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Research on the reform of China's distant water fishery subsidy policy

by

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Research on the reform of China's distant water fishery subsidy policy
(중국의 원양어업보조금 정책의 개선방안에 관한 연구)

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by

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A dissertation

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중국의 원양어업보조금 정책의 개선방안에 관한 연구

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요약

중국은 세계에서 가장 많은 원양 어선을 보유하고 있으며 중국의 원양어업(DWF)은 세계 어족자원의 지속 가능성에 큰 영향을 미친다. 최근 몇 년 동안 중국의 원양어업(DWF)이 심하게 과잉 공급되어 불법적인 어업 사고가 자주 발생했다. 중국의 원양어업(DWF)의 급속한 발전 원동력은 모든 정부 차원의 보조금 정책이다. 중국에서 두 개의 주요 원양어업(DWF) 회사가 받는 보조금의 90 %가 연료 보조금이다. 데이터에 직접적으로 반영 될 수 있는 보조금 외에도, 본 논문에서는 중국의 국가 보조금 정책에 면제와 같은 많은 우대 정책이 있음을 발견했다. 주정부 차원의 정책에는 데이터에 반영되지 않은 많은 인프라 구축, 토지 가격 할인, 보험료 보조금 등이 있다. 중국의 보조금 정책 연구를 통해 본 연구는 중앙정부와 지방정부의 정책이 '중국 해양 수산 개발 계획'에 따라 공식화 되었고 '지표'는 '계획'에서 핵심적인 역할을 한다는 것을 알게 되었다.

본 논문은 중앙정부와 지방정부 측면에서 중국 수산 개발 계획과 보조금 정책을 분석 함으로써 다음과 같은 문제점을 발견했다. 1. 중국의 보조금 정책을 규제할 통일된 법률이 없다. 2. 생산 능력 증대에 대한 보조금이 중앙정부 차원에서도 제공되고 지방정부에서도 제공되어 중복되는 문제가 있다. 3. 감독 및 수산업 관리에 대한 투자가 충분하지 않다.

분석결과 위와 같은 문제점이 있기 때문에 본 연구에서는 중국의 어업 보조 정책을 조정할 필요가 있다고 주장하였다. 본 연구는 현재의 상황을 토대로 중국의 DWF 보조금 정책 개선방안을 제시하였다. 1. 중국 정부는 어업 보조금에 대한 주도적인 부서를 확정해야 한다. 2. 중국의 원양어업 보조금 구조를 조정해야 한다. 연구개발 및 수산 규제에 대한 보조금을 증가시키면서 유해한 보조금을 줄여야 한다. 3. 중국의 원양어업회사 자격을 재평가함으로써 규제를 심각하게 위반하고 보조금에 의존하는 회사를 제거해야 한다. 4. 중국은 원양어업 작업의 이중의 환경 기준을 제거해야 하고 중앙 정부 DWF 산업 감독 부서의 역량을 강화해야 한다.

주요 용어: 원양어업, 보조금, 중국.

Research on the reform of China’s distant water fishery subsidy policy

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ABSTRACT

China has the world's largest distant water fishing fleets, and China's distant water fishery (DWF) operation has a major impact on the sustainability of the world's fish stocks. In recent years, the capacity of China's DWF industry has been seriously oversupplied, and illegal fishing incidents have occurred frequently. The driving forces behind the rapid development of China’s DWF industry are the subsidy policies from all levels of government. 90% of the subsidies that China's two major DWF companies received are fuel subsidies. Besides the subsidies that can be directly reflected in the data, we found that there are a large number of preferential policies such as tax exemption in China's state-level subsidy policy. As for the provincial level policies there are a large number of infrastructure construction, land price concessions, insurance price subsidies, etc., which are not reflected in the data. Through the study of China's subsidy policies, we found that the government subsidy policies at all levels are formulated in accordance with the ‘China’s National Ocean Fishery Development Plan’, and the ‘indicator’ mechanism plays a key role in the ‘Plan’. By analyzing China's fisheries development plan and subsidy policies at all levels of the government, following problems were found: 1. China's subsidy policy lacks a unified law to regulate. 2. The subsidies of increasing production capacity are duplicated. 3. Insufficient investment in supervision and fisheries management. This article will give follow suggestions to China’s fishery subsidy policy reform: 1. China needs to determine the leadership government department for fisheries subsidies. 2. China should adjust the structure of subsidies. Reduce harmful subsidies while increasing subsidies for R&D and fisheries supervision. 3. China should reassess the business qualifications of DWF companies and eliminate those companies that rely on subsidies and have serious violations. 4. China should eliminate double standards of the environment, strengthen the capacity of the central government's DWF industry supervision department.

Key words: distant water fishery, subsidy, overfishing, 13th national fishery development plan, reform.

Chapter 1: Introduction

1.1 General Background

In 2006, the United Nations Food and Agriculture Organization (FAO) survey report gave the following data: 52% of the world's fishery resources were fully developed; 20% were moderately developed; 17% were overexploited; 7% were basically depleted and 1% was recovering from a depleted state (FAO, 2006). There are about 600 species of major fishery resources in the world. Among them, about 25% of fishery resources such as tuna, Newfoundland cod, and silver cod are depleted or overfished. This trend has not improved in the past 10 years. According to the World Fisheries Fishing Report released by the FAO in 2014, about 90% of the world's fish have been over-developed or fully developed (FAO, 2014). It is highly likely that the world's fishery resources will be depleted in 2048 (Worm et al, 2006).

The main reason for this is the development of modern fishing techniques (such as the use of radar for sonar tracking and positioning of fish stocks), as well as the use of explosives and trawling methods (using trawls for fisheries operations on the seabed) to significantly increase fishing. Since the 1870s, wild marine fishery resources have shown a significant downward trend. Globally, fish including Bluefin-tuna, wild salmon and Atlantic cod are facing an endangered situation due to human overfishing. Taking Atlantic cod as an example, before the 1860s, the annual output was maintained at around 300,000 tons. The upgrading of fishery technology has led to a significant increase in fishery production. By 1968, the annual catching amount of Atlantic cod reached 800,000 tons. After that the catching amount declined in number year by year. By 2007, the cod resources in adjacent seas were only 1% of what they were in 1977. Therefore, the most common dish on the table in Europe and the United States has now become a ‘Vulnerable species’ of the International Union for Conservation of Nature (IUCN) Red List of Endangered Species.

This situation reached its peak after the United Nations Convention on the Law of the Sea (UNCLOS) launched in 1982. The UNCLOS provides 200 nautical miles along the coast as the exclusive economic zone (EEZ) of each country. This has forced the fishing fleet that had previously operated in the waters of 200 nautical miles in other countries to be transferred to the high seas. This has led to a sharp increase in the fishing pressure on the traditional high seas fishery resources also caused a rapid decline in fishery resources. This situation has caused

some coastal countries to be dissatisfied with the management of high seas fisheries. The protection of high seas fishery resources and the suspension of overfishing have become a focus of international concern.

Fisheries subsidies are an important factor in inducing overfishing. It has been theoretically proved that some fisheries subsidies (the capacity-enhancing ones) are detrimental to the sustainability of fisheries because they increase overcapacity and overfishing (Clark et al. 2005). Rashid Sumaila's study also proved the relationship between fisheries subsidies and overfishing through Gordon's ecological model (U Rashid Sumaila & Daniel Pauly, 2008). At the same time, Pavan Suhkdev, the head of the United Nations Environment Program (UNEP) Green Economy Initiative, stated in 2010 that global fishing fleet capacity is 50–60% higher than it should be, thanks to fisheries subsidies (S. Smith, 2010).

In the past few decades of international trade negotiations, fishery subsidies have been a major issue because of its trade distortion effects. However, fishery subsidies not only have trade-distorting effects, but also have environmental harmful capabilities that have gained widespread recognition in recent decades. In recent years, fishery subsidies and environmental issues have been on the agenda of the World Trade Organization and the Environment Committee, the United Nation (UN) Sustainable Development Committee of the United Nations, and the Signatory Congress of the Convention on Biological Diversity. Recognizing the serious impact of fisheries subsidies on global fisheries production and international trade patterns, international organizations have listed fisheries subsidies as a 'high priority' issue. As the World Trade Organization (WTO) Doha Round negotiations continue to be implemented, government subsidies have attracted the attention of various international organizations.

In the latest fishery negotiations, the 'Friends of Fisheries' countries, mainly Japan and South Korea, and the 'Friends of Fish' countries, mainly Australia, New Zealand, and the United States, had heated debates and put forward a large number of proposals. Although these proposals are fundamentally different, all countries agreed that it is necessary to cancel some fishery subsidies. However, in terms of the types and methods of cancellation, countries have not yet made a unified opinion.

Protecting fisheries resources and preventing IUU and overfishing have become an international mainstream view. The participation of various environmental protection organizations has further promoted the negotiations of the fisheries subsidies in the direction of

wildly prohibited and a small amount of permission.

Due to the depletion of fishery resources and pressure in the fisheries negotiations, The EU's DWF fleet declined from 718 vessels to 289 between 2008 and 2014. For comparison, the USA had just 225 large-size DWF vessels in 2015 (FAO, 2016). However, China's DWF vessels fleet has undergone an amazing expansion. Previously, between 2012 and 2014, the number of Chinese DWF fishing vessels expanded at an average annual rate of 15%. Between 2014 and 2016, the number of Chinese DWF fishing vessels increased by 400, bringing the total to nearly 2,900 (S. Smith, 2010). From 2012 to 2016, the number of Chinese DWF fishing vessels increased from 1,830 to 2,900 which is equivalent to the incremental sum of the period from 1994 to 2010 (China Fisheries Yearbook, 2012-2016). At the same time, the growth of China's ocean-going fishing vessels was highly concentrated. Shandong and Fujian provinces alone contributed 2/3 of this growth in the number of fishing vessels. By 2020, Shandong province is planning to set the number of fishing vessels to 500 (Shandong province gov, 2012), while Fujian's industry development target is 900 (Fujian province gov, 2016). Because of the special industrial characteristics of the DWF industry, this Chinese provincial policy will likely have a global environmental impact.

On December 7, 2016, the Ministry of Agriculture of the People's Republic of China announced the '13th Five-Year National Fisheries Development plan' (here in after referred to as 'plan'). 'Plan' proposes that China will focus on ecological protection. It requires that the number of Chinese DWF fishing vessels be controlled within 3,000 and the amount of fuel subsidies reduced. The total catch is required to be reduced from 13.15 million tons to less than 10 million tons, the plan also requires a dismantlement of 8,300 fishing vessels with a length of over 12 meters (Ministry of Agriculture, 2016).

However, in the same year, 2016, Ministry of Agriculture of the People's Republic of China released the '13th Five-Year National DWF industry Development plan'. In this plan, the Chinese government defines DWF industry as a national strategic industry. Ships and infrastructure related to this industry will be supported and developed. At the same time, China released the 'Ship Recycling and Ship Standardization Subsidy Measures' to support Chinese fishing companies to build and use larger fishing vessels. Provincial governments also have made ambitious plans to build new fishing vessels. For example, Fujian Province's plan is to reconstruct 150 ships before 2020, and support DWF companies building oversea fishing bases and fish processing plants in Africa and other countries that sign the Belt and Road Initiative.

Up to 2017, two national-level oversea fishing bases have been built, and there are 29 oversea fishing bases with a total investment of over US$2 have been built (Ministry of Agriculture, 2016). These two plans are in conflict with regard to reducing catches.

The speed of China's DWF industry expansion is fast. In the current situation of international fishery resources declining, there have been many problems such as serious overcapacity, increased number of illegal, unreported and unregulated fishing (IUU) activities caused by China's fishery subsidy policies. This paper analyzes 'the 13th Five-Year National Ocean Fishery Development Plan', 'the 13th Five-Year National DWF Industry Development Plan' and its related national- and provincial subsidy policies. The purpose is to find a reform method for China's DWF industry subsidy policy.

1.2 Research methodology

First part of this paper elaborates on China's stated goals in its DWF fisheries governance by examining China's official DWF development plan and DWF subsidy policy.

Second part of this paper analysis the laws and regulations related to the subsidy policies and the subsidies received by DWF enterprises, categorizing them according to their impact on sustainability, and then discusses China's DWF subsidies policies in the context of current situation of WTO fishery negotiation.

This study aims to find the problem of China's DWF industry caused by subsidies policies by evaluating the effectiveness of DWF subsidies policies, and giving suggestions for the reform.

Chapter 2: Literature review

2.1 Definition and classification of fishery subsidies

2.1.1 Definition of fishery subsidies

The definition of fishery subsidy is very complicated. Major international organizations have given different definitions and classification methods, and the definitions given by FAO have high international recognition.

- Fisheries subsidies are government actions or inactions that are specific to the fisheries industry and that modifies - by increasing or decreasing - the potential profits by the industry in the short-, medium- or long-term (FAO, 2001).

Compared with the definitions given by other organizations, the definition of fisheries subsidies in the FAO Fisheries Guide is more comprehensive, because the changes of the total profit rate of the industry will inevitably affect the investment and income of the industry, this effect on productivity of the industry has a great impact, which affects the fairness of trade and the sustainability of resources.

2.1.2 Classification of fishery subsidies

The classification of FAO is more realistic. There are many types of fisheries subsidies worldwide. According to the functionality even the same subsidy policies play different roles in different period. So FAO divides the fisheries subsidies into four categories:

1. Direct financial transfers.
2. Indirect financial transfers and provision of services.
3. Interventions or controls with short-term effects and long-term effects.
4. Lack of intervention.

However, because FAO does not have a dispute settlement mechanism, WTO's mature dispute resolution mechanism and enforcement capability have become the best platform for

consultation of fisheries subsidies. This paper uses the classification method of WTO fishery negotiation to classify fisheries subsidies.

As an annex to the Agreement on Subsidies and Countervailing Measures (ASCM), this classification method is also applicable to fisheries subsidies. According to the classification method of ASCM, the World Trade Organization divides subsidies into:

1. Prohibited subsidies.
2. Actionable subsidies.
3. Non-actionable subsidies.

In current situation of WTO fisheries subsidies negotiation, The WTO has considered prohibiting the following types of subsidies:

- Subsidies for vessels: acquisition, construction, repair etc. of fishing/ service vessels
- Subsidies on transfer of fishing/service vessels to third countries.
- Subsidies on operating costs of fishing/service vessels: fuel, ice, bait, personnel, social charges etc., landing, handling, near-port processing activities etc.
- Subsidies for port infrastructure, port facilities (fish landing facilities, fish storage facilities, in or near – port fish processing facilities).
- Income support for natural or legal persons engaged in fishing.
- Price support for products of marine wild capture fishing.
- Subsidies arising from the further transfer of access rights that a payer government has acquired from another Member government.
- Subsidies to vessels engaged in illegal, unreported or unregulated fishing (IUU) (WTO, 2007).

The latest negotiations show that the trend of world fisheries negotiations has been biased towards prohibition because of the decline in world fishery resources. The influence of major environment protect organizations in fisheries negotiations is increasingly important.

2.2 Amount and economic effects of fishery subsidies

The amount of fisheries subsidies is huge, but the estimations given by various organizations

are different. The following estimates of the number of fisheries subsidies have been internationally recognized.

According to the estimation of Milazzo from The World Bank, Milazzo estimated that the total amount of world fisheries subsidies is between USD 14-20 billion (Milazzo et al, 1998). According to Sumaila's estimation in 2010, the world's subsidies for fisheries amount is between USD 25 and 29 billion (Sumaila et al, 2010). He renewed the estimation in 2016, the estimation for the world Fisheries subsidies was updated to USD 35 billion. In all fishery subsidies, capacity-enhancing subsidies detailed the highest category at over USD 20 billion. The analysis revealed that fuel subsidies make up the biggest part of the total subsidies (22% of the total), followed by subsidies for management (20% of the total) and ports and harbors (10% of the total). Subsidies provided by developed countries were far greater (65% of the total) than those by developing countries (35% of the total) (Sumaila et al, 2016). This huge amount of long-term subsidies has severely distorted the supply and demand in the market over the past few decades and had changed the production capacity of fisheries.

Subsidies help recipients reduce costs and increase income. This will lead to unfair competition and trade distortions between the recipients and the unsubsidized. This is almost the commonality of all subsidies. Fisheries subsidies have some of its own characteristics. With the increasing scarcity of fishery resources, the cost of catching continues to increase. Those who receive fisheries subsidies can obtain more than their share of production, which represents an increasing cost of production for other competitors, as a result, it is more difficult for those unsubsidized to find fish, and the catch is relatively inconsistent. In extreme cases, there may even be no fish to catch. For example, the fishing of some trans-boundary and migratory fish stocks has led to more intense competition due to the different subsidy policies of various countries, which has further accelerated the over-utilization and depletion of fishery resources.

The effect of fisheries subsidies can be divided into two aspects: direct effect and indirect effect. First, subsidies can directly affect the results of production activities and profit returns by reducing the cost of fisheries producers or increasing their income. Second, the profitability of fishery production has led to the adoption of different production strategies. To be more specific, fisheries subsidies reduce the production costs of the fishery companies and increase the benefits. This change in profits induces companies to change production methods in return, such as increasing fishing time, increasing the number of breeding, changing the fishing location or fishing intensity, and increasing the input of production factors, etc.

This overfishing will inevitably lead to consumptive competition among fishermen. For general manufacturing, free competition usually leads to increased production and lower prices, but an important input indicator for the marine fishing industry is that the total amount of resources has been fixed by the natural environment. Therefore, the competition only plays a role in redistributing the amount of catch between fishermen. The result is an increase in fishing costs and a reduction in fishing profits, resulting in a waste of resources and capital that violates the original intention of subsidies.

The indirect effect of subsidies means that fisheries subsidies change the production conditions of subsidized industries and unsubsidized industries. For example, because of the changes in the production efficiency of subsidized fishing companies, it will inevitably affect the production conditions of fishing villages that are not subsidized, such as recreational fisheries. Moreover, such effects can have a series of indirect effects on other related industries through the reduction in the number of fish stocks before they are effectively controlled.

Schuhbauer's study shows that most of the subsidies go to large-scale industrial fishers in developed countries, thereby distorting the market for fish and thus disadvantaging small-scale developing country fishers, who are relatively more resource poor. This is a barrier to development where it is most needed (Schuhbauer et al, 2015). Governments often have a clear preference that exacerbates the concentration of such fisheries subsidies. That is, more subsidies are provided to larger and more advanced fleets than smaller fleets. Those large-scale industrial enterprises are often much more subsidized than small-scale fishermen. Even the original intention of the subsidies was to help the fishermen who lived in poverty.

This causes the third effect. Fisheries subsidies are actually more effective in large-scale fisheries, due to it reduces the development space for small-scale fisheries that provide a lot of jobs. Especially in underdeveloped regions of the world, due to the continuous fishing of large international fisheries companies and the depletion of local fishery resources, some subsidies dedicated to helping these fishermen have become the cause of harm. The reason for this is the lack of supervision in the fishing countries and the lack of governance for the IUU. Unfortunately, most underdeveloped regions do not have the capacity to manage IUU.

2.3 Driving force for the development of China's DWF industry

2.3.1 Job loss

The growth of China's DWF industry is mainly driven by the domestic economic situation. Since the 1980s, China has discovered the depletion of its domestic fishery resources. Marine pollution, overfishing and destructive fishing of resources are destroying China's fishery resources. The Chinese government is trying to protect the fishery resources by setting up a fishing moratorium, protecting domestic resources by establishing a ship decommissioning plan and a fishermen's job transfer plan. But the results are not very satisfactory. Due to long-term overfishing, China's coastal fishery resources have been seriously declining. It is difficult to catch full-grown fish in China's EEZ. According to a report by Greenpeace, the proportion of small/trash fish in fishermen's catches has exceeded 30%. These small fish are basically some young fish that in 'fish age' are less than one year old and only finger-thick and cannot be eaten at all. Even so, Chinese fishermen still capture them. In general, they are made into 'fishmeal' and used as feed for artificially farmed fish and shrimp. These small fish are called 'feed using fish' in the industry. There have been four major fishing grounds in China's sea areas: the Bohai Fishing Ground, the Zhoushan Fishing Ground, the South China Sea Coast Fishing Ground and the Beibuwan Fishing Ground. Due to overfishing and marine pollution, now we can only find China's 4 major fishing grounds in history.

As the United Nations Convention on the Law of the Sea (UNCLOS) launched on November 16, 1994, it further limited China's fishery operations area. The bilateral fishery agreement signed between China and South Korea, Japan and Vietnam on June 30, 2001, and on November 11, 1997, restricted the entry of Chinese vessels into its traditional fishing grounds. The destruction of domestic fishery resources and the sudden implementation of the UNCLOS caused a large number of Chinese fishermen to become unemployed. Compared with before, China's fishing grounds directly reduced by 100,000 square kilometers. Another 260,000 square kilometers of traditional fishery grounds got influenced and limited. The restrictions imposed by the China-South Korea agreement on the Yellow Sea and the Bohai Sea caused 4,000 fishing boats and 40,000 fishermen in Liaoning Province to lose their traditional fishing grounds and jobs. At the same time, it affected another 170,000 fishermen, resulting in a loss of 16 billion yuan per year in Liaoning Province. Shandong Province lost the previous 40% of its traditional fishing grounds. Economic losses cannot be estimated. In Zhejiang province Zhoushan City alone, nearly 5,000 production boats and 20,000 fishermen lost their jobs. After demarcation in

Guangxi province, the number of fishing boats withdrawing from the traditional fishing grounds reached the number of 5828, directly affecting the livelihood of 46,700 fishermen in Guangxi province (Dong, 2014).

China has been working to ease unemployment by developing aquaculture and the DWF industry. China now has the world's largest fishing and aquaculture workforce, providing 8.5 million full-time jobs and 13.3 million related jobs.

DWF industry has a multiplier effect in the economy. For example, the multiplier effect of 29 distant-water fishing vessels built in 2008 in the Chinese economy is about 3.4 billion Yuan (about 500 million US dollars).

2.3.2 The dilemma of Chinese aquaculture and domestic demand

In recent years, China had vigorously developed the aquaculture industry. Although the vast ocean area was the most stable ecosystem on the planet for a long time, due to the rapid development of modern Chinese industry, and lack of governance towards the environment, the pollution in China's coastal waters had actually become very serious. According to the 2016 China Marine Environment Bulletin, China had more than 147,940 square kilometers of coastal water polluted (about 55% of China's coastal sea areas), of which 25% was heavily polluted. Inorganic nitrogen, land discharge, red tide, and aquaculture were important factors that cause the destruction of seawater pollution resources, which in turn leads to the unhealthy development of China's aquaculture industry (Ministry of Environmental Protection, 2017). China had a high density of aquaculture. In order to ensure the growth and survival of fish, it was difficult to avoid a large amount of drugs. Marine aquaculture had increased the pollution of the seawater. In marine fish culture, more than 80% of phosphorus and carbon and more than 50% of the nitrogen enters the sea through residual baits and excretion. Caused by Chinese aquaculture aquatic antibiotics, drugs exceeded the standard, and heavy metals exceeded the standard. This had led to a ‘pyramid’ arrangement of China's aquatic production and quality.

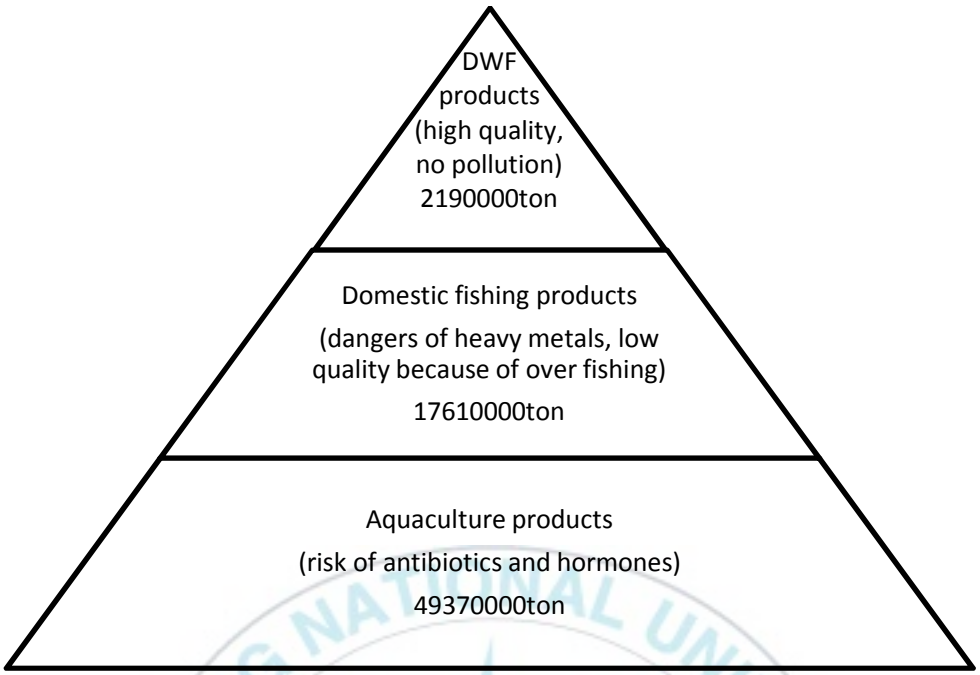

Figure 1: The 'pyramid' arrangement of China's aquatic production and quality.

That is, the production of artificial aquaculture is the largest, but the risk of antibiotics and hormone residue is also the largest, and heavy metal pollution is serious. Inshore fishing production is in the middle, there are also hidden dangers of heavy metals and the quality and value of economic fish species cannot be produced due to overfishing. The distant water fishing product is the smallest, but it is pollution-free and has high nutritional value.

China's strong motivation to develop DWF is caused by an increase in the demand for high-quality seafood internationally and domestically. As the per capita income of Chinese citizens increases to $8,000, Chinese consumers are increasingly demanding high-quality, non-polluting protein foods. According to Chinese consumers, as the income increases, the proportion of aquatic protein food consumption in the ocean rises. At the same time, Chinese consumers are more inclined to adopt natural, non-polluting deep-sea fishery products rather than farmed fish. (Because the regulations on Chinese aquaculture fisheries are not perfect, antibiotics and hormones are exceeded.) Chinese consumers have a very special preference for naturally growing animal- and plant products. Cui He, secretary-general of China Aquatic Products Processing Association said: 'At present, 99% of large yellow croakers are farmed'. Compared with the price of 2,000 yuan per kilogram of naturally grown yellow croaker, the price of cultured yellow croaker is only 20 yuan per kilogram. This profit margin exceeds 100% cause

the further contributing to the growth of marine fishing in China. The demand for aquatic products in the international market is also growing. According to the data provided by the OECD, the world's per capita consumption of aquatic products in 2000 was 15.77 kg, 2010 The annual increase to 18.55 kg, the average growth reached 17.67%. The continued growth of domestic and international demand has once again stimulated the vigorous development of China's DWF industry.

2.3.3 Overcapacity in the fishery product processing sector

Overcapacity in China's fishery product processing plants has increased the pressure on marine fishing companies. With the increasing demand for processed seafood, China's fish seafood processing enterprises have increased rapidly, and China's aquatic product processing capacity has expanded rapidly. So far, China has become the world's largest fish producer and fishery products processor. China's fish processing companies expanded from 9,774 in 2013 to 9,976 in 2016, of which 2,755 were above medium size (Ministry of Agriculture Bureau of Fisheries, 2017). China's annual processing capacity can reach 21.26 million tons. However, the production of Chinese aquatic products is limited, and the continuous increase in such production capacity is also continually stimulating China to expand fishery production.

2.3.4 Maritime militia

According to the recent annual report of the US National Interest, the Pentagon has released a large amount of data related to China's military security development. In a 106-page document, the US government publicly assessed the 'Chinese Maritime Militia Armed Forces' for the first time. The report believes that China's maritime militia as a pioneer unit plays an important role in the South China Sea. The report pointed out that as the world's largest 'Coast Guard', the Chinese maritime militia served as a mission to provide potential support and cover for the Navy and to resolve maritime disputes without forcing it to become a tough means of war (U.S. Department of Defense, 2018).

This force solved most of the small-scale conflicts in the South China Sea. The United States and its Asian allies and partners are extremely concerned about maritime incidents. The Chinese maritime militia has made important contributions to promoting China as sovereignty in the South China Sea.

Chinese scholars Wang Zhenyu directly confirmed this point and pointed out that Chinese sea

militias have the following characteristics and advantages (Wang et al, 2017):

1. The large number of distant water fishing fleets have a wide range of intelligence and reconnaissance capabilities.
2. The combination of production and rights protection play an important role in areas with sovereignty disputes.
3. The daily duties of the DWF fleet are exempt from making them in a favorable position in the conflict (the civilians and their property should be protected from attack by force).
4. Provide logistical assistance to the Chinese Navy during the necessary period.
5. Therefore, China's goal of strengthening ocean investment is not only an economic and production food security issue, but also a political strategy and military defense issue.

Chapter 3: Analysis of China's Fisheries Development Plan

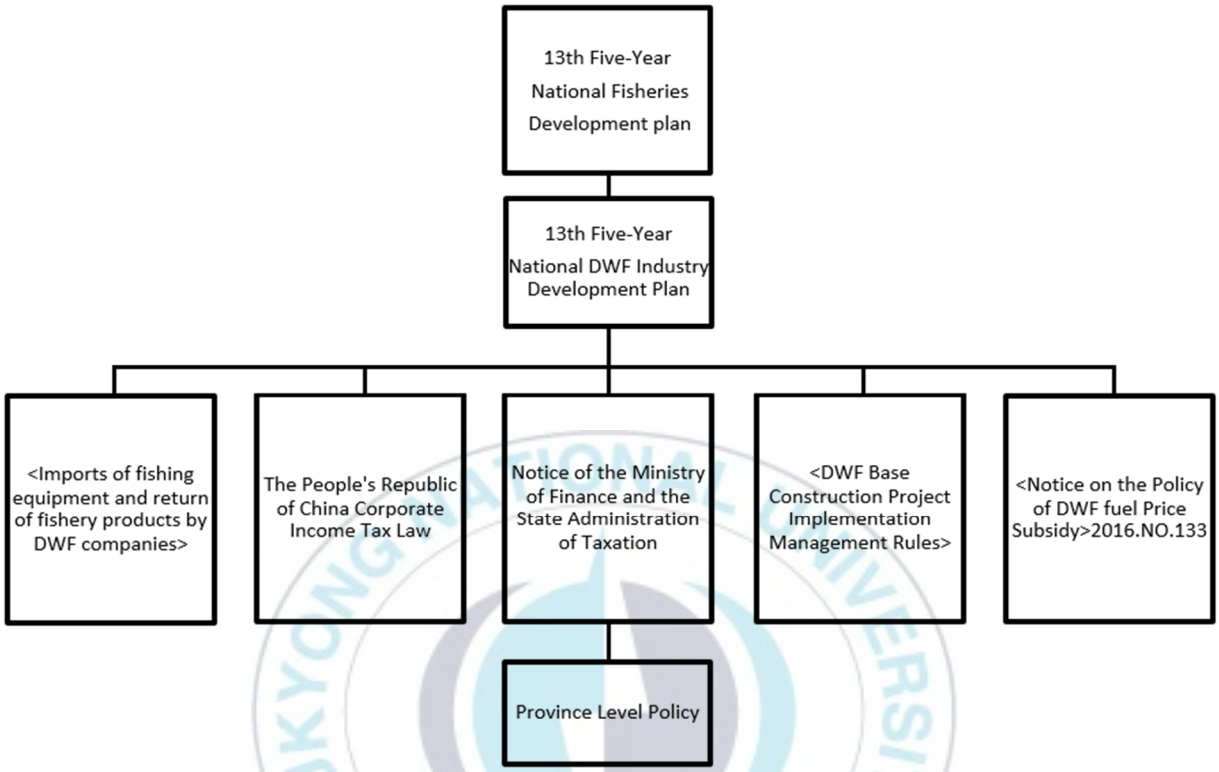

Figure 2: China's Fishery Policy Level

3.1 The 13th Five-Year National Fisheries Development plan

In the case of domestic fishery resources facing depletion, China has proposed ‘The 13th Five-Year National Fisheries Development plan’. The plan is very important in China's economic system. At present, most of the research on China's policy process ignores the core mechanism of planning. Unlike the policies of Western countries that aim at legislation, the Chinese government has been working hard to improve the planning mechanism since 2003, hoping to establish a predictable policy process. Through the study of the medium and long-term plans and its sub-plan process, we find that plan is far beyond a policy text or a process of a legislation bill. Planning is a cyclical process of continuously negotiating, drafting, testing, evaluating, and adjusting policies through various interaction modes between the central and local government, also between multiple departments. Through the planning mechanism, policies and regulations

of different departments at different levels are linked to each other to become a huge network, exporting countless policy texts. Guiding or interfering with the activities of economic entities, shaping or restricting the behavior of governments at all levels. The plan is dependent on the operation of the administrative hierarchy system, but it is the assessment system of Chinese government officials that determines its efficiency.

For a long time, the plan was a blind spot for Western studies of China's political economy. Most scholars regard the ‘cancellation plan’ and ‘transformation from plan to market’ as the basic way of China's system reform. Therefore, many papers rarely mention the role of the plan when explaining the phenomenon of China's economic growth.

In particular, after 1993, the functions, contents, formulation processes and methods of the plan have undergone a fundamental transformation. The new planning system not only provides space for market development and government power decentralization, but also provides protection for the administrative department and the ruling party to maintain control over the economy. After 2005, plan became the main method of formulating various public policies. In the process of China's political operation, planning is the driving force for determining policy priorities, the boundary of policy adjustments, the basis for granting institutional power, and the key to determining the distribution of power between governments at all levels.

Therefore, we will analyze the indicators of The 13th Five-Year National Fisheries Development plan. Because the indicators are the benchmarks for the assessment of government officials in the Chinese political system, whether the indicators can be achieved is also a criterion for evaluating the quality of work in a region. Through the indicator we can understand the purpose and direction of the policy in China's economic plan.

3.1.1 Indicators

Table 1: 13th Five-Year National Fisheries Development plan indicator

Category	Indicators	2015	2020	Type
Fishery economic	Fishery output value (100 million yuan)	11,328.7	14,000	Anticipatory
	Value added of the fishery (100 million yuan)	6,416.36	8,000	Anticipatory
	The proportion of output value of fisheries secondary and tertiary industries (%)	48.6	≥50	Anticipatory
	Exports of aquatic products (US$100 million)	203	200	Anticipatory
Fishermen's income	Fishermen's net income (yuan/year)	15,595	21,000	Anticipatory
Product supply	Aquatic product output (10,000 tons)	6,700	6,600	Anticipatory
	Domestic marine fishing production (10,000 tons)	1,315	≤1,000	Obligatory
	DWF production (10,000 tons)	219	230	Anticipatory
	Marine aquaculture area (10,000 hectares)	232	220	Obligatory
	Proportion of demonstration area of aquatic aquaculture	45	65	Anticipatory
	Pass rate of sampling of aquatic products in the place of origin (%)	98	≥98	Anticipatory
Resource Conservation	Number of marine fishing vessels over 12 meters	65,398	57,095	Obligatory
	Power (kW) of marine fishing vessels over 12 meters	11,173,058	9,822,229	Obligatory
	National Marine Ranch Demonstration Zone	20	80	Anticipatory
	National fish sanctuary Conservation Area	492	550	Anticipatory
	Number of aquatic biological reserves above the provincial level	75	80	Anticipatory

(Source: China's 13th Five-Year National Fisheries Development plan)

In the current fishery development plan, indicators include anticipatory indicators and obligatory indicators. The anticipatory indicator is the development goal that the country

expects, and it mainly depends on the autonomous behavior of the market entity. The government will use fiscal, industrial, investment and other policies to create a good market environment suitable for enterprise development. The obligatory indicator is an important part of planning, and it is the specific and quantitative expression of the planning content. Obligatory indicators also show the government's commitment to the people. The obligatory indicator is the basic indicator for the assessment of each department after the deadline of the plan.

In the fishery economic part, China has put a lot of anticipatory indicators. This represents China's goal of developing fisheries economy, and China will use its policies to support its development. From the indicators, the output value of the fishery is expected to increase from 1,132.87 billion yuan in 2015 to 1.40 billion yuan in 2020, an increase of 23.58%. The added value of the fishery is expected to increase from 641.636 billion yuan in 2015 to 800 billion yuan, which is expected to increase by 24.68%. While the proportion of the output value of the fisheries secondary and tertiary industries has increased, the fishermen's income is expected to increase from 15,595 to 21,000, which is an expected increase by 34.66%.

This shows that in the next 5 years China will use policies to support and encourage fishery economic output and also support the development of value-added fish processing industry. This requires more investment in researching and developing the technology and infrastructure, so the number of subsidies for R&D and infrastructure will increase. China plans to develop the second and third industries in the fishery industry and the high value-added fish products manufacturing industry, which shows that the number of subsidies for China's construction of fishing village ports and the manufacturing industry for fishery products will increase in the future. In the plan, the income of Chinese fishermen will increase by 34.66%, and the support for the income of fishermen will inevitably involve price support, which is also a prohibited subsidy.

In the fishery production supply part, most of the indicators in this part are obligatory indicators. It is required that by 2020, domestic marine fishing production will be reduced from 13.15 million tons (in 2015) to less than 10 million tons, compared to 2015, this is a decrease of 24%. At the same time, the aquaculture area was reduced from 2.32 million hectares to 2.20 million hectares, this is also an obligatory indicator. Only DWF production is required to increase from 2.19 million tons in 2015 to 2.3 million tons in 2020. This is an anticipatory indicator.

In the resource conservation part, compared to 2015, China has planned to reduce the number

of marine fishing vessels which are over 12 meters by the number of 8,300 and to reduce the power by 12.1%. This is an obligatory indicator. At the same time, China planned to increase the number of national marine pasture demonstration areas to 80 and increase the number of national-level aquatic germplasm conservation areas from 492 to 550. This shows that China's domestic fishery resource conservation is one of the important tasks of the 13th Five-Year Plan, also shows that China's government will put more subsidies in environmental protection.

China has set obligatory indicators for domestic fishing production and domestic aquaculture. The obligatory indicators will serve as hard tests for each department. At the same time, in order to ensure the completion of these indicators, the local fishery department will certainly strengthen the supervision, that shows the investment in management and supervision will increase. Healthy farming and the construction of protected areas belong to the non-actionable subsidies in WTO fishery negotiations, which is an important measure for the development of Chinese fisheries in a healthy and sustainable direction. At the same time, because it limits the number of domestic fishery catches, this will definitely lead to the conversion of certain fishermen and the dismantling of fishing boats. The subsidy for the conversion of fishermen and the dismantling of fishing boats is a non-actionable subsidy.
From the analysis of the comprehensive numerical changes of indicators, it is very difficult to increase the fishery output value by 23.58% and the income of fishermen by 34.66%, while reducing domestic marine fishing production by 24%. One of the methods is to increase the high added value and quality of Chinese fishery products. The raw materials for high value-added fishery products are very important, while DWF happens to produce high value and high value-added fish. China has set a large number of obligatory indicators for domestic fishing and set anticipatory indicators in the DWF industry, with the aim of using policies to transfer domestic fishing pressures to the high seas to protect the fishery resources.

3.1.2 Basic principles and important tasks

For the first time in the 13th Five-Year Fishery Plan, China has put ecological priority and green development as the first article of the development principle. It is also required to regulate the development of DWF industry and prohibit IUU. At the same time, it is required to extend and improve the DWF industry chain and to emphasize the bilateral cooperation with fisheries in African countries as an important task.

The most important support for DWF companies is fuel subsidies. This subsidy is also one of

the most destructive subsidies to the environment. However, in the DWF industry, fuel subsidies are likely to continue or even increase. From the main tasks, the Chinese government advocates that DWF enterprises can enhance their international competitiveness through mergers, reorganizations, acquisitions, and stock financing. Also, it requires the establishment of independent brands and domestic distribution platform constructions. This shows that financial support for low-interest loans (discount loans, etc.) and tax-free subsidies will increase.

Followed by the main tasks of the 13th Five-Year Plan, the emphasis is placed on strengthening the construction and management of fishing ports and speeding up the renovation of fishing vessels. China will eliminate old wooden fishing boats with high energy consumption and pollution, and build new fishing boats with high efficiency, energy saving, safety, and environmental protection. China plans to renovate 14,000 fishing boats. China will begin to focus on the high value-added processing of DWF seafood and the development of a DWF product distribution platform.

3.2 13th Five-Year National DWF industry Development plan

In this plan China's government has made more specific requirements for DWF industry development in the following part. In this plan, China once again emphasizes that DWF is a strategic industry. It is an important part of building a maritime power and a 'reform and opening' strategy and a 'One Belt, One Road' plan. China also emphasized the importance of the DWF industry development to ensure the supply of high-quality aquatic products and food security in China. This plan releases more details about main objectives and regional and industrial layouts and safeguards for the DWF industry.

3.2.1 Main targets:

The 13th Five-Year Plan of China's Oceanic Fisheries clearly stipulates that the number of national distant water fishing vessels will be stabilized within 3,000 vessels, and plans to transform fishing vessels to standardization and modernization, and the annual production is required to increase to 2.3 million tons. It is required that the proportion of ocean-going fishery products returned to the country from fishing products is more than 65%. It also requires important progress in the construction of the industrial chain, and at the same time increases the construction of a comprehensive base for distant water fishing. And improve the DWF industry management system to curb IUU and other violations.

This shows that the Chinese government has begun to pay attention to the competitiveness and profitability of DWF enterprises. China's DWF industry has recognized the importance of fisheries management after experiencing extensive development in 2012. China consciously controls the growth of distant water fishing vessels and the number of DWF companies, hoping to cultivate a number of competitive DWF companies that can be profitable. After the scale of the DWF enterprises increased to a certain amount, the Chinese government has increased fishing capacity by renovating the vessels, building DWF fishing bases, limiting the export of catches and supporting enterprises to improve the capacity of the fish processing industry and the ability to manufacture high value-added fish products to enhance the competitiveness and efficiency of DWF enterprises.

This represents a continuing subsidy for the renovation and reconstruction of DWF fishing vessels. The construction of the DWF industry chain will inevitably involve the research and development of DWF bases and processing equipment technology, so the subsidies for infrastructure construction of fishing ports and other facilities will increase. The plan requires the management of distant water fisheries to improve, which represents an increase in subsidies provided by China in the supervision of distant water fisheries. From the current status of fisheries management, China has eliminated the subsidy qualification through the blacklist system to limit and deter illegal ships.

3.2.2 Industrial layouts:

1. Stabilize optimization of oceanic fisheries:
    - Stabilize fishing in the high seas and strictly control the scale of fishing vessels on the high seas. Limit the approval of new fishing vessels for the high seas, strict control of imports or overseas acquisition of second-hand fishing vessels, and speeding up the renovation of old fishing vessels.
    - Tuna fishery: Focus on improving the international competitiveness of tuna fishery, and allow eligible enterprises to appropriately introduce tuna purse seine ships with international quotas through overseas acquisitions, mergers, and acquisitions, etc. to form a development pattern that is parallel and matches with the domestic aquatic product processing market. Promote the construction of integrated fishery bases through cooperation methods such as direct investment in fisheries countries.
    - Squid fishery: Optimize the layout of squid fishery production and rationally regulate

the scale of fishery in each sea area. Promote the construction of integrated fishery bases and improve the efficiency of squid fisheries.

- Pelagic fishery: Strengthen the investigation and assessment of pelagic fish resources, and improve the medium and long-term forecasting technical capacity of pelagic fish resources. Develop high value-added fish products and expand the domestic consumer market.

2. Improve transoceanic fishery:
    - Control the construction scale of fishing vessels, prohibit the import of second-hand fishing vessels strictly.
    - Control the acquisition of fishing vessels in abroad; strengthen the renovation of old fishing vessels.
    - Make intergovernmental cooperation with countries along the ‘Belt and Road’, and strengthen information sharing and technical cooperation.
    - Actively participating in polar fisheries affairs like participating in the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) and develop Antarctic marine living resources.

China has suspended the construction approval and subsidies for DWF fishing vessels on the high seas and has put restrictions on the import and acquisition of used fishing vessels. However, the only allowance is the second-hand fishing vessels with tuna quotas and fishing bases that are beneficial to the acquisition of fishing rights. And it is required to speed up the transformation of old fishing boats. This shows that the priority of China's fisheries development is still to improve production efficiency and productivity.

The subsidies for supporting enterprises to build new and purchase second-hand fishing vessels with quotas are mainly based on the government directly paying 30% of the new construction fees and discount loans or low-interest loans. In the project of building a fishery base and investing in the local area in cooperation with the countries along the Belt and Road, according to the ‘DWF Base Construction Project Implementation Management Rules’ formulated by the State Council of China in 2016. Companies can also receive a direct subsidy of 30% of the total amount.The purpose of China's construction of the distant water fishing bases is to provide transportation, oil replenishment, fishing vessel maintenance and other support for China's DWF fleets, such as refrigeration, processing, and sales of catches. At present, China's DWF infrastructure is relatively backward. The hardware of fishing docks, fishing boat repair

factories, cold storages and processing plants is seriously inadequate. As a result, the maintenance of fishing vessels in the sea and the difficulty of porting and the lack of competitiveness in the price of fish, the fishery industry chain has always been in the middle of the lower profit margin of pure fishing operations. The construction of the DWF fishing bases can provide sorting, storage and processing services, which can improve the quality of the catch and increase the profits. In terms of function, it is a form of action to increase the amount of fishing. Therefore, it will almost certainly lead to anti-subsidy lawsuits. However, every coin has two sides. It is the same for the construction of terminals and oversea fishing bases. The DWF fishing base also has the function of monitoring fishing vessels and prevent IUU. It also has the role of protecting the life and safety of fishermen from distant water fishing vessels. This is also one of the contradictions in the development of China's DWF industry.

As mentioned above, the subsidies for the renovation of old fishing vessels and the rebuilding of fishing ports is aiming at increasing fishing capacity and potential profits. Those are prohibited subsidies in the WTO subsidy rules. It can be taken to countervailing investigations in other countries at any time. However, from the perspective of China, it is necessary for the safety of the crew and the reduction of unnecessary energy consumption and the renovation of old fishing vessels. This is one of the difficulties of China's DWF industry development. From the second section of the regional layout, the main partners of the fishery project are the countries along the 'Belt and Road.' The significance of the distant water fishery industry for China is not only economic cooperation but also political cooperation between the governments.

China's interest for polar fisheries is also increasing. According to 'China's Arctic Policy' which was published in 2018 by the State Council: 'China is an important stakeholder in the Arctic affairs, and China is geographically close to the Arctic. The natural conditions and changes of the Arctic have a direct impact on China's climate system and ecological environment, which in turn affects China's economic interests in agriculture, forestry, fisheries, and oceans.'

The fourth article of 'China's Arctic policy' shows that China will:

- Participate in the development and utilization of the Arctic channel.
- Participate in the development and utilization of non-biological resources such as oil and gas and minerals.
- Participate in the conservation and utilization of biological resources such as fisheries.

Although the ‘China's Arctic Policy’ contains a large amount of content to protect the environment, the environmental challenges of the Arctic are severe, and some problems still require the long-term attention and efforts of the international community. The reasons for some Arctic countries welcome China's participation in the ‘club’ of Arctic governance is because they have the interest to develop the Arctic, but lack the economic strength to match it. China's participation may provide investment in oil- and gas resources development and infrastructure to make up for this. Although this development will be based on higher environmental standards, the risks posed by the polar special environment are still unpredictable.

3.3 The policy related with China’s Fishery Subsidy Policy

This chapter will be discussed in the order of national-level subsidy policy, provincial subsidy policy and DWF industry supervision policy.

3.3.1 National subsidy policy

National subsidy policies are mainly given in the form of tax exemption, shipbuilding subsidy and fuel subsidy.

Tax exemption:

The tax exemption policies for DWF companies in China mainly include the following:

1. ‘Notice on the taxation of imported fishery equipment and the return of self-fishing aquatic products by distant water fishing companies’ released by China’s Ministry of Finance and State Administration of Taxation in 1997.
   - Self-harvesting aquatic products that are shipped back to China for sale are treated as non-imported domestic products and are not subject to customs duties and import value-added tax. The domestic sales business of the enterprise belongs to the sale of primary agricultural products, and the value-added tax is exempted according to the provisions of the VAT rules.
   - No tariffs are imposed on DWF companies that import all equipment such as fishing gear that cannot be produced in China.

2. ‘Notice on the exemption of agricultural special product tax on self-fishing aquatic products of distant water fishing enterprises’ released by China’s Ministry of Finance,

State Administration of Taxation in 1997.

- Aquatic products (including primary processed products) captured by DWF enterprises on the high seas or in foreign seas and shipped back to the domestic market are regarded as domestic products and are subject to the collection of agricultural special product taxes.
- In order to encourage the development of China's DWF industry, DWF enterprises are exempt from agricultural special product tax on self-trapping aquatic products in the above-mentioned sea areas.

3. ‘PRC Enterprise Income Tax Law’ published by China State Council in 2007.
   - The income of an enterprise engaged in the following projects is exempt from corporate income tax: The distant water fishery industry.

China provides a large amount of tax exemption for DWF companies. Customs, corporate income tax, agricultural special product tax and import fishery equipment tariffs are all exempted. This kind of tax exemption has greatly affected the profits of enterprises. Such subsidies have increased the profits of enterprises while distorting trade. Most of the DWF companies are export-oriented enterprises, and the tax exemption and subsidies for export enterprises are prohibited subsidies.

Shipbuilding and oversea DWF base building subsidies:

The ship building subsidies policies for DWF companies in China mainly include the following:

1. ‘Ship scrapping dismantling and ship type standardization subsidy fund management measures’ published by China’s Ministry of Finance in 2015.
   - The fishing vessel renewal and transformation subsidy shall be subjected to the upper limit control, and the subsidy fund shall not exceed 30% of the average cost of each fishing vessel.
   - Article 32: The construction of fishery equipment and facilities may apply for subsidy funds.
   - The construction of fishery equipment and facilities may apply for subsidy funds. The application funds shall not exceed 30% of the total amount, and no subsidies will be granted for facilities with destructive resources.

2. ‘Regulations for the implementation of oversea fishing base construction projects’

published by China's Ministry of Agriculture in 2017.

- Article 5 (Subsidy Standards): The central financial subsidy shall not exceed 30% of the total investment of the Chinese enterprises in the public welfare construction of the base, and the total amount of the single base subsidy shall not exceed 50 million yuan.

According to 'Measures for the Administration of Ship Scrap and Dismantling and Ship Type Standardization Subsidy Funds' DWF companies will directly receive 30% subsidy funds when they build, rebuild and update fishing vessels, and will receive 5% subsidy from provincial departments. And from the policy banks, get a low-interest rate loan with a 2% interest rate and a 15-year maturity. At the same time, the completed ship can be mortgaged to the commercial bank for a 60-month mortgage with a 5-7 fold discount. Take the average cost of a large ocean fishing boat for 40 million yuan. The actual cash received after the completion of the construction was 48 million yuan. This has prompted the explosive growth of China's ocean fishing vessels. This method also stipulates that the construction of fishery equipment and facilities can apply for subsidy funds.

The overseas ocean fishing base mainly serves as logistical support for DWF vessels, providing emergency services for DWF vessels, as well as providing training and rest services for fishing vessel crew members. And the sorting and processing refrigeration of the oversea fishing base plays an extremely important role in the quality of DWF products. It also reduces the cost and risk of DWF enterprises for the repair and logistics of fishing vessels. The disguised play has the effect of increasing the amount of fishing and affecting corporate profits. It is a prohibited subsidy from the perspective of environmental and resource sustainability.

Fuel subsidy:

'Notice of the State Forestry Administration on Adjusting the Oil Price Subsidy Policy for Rural Passenger Transport, Taxi, Distant Water Fisheries, Forestry and Other Industries' and 'Interim Measures for the Administration of Special Funds for Fishery Product Oil Price Subsidy' published by China's Ministry of Finance, Ministry of Transport, Ministry of Agriculture and State Forestry Administration in 2016.

- When the ex-factory price of gasoline is 4,400 yuan to 5,480 yuan/ton, and the ex-factory price of diesel oil is 3,870 yuan to 5,070 yuan/ton, the central government is responsible for 50%. When the ex-factory price of gasoline is higher than 5,480

yuan/ton, and the ex-factory price of diesel is higher than 5,070 yuan/ton, the central government is responsible for 100% (Ministry of Finance, 2016).

Fuel subsidies are one of the most destructive subsidies to the environment. It is also one of the subsidies explicitly prohibited by the WTO. China's fuel subsidies began in 2006 with the aim of preventing the impact of a sudden rise in oil prices on fisheries production. However, due to the way of giving, this subsidy has also contributed to the explosive growth of the number of DWF vessels. The fuel subsidy is the most important and largest form of state subsidies for the DWF industry. Since the biggest cost in distant water fishery production comes from fuel costs, the main role of this subsidy is to protect DWF companies from the impact of oil price fluctuations. While the amount of fuel subsidies has soared, data transparency has declined. Specific data on distant water fishery fuel subsidies have been discontinued since 2011. The challenges of data statistics are also reflected in other important subsidy projects. For example, there is no official support for the construction of subsidies for fishing vessels announced in China.

Annual oil price subsidy price of a fishing vessel = total power of the main engine (kW) × subsidy oil coefficient (depending on the data given by the country) × operation time (based on the document time).

Although the 2016 DWF fuel subsidy was incorporated into ‘Measures for the Administration of Ship Scrap and Dismantling and Ship Type Standardization Subsidy Funds’, the specific calculation method has not changed, and there is not much change in the quantity compared with the amount obtained before. Only transparency is declining. This is contrary to the transparency of subsidies promised by China in the WTO fisheries subsidies negotiations.

3.3.2 Provincial subsidy policy

From 2012 to 2016, the number of Chinese ocean-going fishing vessels increased from 1,830 to 2,900, which is equivalent to the incremental sum of the period from 1994 to 2010. At the same time, the growth of China's ocean-going fishing vessels is highly concentrated. Only Shandong and Fujian provinces contributed two-thirds of the growth in fishing vessels. This paper takes the subsidy policy of Fujian Province as an example to analyze the impact of provincial subsidy policies.

‘Notice of the Fujian Provincial People's Government on Accelerating the Development of Distant Water Fisheries’ published by Fujian provincial government in 2014.
Fujian’s industry plan clearly states that by 2017 the number of distant water fishing ships will increase to 700, and 900 by the year 2020, a total increase of 400 over the five year period.

- For ships of 1000 GT or above (tuna long-liner 500GT or above), 5% of purchasing or construction cost be covered by soft loans, with a cap of RMB 6 million per ship.
- For upgrading small-scale ships of 24m length or less, there is a 5% expenditure allowance for fishing in other countries’ EEZ.
- R&D for every type of vessel is given a provincial financial subsidy of RMB 1.5million.
- DWF industry park land-transfer fee according to ‘National Industry Land-Transfer Minimum Price Standard’ of 70%; For government-approved DWF industry parks, RMB 5 million is awarded as a subsidy or soft loan from the provincial budget.
- For Fujian enterprises transporting fishery products back to Fujian ports, district/municipal-level finance policies provide transport fee subsidies (the highest province-level allowance is RMB 50/ton).
- Under the so-called ‘peak and valley’ flexible electricity tariff system, all fishery company electricity usage is charged at ‘valley’ period lowest price.
- Provincial DWF ship crew and fishing ship insurance are included in the ‘mutual insurance subsidy’.
- Discover three fishing sites per year, RMB 1million for each project.

China's Fujian Province DWF subsidy policy includes the following seven categories:

- Fishing vessel construction purchase discount
- Fishing vessel development design subsidies
- Construction subsidies for oversea fishing bases
- Freight subsidies
- Electricity subsidies
- Crew and fishing boat insurance subsidies
- Resource exploration subsidies

The subsidy system built with provincial subsidies and state-level subsidies has a direct impact on the explosive growth of the number of fishing vessels. Unlike central subsidies, which focus on fuel subsidies, local subsidies rely mainly on infrastructure construction and investment-

oriented subsidies. The central government's subsidies are mainly given in the form of fuel subsidies and fishing boat construction subsidies. The difference is that the provincial subsidy policies are mainly based on infrastructure subsidies and investment-oriented subsidies. The intention is to use good investment policies to attract large amounts of social capital into the industry to achieve rapid growth in this industry. From the perspective of the role of subsidies, it is mainly to improve fishing capacity and output, and to reduce the operating costs of enterprises. From the time of subsidy, the time of subsidy is basically consistent with the time of rapid expansion of the industrial scale. From the effect of subsidies, the fishing capacity of Fujian Province increased by 149% in 2012-2014, and the output value of the same period only increased by 63%. Input and efficiency are not proportional, but the pressure on the environment caused by increased production capacity does exist. The environmental pressures caused by this provincial policy will be shared by the world.

3.3.3 Fisheries management and supervision policy

China is revising the ‘Fishery Law’ part of the DWF industry. China's management and supervision of the DWF industry is mainly based on ‘Distant Water Fisheries Management Regulations’.

‘Distant Water Fisheries Management Regulations’ was promulgated by the Ministry of Agriculture of China in 2003. The regulations related to the supervision of DWF fishing vessels are:

- Article 20 DWF vessel shall fill out the ‘Temporary Fishing Record of the People's Republic of China’ and accept supervision and inspection by the fishery administrative department.
- Article 26 The Ministry of Agriculture monitors the position and catch of ocean-going fishing vessels according to management needs. Ocean fishing vessels should install the Vessel Monitoring System (VMS) in accordance with the monitoring plan formulated by the Ministry of Agriculture, and be equipped with crew members holding technical training certificates to ensure the normal operation of the system and provide real-time information accurately and accurately.
- The Ministry of Agriculture may dispatch government observers to distant fishing vessels in accordance with the requirements or management needs of relevant international organizations. DWF companies and fishing vessels are obliged to accept observers and afford relevant costs to provide assistance and convenience to the work and life of observers.
- Article 29 If the DWF enterprise, fishing vessel or crew is illegal, the Ministry of

Agriculture suspends or cancels its DWF corporate qualification (and subsidies) depending on the severity of the situation.

In reality, the management and supervision of distant water fishing activities is very difficult due to the location. The regulatory measures for China's ocean fishing are lacking in effectiveness.

The ship position monitoring system implements the active reporting system of fishing vessels, and there is still a four-hour delay. It is not active real-time supervision, and it is often difficult to detect and stop illegal activities in time. National observers are professionals dispatched by the State to supervise ocean fishing. However, observers will conflict with the interests of fishermen when performing supervision. Due to the special location of distant water fishing, it is difficult to have strong law enforcement power to protect, and the personal safety of observers is often at risk and it is difficult to perform their duties. The fishing log is mainly filled out by the crew or under the supervision of the observer. It is difficult to reflect the actual situation of the ocean fishing if the observer's personal safety is threatened. China should make more investments in the fishing vessel supervision system, the personal safety of observers and the law enforcement forces at sea.

Chapter 4: Analysis of status and performance of China's fishery subsidy policy

In 1985, China's DWF industry began with Chinese state-owned enterprises, but in the next 30 years, the main components of China's DWF industry changed from 100% pure state ownership to more than 70% private enterprises. The effect of the policy can be known from the DWF's response to the policy. This chapter analyzes the financial statements of the two largest DWF companies in China to show the status and performance of China's fishery subsidy policy from the perspective of corporate.

4.1 CNFC Overseas Fisheries Co., Ltd

CNFC Overseas Fisheries Co., Ltd. is a listed company mainly engaged in the DWF industry under the control of China National Agricultural Development Group Co., Ltd. This company is mainly engaged in the production and operation of DWF. It is one of the earliest enterprises in China to develop Pacific, Atlantic tuna and South American carp resources. The company has nearly 70 distant water fishing vessels and is engaged in fishing production in the Atlantic, Indian Ocean and Pacific Ocean. It is the largest professional tuna fishing company.

Table 2: CNFC Overseas Fisheries Co., Ltd Subsidy Schedule

(unit: yuan)	2012	2013	2014	2015	2016	2017
Net profit	59,052,556	52,297,452	19,494,277	-357,721,208	43,692,098	50,093,835
Total subsidy	91,694,571	88,433,360	78,146,371	28,139,142	76,058,927	89,216,426
Fuel subsidy	78,799,600	82,535,000	73,916,800	26,322,893	74,346,500	87,883,413
Shipbuilding subsidy	696,151	699,571	699,571	699,571	699,571	997,331
Local government subsidies.				1,116,677	1,012,857	
Special fund for foreign economic and technological cooperation	12,002,400	8,460,000	3,530,000			
Fish trade transaction subsidy (price support)						335,682

(Source: Financial Statements–CNFC Overseas Fisheries Co., Ltd Financial Statements 2012-2017) (unit: yuan)

From the 2012 annual financial report of CNFC 2017, the net profit of enterprises is far less than that of the subsidy. If there is no government subsidy, enterprises are actually losing money. And the net profit of the company has not increased.

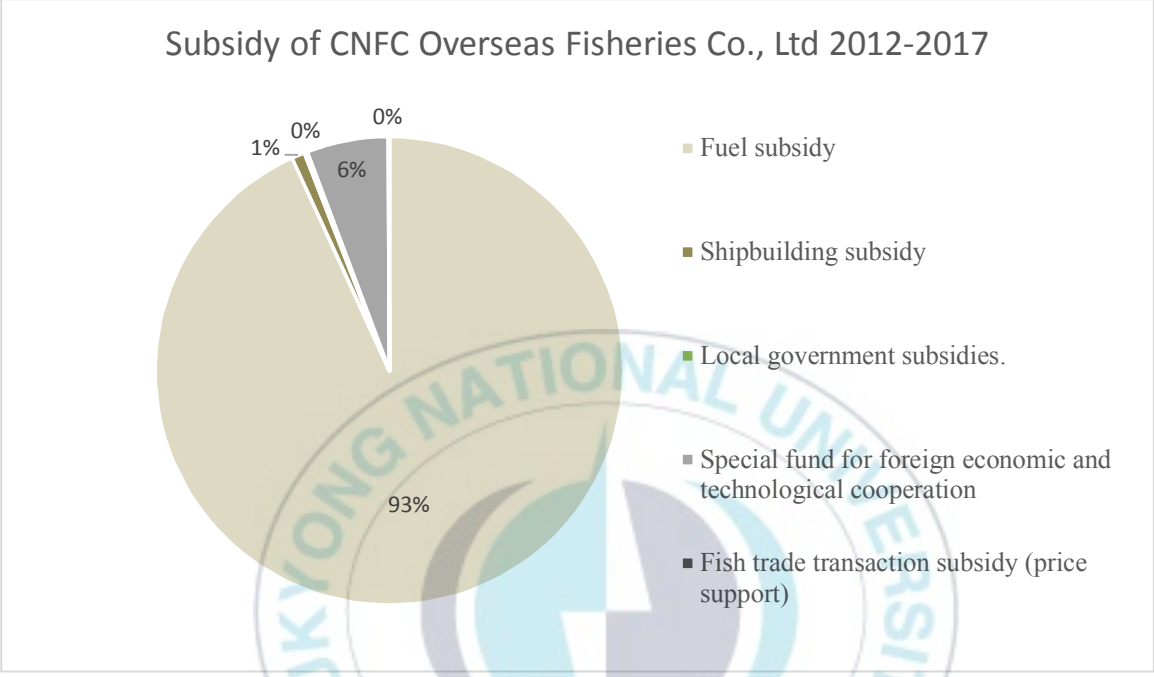

Figure 3: Subsidy of CNFC Overseas Fisheries Co., Ltd 2012-2017

From the amount of subsidies received in 2012-2017, the company received between 70 million yuan and 90 million yuan. This shows that most of the subsidies received by enterprises are sustainable. Among them, fuel subsidies account for the vast majority. It is about 93% of the total subsidy. The ‘Special fund for foreign economic and technological cooperation’ subsidy was obtained according to the ‘Special Fund Management Law for Foreign Economic and Technical Cooperation’ promulgated by the Ministry of Commerce and the Ministry of Finance in December 2005. Overseas economic and technological cooperation subsidies are mostly used for the construction of oversea fishing bases and subsidies for the employment of foreign workers. This subsidy accounts for about 6% of the total subsidy. In 2016, the distant water fishing vessel fuel subsidy was incorporated into the subsidy to increase its amount. The ship building subsidies account for about 1% of the total subsidy. Although the subsidies given for ship modifications appear to be small, they are calculated in a lump sum and distributed equally over their useful life, so they are a fixed amount each year. In terms of the amount, the company received a subsidy of 9.27 million yuan for the construction of 10 new fishing boats

in 2010, and received a shipbuilding subsidy of 13.39 million yuan in 2017. The actual funds obtained will be more than on the report.

Compared to general fisheries, the amount of fuel subsidies received by the DWF industry is huge, and there is an increasing trend year by year (because the power of fishing vessels is increasing). This is inconsistent with China's overall policy of reducing ship production and reducing fuel subsidies. In the past few years when subsidies were implemented in China, the net profit of enterprises has not increased. This means that the company has not taken the time to improve production efficiency in the past few years of receiving subsidies, but has become dependent on subsidies. This is related to the sustainability of the subsidy. Among the subsidies obtained, price support, fuel subsidies, vessel reconstruction and standardization, and the construction of overseas fishery bases are all prohibited subsidies, which are extremely easy to incur trade counter-measures.

According to the 2012 to 2017 financial report, the company's net profit is far less than the subsidy obtained. If there is no government subsidy, the company is actually losing money. Moreover, the company's net profit is greatly affected by international crude oil prices, changes in fishery policies, and changes in fish resources. Future development gains are unknown.

4.2 Shanghai Kai Chuang Deep Sea Fisheries Co.,Ltd

Shanghai Kai Chuang Deep Sea Fisheries Co.,Ltd. was approved by the China Securities Regulatory Commission on December 8, 2008. Registered capital of 20299 million yuan and 1200 employees. Shanghai Kaichuang Ocean Fishery Co., Ltd. It has the largest large-scale tuna purse fleet and trawling fleet in the country, mainly engaged in distant water fishing, aquatic product processing and related trade. It is the head of the trawl processing working group of China Ocean Fisheries Association. It has a total tonnage of 39,400 tons and an annual fishing capacity of 130,000 tons.

Table 3: Shanghai Kai Chuang Deep Sea Fisheries Co.,Ltd Subsidy Schedule

(unit: yuan)	2011	2012	2013	2014	2015	2016	2017
Net profit	65,749,245	128,778,180	103,105,982	106,159,505	-110,335,224	10,386,209	126,182,211
Total subsidy.	199,929,841	214,215,362	189,848,813	197,747,729	349,62,643	141,808,676	99,630,132
Fuel subsidy	175,,335,484	189,158,485	167,994,622	156,350,924	354,852	1,351,888,100	90,594,753
Shipbuilding subsidy		726,342	1,467,095	1,552,085	1,514,756	1,272,794	1,272,794
Arctic Marine Biological Resources Development Project	8,700,000	8,700,000	8,700,000	8,700,000	7,700,000		
Special fund for foreign economic and technological cooperation(Central government)	13,730,000	15,609,100	10,220,000	30,079,600	19,811,162	5,000,000	5,000,000
Special fund for foreign economic and technological cooperation （Shanghai Municipal Government）							5,000,000
Pacific Ocean horse mackerel project	1,640,000						
863 Program Tuna Key Technology Research					1,532,832		
863 Program horse mackerel Key Technology Research					2,940,243		
Antarctic krill resource technology development					706,052		
Research on Integrated System of Trawler Automatic Power Station					352,100		

(Source: Financial Statements–Shanghai Kai Chuang Deep Sea Fisheries Co.,Ltd Financial Statements 2011-2017) (unit: yuan)

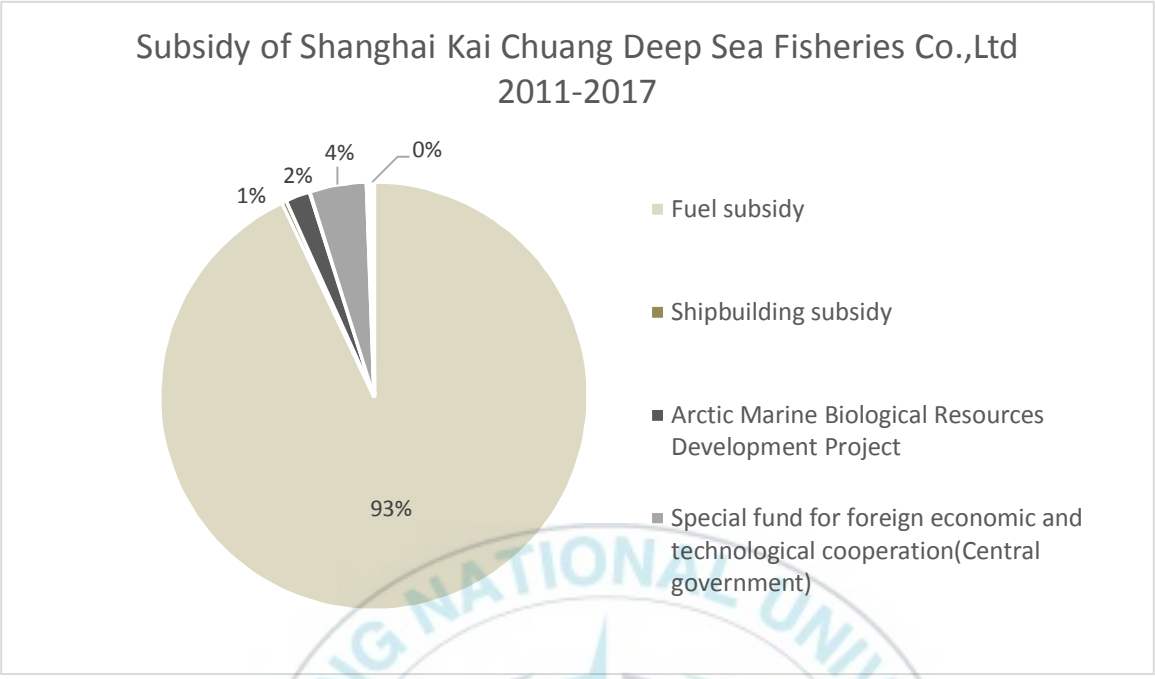

Figure 4: Subsidy of Shanghai Kai Chuang Deep Sea Fisheries Co.,Ltd 2011-2017

According to the company's 2011-2017 financial statements, it is found that the annual subsidy of the company is basically stable between 120 million yuan and 200 million yuan (tax exemption is not calculated). As with the previous company, most of the subsidies were given in the form of fuel subsidies. Fuel subsidies account for about 85% of the total subsidies. Other subsidies with a relatively high proportion include subsidies for foreign economic and technological cooperation special funds and marine biological resources development and utilization projects, accounting for 9% and 4% of the total subsidies respectively. Ship reconstruction and fishing gear construction accounted for approximately 1% of the total subsidies.

The company participated in the National 863 Fisheries Project and the fishery project for the development and utilization of Arctic biological resources. In this project, the company has cooperated and researched with many universities and also received state subsidies. This subsidy is an R&D subsidy and is a ‘non-actionable’ subsidy in the existing subsidy rules of the WTO. However, its role is to increase fishing efficiency and increase the amount of fishing. Therefore, according to the negotiations of fisheries, the resistance received will increase. In terms of function, fuel subsidies and shipbuilding subsidies are all prohibited subsidies. The special fund for foreign economic and technological cooperation is one of the

litigation subsidies. The major suits of subsidies obtained by the company are still achievable subsidies.

The difference between this company and CNFC is that the company shows a trend of increasing profits as the amount of subsidies decreases. The information disclosed in the earnings report is mainly due to the fact that R&D subsidies in China's '863' program have improved fishing and production efficiency, as well as the development of new fishing products. The concrete manifestation is that the profit is increased in the case of a reduction in the total amount of fishing. This shows a trend of sustainability.

4.3 The problem of China's DWF subsidies policy

After 1985, the DWF industry experienced rapid development. In the past 35 years, it has developed into a country with the largest distant water fishing volume, with a catch of 1.9 million tons (2016 data). The rapid development of China's fisheries will inevitably exert tremendous pressure on the world's fishery resources. This is hard to avoid.

China's DWF industry development plan is not only a simple economic issue, but an important part of China's 'going out' and 'Belt and Road' plans. It is not only a matter of food safety and fishermen's livelihood, but also about political diplomacy and maritime rights protection. The subsidy program is an important tool for the Chinese government to develop and manage distant water fisheries.

The development of the DWF industry seems to be a good solution in the context of depletion of domestic fishery resources, serious water pollution, and increased demand for high-quality seafood without pollution. However, there are indeed many uncertainties in the context of reduced global fishery resources.

4.3.1 The conflict between China's DWF subsidies policies and the Agreement on Subsidies and Countervailing Measures of WTO

Compared with the list of fishery subsidies prohibited by the WTO, there are structural problems in China's current DWF fishery subsidy policy.

The DWF subsidies at the national level in China are mainly given in the following forms: tax reductions, fuel subsidies, subsidies for fishing vessels new construction and renovation, and subsidies for construction of overseas fishing bases.

The fishery subsidies chapter as an an annex of ASCM should be consistent with other annexes. According to the ASCM Annex 1 (export subsidies), 1.1 (e), the following subsidies are prohibited subsidies.

- The full or partial exemption remission, or deferral specifically related to exports, of direct taxes or social welfare charges paid or payable by industrial or commercial enterprises. (WTO).

DWF companies belong to the export enterprise category because a large part of their business is abroad. The large number of tax exemptions that exist in China's state subsidy policy are prohibited subsidies.

According to ASCM Annex 8 (fishery subsidies) Article 1.1 (a)(b)(d), the following subsidies are prohibited.

- Subsidies the benefits of which are conferred on the acquisition, construction, repair, renewal, renovation, modernization, or any other modification of fishing vessels or service vessels, including subsidies to boat building or shipbuilding facilities for these purposes.
- Subsidies the benefits of which are conferred on operating costs of fishing or service vessels (including licence fees or similar charges, fuel, ice, bait, personnel, social charges, insurance, gear, and at-sea support); or of landing, handling or in- or near-port processing activities for products of marine wild capture fishing; or subsidies to cover operating losses of such vessels or activities.
- Subsidies in respect of, or in the form of, port infrastructure or other physical port facilities exclusively or predominantly for activities related to marine wild capture fishing (for example, fish landing facilities, fish storage facilities, and in- or near-port fish processing facilities). (WTO, 2007).

Therefore, in China's national level subsidies: fuel subsidies, subsidies for new construction of ships and subsidies for overseas fishery base construction are all prohibited subsidies, and the above subsidies are easily subject to countervailing investigations by other countries.

DWF subsidies at the provincial level in China are mainly given in the following forms: Investment incentive subsidy policy for DWF, land price reduction subsidy, electricity price reduction subsidy (operating subsidy), Loan subsidies for the construction and reconstruction of fishing vessels, Ship compliance subsidies resulting from changes in environmental

standards in the country of entry, Fisherman's insurance subsidies and R&D subsidies.

According to ASCM part 1 (General Provisions) Article 2, 2.1(a), the following subsidies are classified as 'actionable subsidies'.

- Where the granting authority, or the legislation pursuant to which the granting authority operates, explicitly limits access to a subsidy to certain enterprises, such subsidy shall be specific. (WTO, 2007).

Investment incentive subsidy policy for DWF, land price reduction subsidy and electricity price reduction subsidy (operating subsidy) are specific and classified as 'actionable subsidies'. It may cause trade distortions and may be subject to countervailing investigations. The same as the previous the insurance subsidy and loan subsidies for the construction and reconstruction of fishing vessels are prohibited subsidies.

According to ASCM Annex 8, Article 2 (General Exceptions) the following types of subsidies are allowed.

- (a) For the purposes of Article 1, 1(a), subsidies exclusively for improving fishing or service vessel and crew safety shall not be prohibited, provided that:
  (1) such subsidies do not involve new vessel construction or vessel acquisition;
  (2) such subsidies do not give rise to any increase in marine wild capture fishing capacity of any fishing or service vessel, on the basis of gross tonnage, volume of fish hold, engine power, or on any other basis, and do not have the effect of maintaining in operation any such vessel that otherwise would be withdrawn;
  (3) the improvements are undertaken to comply with safety standards. (WTO, 2007).

In the provincial subsidies, the ‘replacement of shipbuilding subsidies due to environmental standards in the country of entry into the country’ is an ‘environmental exception’ that is a non-actionable subsidy. At the same time, R&D subsidies are also classified as non-actionable subsidies.

Through the analysis of the total subsidies obtained by China's two major DWF companies over the past seven years, it is found that most of the subsidies received by Chinese DWF companies are: enterprise tax exemption, fuel subsidies, shipbuilding subsidies, operational subsidies and subsidies for port overseas DWF base construction. The above-mentioned types of subsidies account for more than 97% of the total. From the perspective of WTO classification, they are all prohibited subsidies and actionable subsidies. R&D subsidies, fisheries management subsidies, and subsidies to improve fishing techniques account for only 3% of the total.

4.3.2 The practical problems of China's DWF subsidy policies

In view of China's subsidy program and enterprises financial report, several problems are found in China's DWF subsidies system:

1. There are clear environmental double standards in China's development plan for the DWF industry. This double standard actually shows that China's preference for economic development is more important than environmental protection. This creates the fundamental dilemma between China's DWF industry development and the world fishery resources decline.

DWF subsidy structure issues: The unreasonable proportion of the subsidy structure is mainly reflected in the fact that the proportion of 'non-actionable subsidies' is too low. The proportion of prohibited subsidies is too high. After analyzing China's policies and subsidies received by enterprises, China's DWF subsidies are mainly given to Chinese DWF companies in the form of fuel subsidies, shipbuilding subsidies, and construction subsidies for foreign cooperative projects such as oversea fishing bases. There is also a large part of the export enterprises given in the form of tax incentives. The above subsidies are all prohibited subsidies according to the rules of the WTO, which will cause trade distortions and environmental damage, and are highly vulnerable to trade counter-measures of other countries. The proportion of 'non-actionable subsidies' in DWF subsidies is too low. The proportion of fishery research, environmentally friendly fishing technology research, sanitation and epidemic prevention, marine environmental protection and individual fishermen's living subsidies is too small, accounting for less than 1% of the total. The above subsidies are the most important subsidies for sustainable fisheries development.

2. There is a serious shortage of investment in DWF industry supervision. The management model of China's DWF industry is basically to cancel subsidies in the black list of illegal enterprises, rather than pre-prevention through supervision. At the time of discovery, the loss of the environment and fishery resources has been caused, and it is a late-stage management. Although in this regulation, the government strictly stipulates the use of resource-destroying fishing nets and fishing methods, supports the company to change the way of fishing that is not so much environmental damage, and requires companies or individuals that receive this subsidy

to sign a non-illegal fishing commitment. However, this method also reduces the cost of renewal for the update of fishery equipment. And directly increase the power and fishing capacity, and direct financial transfers such as fuel subsidies seriously affect the company's profits. And in reality, the fishing country often lacks the ability to supervise because of economic conditions and technological level. This has led to repeated violations of illegal fishing, which has caused enormous damage to fishery resources. At the same time, once the overseas IUU situation arises, it will have a huge obstacle to China's international image and diplomatic aspects, and may even affect China's fishery cooperation with other countries. At the same time, this also violates China's commitment to not make IUU.

3. China's DWF industry subsidy policy lacks a unified long-term plan. From the perspective of the departments involved in the Chinese subsidy program, the central government's fisheries subsidy management departments include the Ministry of Finance, the Ministry of Agriculture, the Ministry of Agriculture, the Ministry of Land and Resources (Ocean Bureau), the Ministry of Communications (Marine Bureau), the Ministry of Science and Technology, etc. The various departments are not affiliated with each other, and there is no leading department in the fishery subsidy work that lead to poor coordination. The subsidy funds include six categories: ‘special funds within the central budget’ and ‘special funds for comprehensive agricultural development’. Subsidies are insufficient in some respects and repeated in other areas, which makes it more difficult to manage fisheries subsidies. The management problem in fisheries subsidies has become more and more serious due to the increase in the amount of subsidies and the inconsistency of administrative agencies. Due to the lack of long-term and holistic planning in the overall design, the limited use of funds is diversified, reducing the utilization of subsidy use. It also led to subsidies without verticality. In some areas, fisheries subsidies have been illegally diverted due to the lack of universal and effective regulatory mechanisms and accountability mechanisms.

4. The transparency of fisheries subsidies is insufficient. In the various economic statistics yearbooks of China and the reports of the competent fishery authorities at all levels, only general indicators such as ‘special funds for foreign economic cooperation’, ‘development and utilization of international fishery resources’ and ‘infrastructure construction’ are seen. The inaccuracy or double counting of data is not conducive to the international comparison of fisheries subsidies.

5. Corporate profitability is too low and dependent on subsidies. From the perspective of

corporate profitability, an average of 80% of non-operating income of Chinese DWF companies comes from the government's fuel subsidies. In other words, if there is no fuel subsidy, there will be no profit. From the perspective of the enterprise: the subsidies and production capacity of enterprises are constantly increasing. The increase in subsidies and the expansion of production capacity haven't bring an increase in economic benefits. The input and benefits are obviously not proportional. The degradation of the global marine environment and the international community's emphasis on the protection of marine ecosystems are the root cause of the inefficiency of China's DWF industry. The global ocean is facing a crisis.

Chapter 5: Reform proposals for China's DWF subsidies policy

This paper proposes the following policy reform proposals based on China's DWF fisheries subsidy policy:

1. China needs to determine the leadership department for fisheries subsidies, and let this department set up and implement a long-term, unified subsidy program. The government departments in China that are responsible for formulating subsidy programs are now very fragmented. The central government's fisheries subsidy management departments include the Ministry of Finance, the Ministry of Agriculture, the Ministry of Agriculture, the Ministry of Land and Resources (Ocean Bureau), the Ministry of Communications (Marine Bureau), the Ministry of Science and Technology, etc. Each department has developed its own subsidy policy in accordance with the fisheries development plan. The various government departments that have formulated the subsidy policy have not cooperated with each other, and there is no leading department in the fishery subsidy program that leads to poor coordination. This has led to a large number of duplication of shipbuilding subsidies, fuel subsidies, and subsidies for overseas fishery base construction, resulting in overcapacity in China's DWF industry. Insufficient investment in fishery supervision, fishery resource protection, and fishermen's legal education has caused frequent violations of Chinese fishing vessels overseas. Insufficient investment in fishery supervision, fishery resource protection, and fishermen's legal education has caused frequent violations of Chinese fishing vessels overseas.

After determining the leading government departments for fisheries subsidies, the Chinese government can increase the efficiency of subsidies by pooling funds, reducing duplication and supplementing deficiencies, and at the same time addressing the issue of subsidies for fisheries subsidies. Because the leadership can develop a unified plan, it will increase transparency and data accounting, and address the issue of duplication and uneven distribution of subsidies.

2. China should adjust the structure of DWF subsidies and reduce the 'prohibited subsidies' that are harmful to the environment, and increase subsidies for fisheries research, environmentally friendly fishing techniques, health and epidemic prevention, marine environmental protection and individual fishermen's education support.

China's current DWF subsidies are mainly provided by fuel subsidies, shipbuilding subsidies, overseas fishery base construction subsidies, and operating subsidies for fishing vessels. These types of subsidies can achieve the goal of China's DWF development in the short term, However, in the long run, this subsidy method has led to low subsidy utilization rate and overcapacity in fisheries. DWF companies have insufficient profits and are dependent on subsidy policies. According to the WTO fisheries subsidy negotiations, the above subsidies are all prohibited subsidies that are vulnerable to countervailing lawsuits, resulting in economic losses and environmental damage.

China should adjust the structure of subsidy policies and increase research on fisheries, environmentally friendly fishing techniques, health and epidemic prevention, fishermen's education, and marine environmental protection. The above subsidies are the key to the sustainable development of fisheries. China strongly supports the development of the DWF industry, but it also needs to ensure not only the quantity development, but also the quality development. Through the above subsidies, China can reduce the catch of the DWF industry and increase corporate profits, which fundamentally solves the phenomenon of China's current high catch but low profits, thus achieving sustainable development.

3. China should reassess DWF's business qualifications. After nearly 20 years of subsidies, the government should adopt a market adjustment mechanism to eliminate some enterprises with low economic returns, serious environmental damage and frequent illegal fishing. This can avoid subsidy waste and protect environmental resources.

After nearly 20 years of subsidies, Chinese fisheries companies have made great progress, but as mentioned above, some of China's DWF companies have low profit margins, and due to the long-term subsidies, some companies have not taken the time to improve fishing efficiency and fishing technology, but instead rely on government subsidies. There are still illegal fishing problems in such companies. Such violations and illegal fishing have affected the international image and have also caused many diplomatic conflicts. The Chinese government should re-evaluate DWF's business qualifications, eliminate those companies that rely on subsidies and have serious violations, and use this method to encourage Chinese DWF companies to improve production efficiency and regulating fishing operations to both improve the profitability and protect the environment.

4. China should eliminate environmental ‘double standards’ and strengthen supervision, unify environmental standards for domestic and distant water fisheries, and strengthen fishery resources assessment to provide a basis for determining fishing intensity. The capacity of the central government DWF industry supervision department should be strengthened to solve the shortage of manpower and the difficulty of coping with management pressure under the new situation. Strengthen regulatory and technical research and invest more in the protection of fishery resources.

China has different environmental regulatory standards for domestic fishing and DWF operations. In recent years, China has implemented a very strict fishing policy in the territory and has achieved this goal by adding supervisory personnel. However, in terms of DWF, China does not have a strict environmental standard and accountability system, or in other words, China's DWF industry is growing at a much faster rate than its supervisory system. This has led to serious violations of Chinese fishing vessels and an increasing number of fishery conflicts. On the surface, it is caused by insufficient supervision laws in China, but the reason behind it is the lack of understanding and disregard of international environmental standards. By eliminating the 'double standards' of the environment and increasing subsidies for supervision, China's DWF industry can achieve safe and orderly sustainable development.

Chapter 6: Conclusion

This paper analyzes the system of subsidies for China's DWF industry, and analyzes the status quo and results of subsidy policies. We have found that China's DWF industry development

goals and the status of international fishery resources have serious contradictions. China has neglected international fishery resources and international trade rules when formulating the targets of subsidy programs. This neglect has directly led to the problem of overcapacity in China's DWF industry. The lack of investment in the supervision of China's DWF industry and the limitations of the supervision methods have led to continuous disputes in fisheries, which has seriously affected China's international credit rating and cooperation with other countries. Historically, China's DWF industry is an industry that has been affected by domestic economic problems and has been developed for the purpose of providing jobs. Although the significance of international cooperation has been given in recent years because of the policies of 'One Belt, One Road' and 'Going out', the fundamental purpose is still the economic development and increasing the income of fishermen. While traditional fisheries powers such as the United States and Europe have reduced the DWF fleet and catches due to fishery resources and fishery profits, China should follow its example, reduce the developing speed of the DWF industry and make updates on management and development concepts. Treat the DWF industry as a whole new industry, not as a branch of fisheries or as a substitute for aquaculture. China's DWF industry should focus on sustainable development and reduce most of the repeated unsustainable subsidies to complete a transition from 'big' to 'strong'.

Based on the above analysis of China's DWF industry subsidy policy, it can be concluded that China's fishery subsidies are effective and meet the targets set by the authorities. In other words, China is fully capable of solving this problem. From the perspective of China, China's DWF industry has developed rapidly under the subsidy policy, providing a large amount of work while enhancing cooperation with other countries. From a long-term and international perspective, China's lack of investment in supervision and the increase in fishing capacity in the situation of world fishery resource declining have led to environmental conflicts and unsustainable development.

This paper argues that the formulation of China's fisheries plan is too focused on the development of domestic fisheries economy and ignores the current state of international fishery resources. China should link China's own interests with the status quo of international resources. In the process of connection, China's DWF subsidy policy should play a positive role in guiding the sustainable development of the DWF industry.

The international community's dissatisfaction with the status quo of fisheries subsidies has lasted for more than a decade. The question now is not whether to change, but how to change

and when to implement it. The negotiation of fishery subsidies carried out in the WTO has been supported by most members of the WTO. If the Doha Round can be successfully concluded, the reform of the fishery subsidy rules is just around the corner.

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