will be able to source fish reliably from farmers in China, and it will also allow the oceans to recover. As the oceans reach a condition that can be fished, the fishing policy can be changed. To avoid overexploitation, a particular region could be fenced off for fishermen, while the rest of the ocean is illegal to fish in. This region can slowly expand over time as more and more of the marine habitat recovers. Furthermore, there should be strict fishing limits in which only a certain amount of fish can be harvested per fishing vessel. Current fishing limits are either very loose or not strictly enforced, which resulted in overexploitation. Most China fishing vessels are very large and harvest too many fish, destroying the ocean ecosystem. To prevent the ocean ecosystem from collapsing again, stricter laws should be implemented in which people are fined heavily for overfishing, or even prohibited from fishing in the future for repeated violations. This method of management would work in tandem with the fish farms in order to provide a reliable and cheap source of fish for the people of Hong Kong, thus alleviating food insecurity.

There is no doubt that pollution has always been the biggest destroyer of marine habitat, causing decline in all marine species in the oceans. Hong Kong, being a high density population city, and China, being the country with the largest population in the world, have the responsibility to properly treat the sewage system which is the main culprit of the pollution. Again, education is very important. The general public should be educated with the importance of recycling and properly handling the chemical waste, both at home and in businesses. By strictly enforcing a law of recycling in the country, it is possible to minimize the chemical and plastic wastes in sewage. More developed countries like the UK and US are very successful in treating their waste before draining it to the ocean. Environmental protection organizations such as the International Fishery Organization can also take up the responsibility of visiting the less developed countries to teach them how to improve the sewage system and minimize marine pollution.

Through strictly implementing responsible harvesting policies of fishing vessels and establishing sustainable aquaculture, it is possible to restore the fishery industry and provide the

necessary protein for the 1.65 million people living in poverty in Hong Kong. Though the recovery of the oceans' ecosystem will take time, the responsibly managed fish farms in China will allow a consistent source of seafood for Hong Kong residents. Fish has been one of the cheapest sources of protein in Hong Kong, and through increasing fish yield it will greatly improve food security. Seafood has always been a crucial part of Hong Kong's history, and with responsible measures taken to prevent overfishing seafood will continue to be a part of Hong Kong's future.

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