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On the direction of fisheries subsidies programs in Korea under fortifying international regulations for fisheries subsidies

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We propose some countermeasures needed to cope with fortifying international regulations for fisheries subsidies. The government should rigorously select the recipients of fisheries subsidies to ensure that they are not engaged in ineffective projects by resorting to subsidies. On the other hand, the government should make the individual applicant's application for the subsidies easier by exempting them from the submission of a burdensome feasibility report. As for the strengthening regulatory international movements against the fisheries subsidies, we can consider the following countermeasures. One is not to designate and provide prohibitive subsidies in such a way that violates international norms. The other one is to reform the domestic fisheries subsidies system in Korea with the following points considered. It should be considered that fisheries subsidies, which can be categorized as the actionable subsidies, should not be granted to the items that can be exported but to the items that can be used for domestic consumption or processing. In the case of non-actionable subsidies, the subsidies are mainly allowed for promotion of public-sector research and development, regional development, and adaptation to new environmental regulations. Thus, the non-actionable subsidies should be designated in the consideration of the allowances for these activities.

Keywords : Fisheries subsidies, WTO, Korean Fisheries, Subsidies support program

Introduction

Since the importance of fisheries has been world widely recognized, a lot of subsidies have been granted to promote fisheries industries in many countries. On the global level, fisheries subsidies were estimated at about US $35 billion in 2009, of which US $20 billion were categorized as capacity enhancing, and thus directly contributing to over fishing (Sumalia et al., 2013, 2016). Korea has been suffering from the various economic problems in fisheries including the declining catch of fishes, diminishing population in coastal regions, and the aging of the population. In order to overcome these kinds of problems and to promote the fisheries, the Korean government, like other countries' governments, has implemented various subsidies policies for the fisheries industry. In 2017, the total budget for the subsidies of the fisheries industry has reached 1,095.9 billion won (www.openfiscaldata.go.kr). Since the subsidies on fisheries can cause an excess fishing capacity and the market distortion, many debates, arguments or declarations on fisheries subsidies on global level were called. The DDA (Doha Development Agenda) negotiations were held in 2001 for the purpose of protecting the fishery resources from the overfishing

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of fisheries resources. In 2005, the ministerial meeting in Hong Kong decided to prohibit the fisheries subsidies causing over fishing and over fishing ability. According to the Chair's draft that was declared in 2007, most of the Korean fisheries subsidies, such as building of fishing vessels, fishing port facilities and fishery operation costs (tax-exempt oil) might become prohibited.

If the negotiations were concluded, as of 2009, about 1.3 trillion won, or 74.3% of the total fisheries subsidies of 1.75 trillion won would be prohibited. The share of total subsidies on tax-free oil is 44.5% (780 billion won) of the total subsidies. The share of total subsidies on tax-free oil is 60% of the prohibited subsidies. In particular, the subsidies on tax-free oil accounts for 43% of the fishing expense in Korea. Thus the prohibition of tax-free oil is expected to have a great impact on the entire fishery industry.

Under these circumstances, we examine the development of global discussions on fisheries subsidies that have been developed so far, and propose the direction that the Korean fisheries subsidy system should follow in order for the fisheries subsidies to play their role in promoting the fisheries or fisheries related industries. We also examine the preceding examples of actual fisheries subsidies in Korea. We present two cases that were entitled to receive the subsidies and were able to carry out the projects, and we point out the problems that may arise in the process of submitting application and the economic feasibility reports to receive the subsidies, and then suggest countermeasures that can help solve the problems.

Materials and methods

In order to propose the desirable direction for Korean fisheries subsidies programs, we examine the reports and publications from international organizations such as WTO and the UN. We also examined the reports for the application for the fisheries subsidies with the feasibility test.

Developments in fisheries subsidies negotiations in international context

The global debate on fisheries subsidies was first prompted by the FAO (Food and Agriculture Organization) in the early 1990s. The central argument of the debate was that subsidies are a major factor in the creation and promotion of excess fishing capacity, and in the market distortion, and that somehow the subsidies on fisheries should be prohibited or limited. The debate led to the Conference on Responsible Fishing in Mexico in 1992. Due to the rising importance of fish in international trade, the broad debate on linkages between environment and trade and the effort by the United States to achieve humane globalization led to some discussions at the Seattle Ministerial Conference in 1999. The Seattle Ministerial draft declaration requested clarification and strengthening of WTO (World Trade Organization) fisheries subsidies disciplines and focused on subsidies that contribute to overcapacity and overfishing. (UNEP, 2016). But the issue of fisheries subsidies did not go further into any concrete steps due to the collapse of the Seattle Ministerial Conference.

After then, the members of the WTO decided to find a solution within the boundary of international trade rules. As a result, the WTO Doha Ministerial Conference launched negotiations to improve disciplines on fisheries subsidies, which was followed by WTO Hong Kong Ministerial Conference of 2005. Between the Seattle Ministerial and the Doha Ministerial Conference, Iceland, New Zealand and the United States contributed to the groundwork for the discussion on fisheries subsidies. On the contrary, Japan and Korea made active efforts to resist any new WTO fisheries subsidies rules. During the early 2000s, OECD (Organization for Economic Co-operation and Development), WWF (World Wildlife Fund) and dialogues by WWF, UNEP (United Nations Environment Programme) and other organizations in Geneva kept the debate alive. The WTO Doha Ministerial Declaration in 2001 described the

mandate on fisheries subsidies. According to the declaration, participants shall aim to clarify and improve WTO disciplines on fisheries subsidies, and take into account the importance of this sector to developing countries. This contributed to making the fisheries subsidies discussion a serious issue for consideration. Owing to the vagueness and broadness in the language of the Doha mandate, the member countries' different perspective was reflected in the early submissions made to the NGR (negotiating group on rules). However, by 2004, a consensus began to emerge towards an acceptance for the environmental mandate of the negotiations. This change caused the Hong Kong Ministerial Conference in 2005 to declare the enhancement of mutual supportiveness of trade and environment and prompt action (WTO, 2005).

The Hong Kong Declaration moved the focus from the scope of the negotiating mandate to calling for prohibition of subsidies that contribute to overcapacity and overfishing. The Hong Kong Declaration opened up a period of intense negotiations on the language of the legal text of the eventual rules on fisheries subsidies leading to the Chair of the NGR to prepare a draft of the proposed rules. The first draft was tabled by the Chair of the NGR on November 30, 2007. It had a broad set of prohibited subsidies and a list of general exceptions to be admitted. The 2007 Draft allowed subsidies programs that were aimed at assisting adoptions of vessel safety and sustainable fishing practices as well as capacity-reducing programs if these programs did not contribute to new increase in fishing capacity. The draft excluded subsidies to aquaculture from the scope of the rules. A series of meetings held from December 2007 to May 2008 showed the sharp difference of opinions among the WTO member countries regarding the Chair's Draft. The 'friends of fish' and other environmental stakeholders such as the WWF supported the draft. However, countries like the US, Japan and EU (European Union) were still divided on the basic question of the scope and coverage of the proposed prohibition. By the end of 2008, the NGR Chair released a second set of 'consolidated texts', revising the texts on anti-dumping and horizontal subsidy disciplines and countervailing measures that reflected a 'bottoms-up' approach to the issues in question. After a year of discussions on the roadmap, the NGR began considering the substantive proposals put forward by member countries. Accordingly, over the years the member countries submitted a number of proposals to express their positions and offer solutions to tackling the issue of fisheries subsidies. Among them, the submissions by Korea are as follows (Bahety and Mukiibi, 2017).

Korea submitted that the NGR should compile the list of prohibited subsidies rather than discuss the concept, principles and effectiveness of the SCM (Subsidies and Countervailing Measures) agreement in order to clarify the rules regarding fisheries subsidies. It also argued that the fisheries subsidies can be prohibited when the subsidies should indisputably have a negative impact on the fisheries stocks and when the existence of subsidies, specificity, and adverse impacts are confirmed. It also believed that efficient fisheries management could minimize the negative impact of fisheries subsidies.

Finally, the negotiations in 2011 saw minimal convergence with regard to key issues. The NGR Chair submitted a report concluding that there was no basis for submitting a revised legal text. Instead he submitted a summary of conclusions from the negotiations remarking that the member countries should re-examine their approaches in order to make progress. The key notable points from the negotiations of 2010-11 and the members' submissions are that all countries recognize the state of overexploited and overfished marine resources and agree that countries are required to act collectively to address the situation. In the WTO's 10th Ministerial Conference in Nairobi in 2015, member countries revealed some interest to deal with fisheries subsidies but even the most active members requested a minimum agreement. Even though the issues had the narrowed scope, member countries failed to agree to any

concrete solutions regarding fisheries subsidies at the Nairobi Conference (Bahety and Mukiibi, 2017).

Due to the declining interest in fisheries subsidies in the Doha Round, the issue of fisheries subsidies somewhat had lost momentum in the period 2010-15. Recently, however, the interest of countries to come up with principles on fisheries subsidies has reignited, which is in the build up to the WTO's 11th Ministerial Conference to be held in late 2017.

In light of the UN SDGs (Sustainable Development Goals), there is a renewed interest among WTO member countries to have binding rules on fisheries subsidies. The SDG target 14.6 is aiming to prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies by 2020 (UN General Assembly, 2014).

The issue of 'special and differential' treatment has been one of the most contested areas of negotiations at the WTO. The issue will be the hot spot where many countries will focus on in the WTO's 11th Ministerial Conference to be held in late 2017. Within the demand for differential treatments, the approach of all developing countries, LDCs (Least Developed Countries) and SVEs (Small Vulnerable Economies) have not been the same. One of the issues regarding the 'special and differential' treatment is whether all developing countries should be treated equally or differently according to their share in total marine capture and total global trade in fish and fish products. The second issue is whether the discipline of 'special and differential' treatment would be more flexible to subsistence, artisanal and small-scale fishing activities. The third issue is related to the scope of exemptions for LDCs and developing countries from subsidy prohibition (Bahety and Mukiibi, 2017).

Classification of subsidies system for fisheries at global level

There is no agreed definition or classification of fisheries subsidies. The WTO, OECD, UNEP, and other organizations related to trade or subsidies have proposed different approaches. The payments by a government to the fisheries include subsidies, income support, financial support, government transfers and other economic or financial assistance. The subsidy is beneficial if it supports sustainability of fish stocks. On the contrary, it is harmful if it encourages overfishing. Grants and direct payments are usually one-time payment given either for a specific investment or to support research or related activities. They could also be related to production or sales of fisheries. Tax exemptions, tax credit or tax deferrals are borne by the government. The general criticism with tax related policies is that they are rigid, vague and difficult to change. Some subsidies could also be in-kind subsidy that allows recipients privileged access to a government-owned or controlled natural resource. A good example of in-kind subsidy is access to foreign seas for fishing for free or at a below-market price. Subsidies could also take the form of preferential government procurement or be given through price support mechanisms.

In 2000, alternative approaches to categorizing subsidies were proposed. Four different schemes for categorizing fisheries subsidies were produced by the US, the OECD Secretariat, the APEC Fisheries Working Group, and the FAO Expert Consultation on Economic Incentives and Responsible Fisheries. The scheme proposed by the US has 10 categories, and 21 types of subsidies (WT/CTE/W/154). The OECD scheme has 7 categories (OECD, 2000). The APEC's scheme has 6 categories (APEC, 2000). And the FAO scheme has 3 categories and 12 types of subsidies (FAO, 2000). Since the four schemes have some overlapping categories, they can be simplified without losing a common ground, from which a synthesized categorization of the subsidies can be obtained. This synthesized categorization can be used as the basis for the further work in analyzing the impacts of fisheries subsidies (Porter, 2001). Later, other classifications were proposed by UR SCM Agreement,

WTO NGR Chair, UN POST-2015 Development Agenda. Most recently, the classification according to sustainability of the fish stock has been proposed. (Bahety and Mukiibi, 2017).

In the most recent classifications, the beneficial subsidies include subsidies for fisheries management programs and services and fisheries research and development. They could lead to the investment in natural resources, which leads to growth of fish stock through conservation and monitoring of catch rates through control and surveillance measures. The purpose of the beneficial subsidies is to achieve maximum social, economic and biological good for all. It is estimated that out of the total global fisheries subsidy of US$35 billion, the capacity enhancing subsidy is about US$20 billion (Supra Note 5). Some subsidies can be used for supporting artisanal and small-scale fisheries, crew safety, processing by local communities, and rehabilitation of eco-systems.

The subsidies for fisheries management include subsidies for strengthening monitoring, control and other surveillance programs; fish stock assessment and resource surveys; fishery habitat enhancement; implementation and management of marine protected areas and stock enhancement programs (Supra Note 4). Fisheries management programs include the establishment and administration of management systems (including allocating and monitoring fishing licenses, permits, quota, vessel numbers and catch returns); adjusting management settings within an existing management system; and developing amendments or additions to the existing management system. Government support for such programs can help in monitoring the stock and ensuring that the fish stock is maintained at sustainable levels.

The other type of beneficial subsidy includes subsidies for research and development. The R&D subsidy programs are focusing on improving the methods for fish catching and processing and other strategies that enhance the fisheries stock through the advancement in technology, which improves efficiency and minimizes the damage to the natural environment. These subsidies can be further divided into fishery frame surveys, oceanographic studies, socio-economic studies, fishery planning and implementation, information systems, database and statistical bulletin to support fisheries, and setting up of marine protected areas and reserves.

On the other hand, certain types of subsidies can be categorized as ambiguous subsidies, meaning they can lead to either investment or divestment in the fishery resource. The ambiguous subsidies can either cause a positive impact as stock enhancement or sustainability, or a negative impact as overexploitation. Fisher assistance programs, vessel buy-back, and community development initiatives can be included in the ambiguous subsidies, which are categorized as ambiguous subsidies since their effectiveness is questionable. Fisher assistance programs include payments to fishers to stop fishing. Fishers can be granted the payments as income insurance during bad times or due to lack of alternative employment opportunities. Vessel buy-back schemes are intended to reduce fishing capacity. Community development programs may or may not include schemes for enhancing productivity leading to overcapacity of fishing depending on the situations. Therefore, in the case of ambiguous grants, grants that enhance fisheries capacity and sustainable fisheries must be distinguished, and only those subsidies which are capacity enhancing or further IUU fishing should be prohibited (Bahety and Mukiibi, 2017).

System of subsidies on fisheries in Korea

There are a wide variety of subsidies measures the Korean government is implementing to promote fisheries. Korea's fisheries subsidies have been implemented in various forms and methods to support the development of fisheries and fisheries economies. These subsidies can be categorized into two categories: direct subsidies, which are supported by the government

or local government, and the way in which the difference between the market interest rate and the subsidized interest rate is maintained when the subsidy is provided by the loan.

Considering the characteristics of the subsidies program, we can classify these various subsidies programs into some categories. They are subsidies for the aquaculture industry, subsidies for the development of fishing port, subsidies for processing and distribution of marine products, subsidies for export of marine products, subsidies for the improvements of fisheries management, subsidies for marine tourism and leisure, subsidies for the development of marine resources, subsidies for projects to improve the marine environment, and subsidies for fishery operations.

The government shall support a part of the project funds according to the characteristic of the project. And the private fishery businessmen, fishery corporations, or fisheries cooperatives who intend to carry out the project are requested to bear a certain amount of money. And the local governments are requested to bear the corresponding funds for the projects that are entitled to receive the governmental subsidies. The projects that are entitled to receive the subsidies from the government are as follows.

Subsidies for the aquaculture industry

The subsidies for the aquaculture industry can be broadly divided into the subsidies for inland aquaculture and aquaculture on land, the subsidies for the provision of aquaculture complexes and facilities for certain varieties, and the subsidies for the development and modernization of aquaculture technologies.

The subsidies for the detailed projects that are entitled to receive the subsidies from government are subsidies for idle reservoir recycling, upbringing of ornamental fish industry, R&D expenses for ornamental products and materials, development of core technology for ornamental fish, mass production technology for ornamental fish, international ornamental fish fair, establishment of ornamental fish export promotion complex, modernization of fisheries aquaculture facilities, manufacture of wave proof cage, eco-friendly energy supply project, establishment of environment friendly compound feed factory, golden seed project, aquaculture technology for breed varieties, development of fish vaccine, development of red tide removal materials and equipment, construction of an aquaculture complex, sea cucumber farming project, construction of inland water farming complex, construction of sea water farming complex, biofloc shrimp farming project, and fishway repair and maintenance.

Subsidies for development of fishing port

The subsidies for the development of fishery fishing port can be broadly divided into the subsidies given to improve the fishery productivity of the fishing village, the development of fishing port or site behind, and the subsidies for the installation of renewable energy facilities.

The detailed projects that are entitled to receive the subsidies or subsidies from government are the projects for fishing village capacity enhancement project, ferry terminal construction by private investment project, construction and maintenance of national fishing port floats and bridges by private investment project, new national fishing port development by private investment project, solar energy equipment project in national fishing port parking lot, and sale and lease of idle land behind fishing port.

Subsidies for the processing and distribution of aquatic products

The subsidies for the distribution and processing of marine products is the subsidies for the development of marine products, the development of distribution facilities and systems. Especially, in the case of FPC (Fisheries Products Processing & Marketing Center), many local governments are promoting the construction of FPC in order to achieve the purpose of processing

and distribution at the same time.

The detailed projects that are entitled to receive the support or subsidies from government are the projects for overseas electronic trade activation project, fisheries cyber shopping mall project, establishment of bulk trading system for aqua products between enterprises, history management and distribution of sun salt, development of sun salt product with high value added, development and export of customized sun salt products, fisheries logistics standardization through development of fish box and logistics system, development of standard store model for aquatic products, development of dedicated transport vehicle for live fish, development of aquatic Landing system, development of processing and selection technology for fish, establishment of aquatic products distribution infrastructure, establishment of FPC, establishment of fishery food base, exploration and promotion of overseas market for global K-Seafood, development of functional healthy food, development of extraction technology for functional raw material, and development of convenience food.

Subsidies for the export of aquatic products

The subsidies for export of aquatic products can be broadly divided into the subsidies for commercialization of the export promising aquatic products, the subsidies for export quality control, the subsidies for establishment and improvement of export logistics infrastructure, and the financial subsidies for export of aquatic products.

The detailed projects that are entitled to receive the support or subsidies from government are the subsidies for development of exportable products, promotion of exportable products, quality control of exportable aquatic products, processing equipment, registration of exportable aquatic food labeling, inspection and quarantine procedure, inspection of water for registered exporter, pre-registration for export to Japan, transportation cost for clearance of sample, pilot clearance, acquisition of international certification, development and operation of unified national brand, air logistics center for exportable live fish and shellfish, overseas joint logistics center, manufacture and maintenance of container for exportable live fish, and loan for exportable aquatic products.

Subsidies for improvement of fisheries management and promotion of fishery infrastructure

The subsidies for improvement of fisheries management and promotion of fishery infrastructure include the subsidies for development of fishing equipment and fishing related auxiliary equipment, the subsidies for training related to fishery management, and the subsidies for the business related to trading and management of fishing vessels.

The detailed projects that are entitled to receive the support or subsidies from government are the subsidies for carbon-reducing high-efficiency fishing gear, development of distribution and processing technology for aquatic products, fishing equipment installation project, high efficiency LED (Light-Emitting Diode) light installation project, installation and replacement of engine, development of hypothermia prevention life vest, development, manufacturing, and sales of life raft for small ship, replacement project of old oil supply facility, establishment and operation of fishing vessel trading system, establishment of ship identification management system, development of alternative materials to FRP (Fiber Reinforced Plastic) and construction of fishing boat, electric fishing boat development business, development of electronic fishing boat, construction of fishing boat, Job arrangement consulting, education of Fisheries management, training and education for people returning to fishing village, consulting for Import and Export of aquatic product under FTA (Free Trade Agreement), investment to fishery cooperatives bank, external auditing of fishery cooperatives, distribution of Eco-friendly buoy, loan to purifying and processing boat, development of technology and equipments for aquatic product, aquaculture equipment rental project, and

development of biodegradable fishing gear.

Subsidies for marine tourism and leisure

The subsidies for marine tourism and leisure can be broadly divided into the subsidies for development of marine tourism contents, the subsidies for development and improvement of beach, and the subsidies for leisure and marina.

The detailed projects that are entitled to receive the support or subsidies from government are the subsidies for marine information service, underwater experience village pilot project, floating marine space creation project, operation of environment friendly marine protection area experience program, operation of experience program using closed school in fishing village, survey on the status of beaches, management and operation of beaches, marine Leisure Equipment Manufacturing, lending and operation of leisure equipment, deep sea diving equipment manufacturing, underwater leisure transportation, underwater leisure equipment rental, underwater leisure education, import and distribution of underwater leisure equipment, uderwater leisure equipment manufacturing, underwater leisure apparatus manufacturing, development of underwater leisure resort, marina exhibition and convention, marina port operation project, marina education project, repair and maintenance of leisure vessel, leisure vessel rental, import and distribution leisure vessel, manufacture of leisure ship, development of marina harbor, operation of marine museum and aquarium, marine camp project, marine related publishing and video production, and construction of a marina complex.

Subsidies for the development of marine resources

The subsidies for the development of marine resources can be broadly divided into the subsidies for marine structures, the subsidies for seabed resource extraction, the subsidies for marine power generation, and the subsidies for development of marine resource extracting equipment.

The detailed projects that are entitled to receive the support or subsidies from government are the subsidies for offshore plant dismantling project, operation of OSV (Offshore Subsidies Vessel), development of new materials for marine bioindustry, production of bio hydrogen using hyperthermophilic archaeon sea bacteria, development of biodiesel using marine microalgae, seawater farming and marine preservation, cosmetics and spa project, expansion of usage of deep sea water in food, extraction dissolved lithium in sea water, development of seawater desalination technology, leasing of chartering of the ice resistant and ice breaking ship, construction of ice breaking ship and development high-tech materials for extreme cold area, seawater intake pipe manufacturing and construction, multi-purpose intelligent unmanned ship development, development of manned and unmanned submersible boat (ROVm AUV), development of underwater construction robot for offshore structures, development of technology for floating LNG bunkering system, development of technology for underwater wide band mobile communication system, sea water heating and cooling system project, offshore thermal energy conversion power generation project, production of electricity from wind energy, wave power generation project, linked system of wave-offshore wind hybrid generation, tidal power generation system project, exploration of Arctic Sea EEZ and continental shelf resources, deep sea mineral processing facility project, deep sea mining equipment facility project, deep sea mineral exploration technology project, undersea mine drilling project, offshore plant installation and trial run, and promotion of deep sea water convergence industry.

Subsidies for projects to improve the marine environment

The subsidies for projects to improve the marine environment can be broadly divided into the subsidies for the purification of marine pollution, the subsidies for

monitoring of marine environment, and the subsidies for development of marine environmental pollution removal equipment.

The detailed projects that are entitled to receive the support or subsidies from government are the subsidies development of coastal structure to prevent coastal erosion, purification of polluted sediment for recovery, removal of sunken waste in coastal water, marine plastic waste recycling (FRP waste included), development and operation of monitoring equipment for underground CO2 storage under the sea, construction and installation of the plant for underground CO2 injection under the sea, construction and operation of the CO2 tanker for marine CCS (Carbon Capture and Storage), marine weather forecast service, development of geostationary orbit ocean observation satellite, recovery of remaining oil in sinking vessel, development of Korean type oil fence, high efficiency hybrid floating bridge (ferry) development project, and high efficiency dredging and sand filling equipment development project.

Subsidies for fishery operations

The subsidies for fishing can be broadly divided into subsidies for fishing, subsidies for artificial reef and sea ranch, and subsidies for improving fishing techniques.

The detailed projects that are entitled to receive the support or subsidies from government are the subsidies for development of environment friendly fishing apparatus, fishing information service, development of Fishing complex town, fishing fair hosting project, survey of optimal site and its validity of artificial reef, sea forest, sea ranch, development of sea ranch, development of Sea forest, production and installation of artificial reef, development of artificial reef, development of production technology of live pollock, discharge of aquatic seedling, introduction of seedling discharge certification system, establishment of Integrated jellyfish control system based on intelligent robot, establishment of integrated fishery related information disclosure system based on big data, development of the device transceiving the location of fishing apparatus, and development of fish finder with fish species identifying capability.

Two examples of governmental subsidies

We examine the two cases of Korean governmental aids to fishery- related projects. One project was conducted by Yeosu Fishery Cooperative (Lee C and Choi SD. 2016) and the other was conducted by the city of Kwangyang (Lee C, et al., 2016). Yeosu Fishery Cooperative wanted to obtain the governmental funds for building an aquatic product processing and storing equipment, which was basically a freezing and refrigerating warehouse with ice-making plant. The city of Kwangyang wanted to obtain the governmental funds for building an aquatic product distribution center with fishery restaurants

Yeosu Fishery Cooperative's processing and storage facility of aquatic products

Yeosu Fishery Cooperative wanted to build an aquatic product processing and storing equipment, which was basically a freezing and refrigerating warehouse with ice-making plant. Yeosu Fishery Cooperative applied for government funds to construct a freezing and refrigerating warehouse. Regardless of the actual purpose or contents of the project, the title of the project should have been appropriate for receiving funds in order to receive the governmental funds.

In order to obtain the governmental funds, Yeosu Fishery Cooperative had to applied for the funds under the title of "Processing and Storage Facility of Aquatic Products". That was the official title of the program to which funds were allocated. After they obtained the funds under that official title, they could use the funds for building a freezing and refrigerating warehouse with ice-making plant. In order to obtain the government funds, they had to submit a feasibility test report of the project for which they wanted to obtain funds. It costed Yeosu Fisheries Cooperative 20 million Korean won,

which was affordable for the cooperative, but would be a considerable burden for individual applicants for fisheries subsidies.

Assumptions for feasibility test : Assumptions for feasibility test of freezing and refrigerating warehouse with ice-making plant were as follows. An investment amount was assumed to be 7.6 billion Korean won in 2016. The construction of the warehouse begins in 2017 and is completed in 2018. The operation of the warehouse begins in 2018 right after the construction is completed. The duration of operation is 30 years after the completion. The base year for the feasibility test is 2016. The social discount rate is 5.5% set by KDI (Korea Development Institute). The generally accepted social discount rate is the interest rate on public or national bond with 3 year maturity when the depreciation of the facility is considered. But the KDI suggests using a social discount rate of 5.5% without the use of depreciation of the facility. It is also assumed that there is no reduction in cost and revenue during the operation of the facility. Likewise, it is assumed that there is no change in price and operational manpower. The values of other benefits and costs are as represented in Table 1.

The result of feasibility test : Under these assumptions, the following feasibility test results were obtained as shown in Table 1. The estimate of benefits

Table 1. Present value of benefit and cost (Yeosu Fishery Cooperative, unit : million won)

Year	Sales	PV of benefits	Construction cost	Wage	Purchase cost	Utilities	Total cost	PV of total cost	Net present value
2016		-		-	-	-			
2017		-	7,600	-	-	-	7,600	7,204	-7,204
2018	1,065	957		50	277	19	346	311	646
2019	1,065	9077		50	277	19	346	295	612
2020	1,065	860		50	277	19	346	279	580
2021	1,065	815		50	277	19	346	265	550
2022	1,065	772		50	277	19	346	251	521
2023	1,065	732		50	277	19	346	238	494
2024	1,065	694		50	277	19	346	225	469
2025	1,065	658		50	277	19	346	214	444
2026	1,065	624		50	277	19	346	203	421
2027	1,065	591		50	277	19	346	192	399
2028	1,065	560		50	277	19	346	182	378
2029	1,065	531		50	277	19	346	173	358
2030	1,065	503		50	277	19	346	164	340
2031	1,065	477		50	277	19	346	155	322
2032	1,065	452		50	277	19	346	147	305
2033	1,065	429		50	277	19	346	139	289
2034	1,065	406		50	277	19	346	132	274
2035	1,065	385		50	277	19	346	125	260
2036	1,065	365		50	277	19	346	119	246
2037	1,065	346		50	277	19	346	112	234
2038	1,065	328		50	277	19	346	107	221
2039	1,065	311		50	277	19	346	101	210
2040	1,065	295		50	277	19	346	96	199
2041	1,065	279		50	277	19	346	91	189
2042	1,065	265		50	277	19	346	86	179
2043	1,065	251		50	277	19	346	82	169
2044	1,065	238		50	277	19	346	77	161
2045	1,065	225		50	277	19	346	73	152
2046	1,065	214		50	277	19	346	69	144
2047	1,065	203		50	277	19	346	66	137
Total		14,672						11,971	2,701

(the present value of sales) is 14.7 billion Korean won. It is assumed that the mackerel catching ships that had previously entered the port of Busan and sold the mackerel in the port of Busan will enter the port of Yeosu and are supposed to sell the mackerel through Yeosu Fishery Cooperative in Yeosu. And the sales revenues are obtained from the mackerel sold through Yeosu Fishery Cooperative in Yeosu. The estimate of cost (the present value of the cost) is 12.0 billion Korean won. The net present value is 2.7 billion Korean won, which is greater than 0. The B/C (Benefit/Cost) ratio is 1.23, which is greater than 1. The IRR (Internal Rate of Return) is 8.7%, which is larger than 5.5% of social discount rate. Judged from the above net present value, B/C ratio, and IRR, the project is worth of being carried out. Yeosu Fishery Cooperative eventually received a subsidy from the central government and is building an additional freezing warehouse next to the freezing warehouse that the Yeosu Fishery Cooperative originally owned.

Kwangyang city's Aquatic Product Distribution Center with Fishery Restaurants

Like other local governments, Kwangyang city was also pursuing the construction of an aquatic product distribution center with fishery restaurants. As of 2016, 4 Fisheries Products Processing & Marketing Centers were established in Jeju, Wando, Sokcho, and Gampo port. What Kwangyang city wanted was an aquatic product distribution center with fishery restaurants. Considering that Kwangyang city is famous for gizzard shad, Kwangyang city promoted the construction of a distribution center that symbolizes the model of gizzard shad.

In order to obtain the governmental funds, however, Kwangyang city had to applied for the funds under the title of "General Physical Distribution Center for Aquatic Products", even though it wanted to build an aquatic product distribution center with fishery restaurants. That was the official title of the project that is entitled to obtain the

subsidies. After they obtained the funds under that official title, they could use the funds for building an aquatic product distribution center with fishery restaurants. In order to obtain the funds, they had to submit a feasibility test report of the project. Like Yeosu Fishery Cooperative, Kwangyang city had to pay about 20 million won, which was affordable for the city. But that amount would be a considerable burden for individual applicants for fisheries subsidies.

Assumptions for feasibility test : An investment amount was assumed to be 17 billion Korean won in 2016. The construction of the warehouse begins in 2016 and is completed in 2018. The operation of the warehouse begins in 2019 right after the construction is completed. The duration of operation is 30 years after the completion. The base year for test is 2016. The social discount rate is 5.5% set by KDI. It is also assumed that there is no reduction in cost and revenue during the operation of the facility. Likewise, it is assumed that there is no change in price and no fluctuation in operational personnel. The values of other benefits and costs are as represented in Table 2.

The result of feasibility test : Under these assumptions, the following feasibility test results were obtained as shown in Table 2. The estimate of benefits (the present value of sales) is 204.5 billion Korean won. The estimate of cost (the present value of the cost) is 188.9 billion Korean won. The net present value is 15.6 billion Korean won, which is greater than 0. The B/C ratio is 1.08, which is greater than 1. The internal rate of return is 6.54%, which is larger than 5.5% of social discount rate. Judged from the above net present value, B/C ratio, and IRR, the project is worth of being carried out. Kwangyang city eventually obtained a subsidy from the central government and has coordinated the opinions of the parties concerned over the construction site as of 2017.

Table 2. Present value of benefit and cost (Kwangyang city, unit : million won)

Year	Sales	PV of benefits	Construction cost	Wage	Purchase cost	Utilities	Total cost	PV of total cost	Net present value
2016	-	-	2,600	-	-	-	2,600	2,600	-2,600
2017	-	-	10,000	-	-	-	10,000	9,479	-9,479
2018	-	-	4,400	-	-	-	4,400	3,953	-3,953
2019	15,658	13,335		1,080	10,961	1,199	13,239	11,275	2,060
2020	15,658	12,639		1,080	10,961	1,199	13,239	10,687	1,952
2021	15,658	11,980		1,080	10,961	1,199	13,239	10,130	1,851
2022	15,658	11,356		1,080	10,961	1,199	13,239	9,602	1,754
2023	15,658	10,764		1,080	10,961	1,199	13,239	9,101	1,663
2024	15,658	10,203		1,080	10,961	1,199	13,239	8,627	1,576
2025	15,658	9,671		1,080	10,961	1,199	13,239	8,177	1,494
2026	15,658	9,167		1,080	10,961	1,199	13,239	7,751	1,416
2027	15,658	8,689		1,080	10,961	1,199	13,239	7,347	1,342
2028	15,658	8,236		1,080	10,961	1,199	13,239	6,964	1,272
2029	15,658	7,806		1,080	10,961	1,199	13,239	6,601	1,206
2030	15,658	7,399		1,080	10,961	1,199	13,239	6,257	1,143
2031	15,658	7,014		1,080	10,961	1,199	13,239	5,930	1,083
2032	15,658	6,648		1,080	10,961	1,199	13,239	5,621	1,027
2033	15,658	6,302		1,080	10,961	1,199	13,239	5,328	973
2034	15,658	5,973		1,080	10,961	1,199	13,239	5,050	923
2035	15,658	5,662		1,080	10,961	1,199	13,239	4,787	875
2036	15,658	5,366		1,080	10,961	1,199	13,239	4,538	829
2037	15,658	5,087		1,080	10,961	1,199	13,239	4,301	786
2038	15,658	4,822		1,080	10,961	1,199	13,239	4,077	745
2039	15,658	4,570		1,080	10,961	1,199	13,239	3,864	706
2040	15,658	4,332		1,080	10,961	1,199	13,239	3,663	669
2041	15,658	4,106		1,080	10,961	1,199	13,239	3,472	634
2042	15,658	3,892		1,080	10,961	1,199	13,239	3,291	601
2043	15,658	3,689		1,080	10,961	1,199	13,239	3,119	570
2044	15,658	3,497		1,080	10,961	1,199	13,239	2,957	540
2045	15,658	3,314		1,080	10,961	1,199	13,239	2,803	512
2046	15,658	3,142		1,080	10,961	1,199	13,239	2,656	485
2047	15,658	2,978		1,080	10,961	1,199	13,239	2,518	460
2047	15,658	2,823		1,080	10,961	1,199	13,239	2,387	436
Total		204,460						188,910	15,550

Results and Discussion

In order to ensure that the subsidies system for fisheries works smoothly, we indicate some problems that may arise in the process of application and screening regarding the fisheries subsidies and suggest some remedies. We also propose some countermeasures for the fortifying international regulations for the fisheries subsidies.

Decreasing the burden of feasibility test report cost

In the application process for obtaining governmental subsidy for fishery, applicants are requested to submit their applications with a report on economic feasibility test, which costs a lot for an individual applicant. It costs around two thousand million or four thousand million won to prepare a feasibility test report. Organizational applicants can afford that amount of money. But individual applicants with poor fund may not afford that amount and preparing a feasibility test report. Accordingly, individual applicants will have less chance to obtain the subsidies from the government. In order to help the individual applicants who cannot afford a feasibility report because of economic burden, it will be necessary to have a system to reimburse the cost of

preparing an economic feasibility report for the individual applicants with poor funds. Another alternative is to entrust public research agencies under the government supervision with an economic feasibility analysis. This has advantages in two respects. One advantage is that it can reduce the cost of preparing an economic feasibility report for the individual applicants with poor funds. A second advantage is that it can prevent the applicants from exaggerating the economic justification for receiving the subsidy in the application process. Applicants will usually hire professionals in order to maximize the economic feasibility of their projects. Experts writing the feasibility report may increase or decrease the economic feasibility by adjusting the variables used in feasibility analysis, which means that the economic feasibility might be biased. If economic feasibility analysis is performed by public research agencies under the government supervision, it will be easy to obtain objectivity without any concerns.

Securing the fairness in screening process

There is excessive competition because of many applicants for the subsidies for fisheries. In particular, if there is a limit to financial resources and there is a strong competition for subsidies among regions, there is a high possibility that lobbying will be conducted to influence the selection of the recipient project. But the public research institutes under the supervision of government is influenced by lobbying activity from some regions, which was believed by some losing local governments, then the fairness of screening process will be questioned. Thus securing the objectiveness is essential for the success of governmental subsidies program for fishery.

Adequate designation of fisheries subsidies

Since the WTO and Doha negotiations have not yet been finalized, no subsidy is currently designated as a prohibited subsidy. However, as negotiations progress over time and the currently proposed prohibited subsidies can be designated as prohibited subsidies. Thus, the government should prepare some countermeasures to prevent its currently used subsidies from being designated as prohibited subsidies. Currently, the prohibited subsidies are not designated yet due to the oppositions by the countries like Korea, Japan, and Taiwan. The subsidies for the construction and repair of ships, the transfer of fishing vessels to third country, operation costs (costs for fuel, bait, labor, and insurance, etc.), port infrastructure and nearby processing facilities, price compensation for fisheries, income compensation for fishery workers, fishing permit fee, and subsidies for illegal fishing are supposed to be designated as prohibited subsidies.

In Korea, some of the aforementioned subsidies that can be designated as prohibited subsidies are being granted. They are subsidies related to shipbuilding and repair, fuel, port infrastructure and nearby processing facilities. The Korean government will have to make a lot of effort to ensure that such subsidies granted by itself are not classified and designated as prohibited subsidies in the WTO and Doha negotiations.

Regarding the global regulation of fisheries subsidies that are being strengthened gradually, two types of countermeasures can be considered. One is to designate the subsidy in a way that fisheries subsidies that the government intends to implement or enforce are not in violation of international norms or regulations. The other is to cooperate with the countries that are in the same position with Korea, so that the international regulation of fisheries subsidies can be made advantageous for countries that share the common interest with Korea. As the past case shows, however, this method is not a sure way because other countries can change their position at any time for the benefit of their own country. There is also a cost to look at changes in other countries' positions and to cope with them.

From this point of view, reforming the domestic fisheries subsidy system can be seen as a better countermeasure, and subsidy reforms should be made

with the following points considered. In the case of prohibited or harmful subsidies designated globally, the government should admit the subsidies and had better legislate against such prohibited subsidies unless the government intends to ignore the international norm or regulations. The subsidy that we should respond to carefully is the actionable subsidies. If the importing countries take actions by imposing the countervailing tariffs in order to counteract the subsidies, the competitiveness of the fisheries products that receive the subsidies will disappear and the subsidies will lose their purpose of promoting fisheries. Therefore, it is recommended that no subsidy shall be granted to at least for export items, and rather to fisheries products for domestic use. In other words, a reformed system of fisheries subsidies should be prepared in such a way that actionable subsidies should not be given for fisheries products that can be exported and should be given only for fisheries products for domestic use, if necessary.

In the case of non-actionable or beneficial subsidies, such subsidies are mainly allowed for promotion of public-sector research and development, regional development, and adaptation to new environmental regulations. Thus non-actionable subsidies should be designated in the consideration of these allowances. In other words, it is necessary to utilize R&D subsidies to increase the potential value of fisheries productivity and fisheries. And also the subsidies can be designated in such a way as to improve the basic productivity of fisheries through the development of fishing villages and improvement of the fishing village environment.

The subsidies for environmental improvement should be designated and used efficiently in order to improve the environment of fisheries and coastal waters and then to improve the basic productivity of fisheries. For this purpose, we need to classify the subsidy projects currently being carried out in the fisheries sector according to the location of the project, the phase in which the production or processing of the project is being implemented, the types of fisheries, or the industrial classification, and then examine the compatibility of the subsidies given to those projects with the non-actionable subsidies allowed by the international organizations such as WTO or the international norms. After that, we need to designate or establish fisheries subsidies in a way that the fisheries subsidies receive the least regulations.

Furthermore, the argument is also considered in designating the fisheries subsidies that non-actionable or beneficial subsidies can be categorized as ambiguous subsidies depending on their positive impact on stock enhancement or sustainability, or negative impact on overexploitation and that capacity enhancing fisheries and subsidies for IUU (Illegal, Unreported, and Unregulated) fishing should be prohibited.

Some of the studies show the similar results, but from the different point of view. We introduce three of these studies. One study suggested the improvement measures regarding the tax-aid system for fisheries under the WTO regimes in Korea. This study pointed out the problem of discordance in the new international standards affecting the fisheries' taxation, disharmony in the current change of circumstances surrounding the fisheries and fishing industry, and the disproportion between the fisheries industry and other industries. It also carried out an institutional analysis of the existing regulations of the tax law. Investigating the above mentioned problems, the study proposed major tasks that urgently need to be improved among the tax system of the fisheries sector, which should be improved in order to enhance the competitiveness of the fishery industry and to sustain public interest (Joo et al., 2007).

Another study analyzed the effects of fisheries subsidies on Korea's fisheries industry if the WTO DDA negotiations were concluded. Then the study suggested the improvement measure for the tax-free oil support system, which is the biggest problem in fisheries subsidies negotiations. It also suggested the revision of fisheries subsidies including the reduction of the share of tax-free oil, the differentiated support for commercial

fisheries and artisanal fisheries, the establishment of a comprehensive fund for fisheries, and the strategic operation of fisheries business projects selected from a fisheries policy standpoint (Lee et al., 2011).

The other study analyzed the DDA fisheries subsidies negotiations focusing on the Agreement based on the Draft Consolidated Chair Texts of the Antidumping and Subsidy and Countervailing Measures (AD and SCM) circulated in 2007. The study pointed out the shortcomings of the Draft text. The Draft seems to be in conflict with the ASCM (Agreement on Subsidies and Countervailing Measures) on the basic concept of subsidies, does not provide any clear guidance on interpreting harm(injury) and determining causal link between subsidies and harm, and is not written coherently with the ASCM as well as other WTO Agreements such as the DSU (Dispute Settlement Understanding). There is no guarantee that the Draft text could be properly implemented for the conservation of fisheries stocks even if it was adopted by consensus of the WTO members. Besides, the Draft text does not seem to meet the requirement of the Doha mandate (Cho, 2012).

Unlike other studies mentioned above, this study points out what subsidies should be provided in accordance with such international norms in the situation that regulations on fisheries subsidies are strengthened, and suggests ways to overcome the problems raised when the potential recipients apply for fisheries subsidies in Korea. The significance of this study can be found in these respects.

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