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First Publishing • © November 2017, Ankara, TURKEY
ISBN • 978-605-288-062-3
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Gece Publishing

Adress: Korkut Reis Mh. Yeşilırmak Cd. 10 / B 06570
Demirtepe Çankaya, ANKARA, TURKEY
Phone: 00 312 384 80 40

web: www.gecekitapligi.com
e-mail: gecekitapligi@gmail.com



Printed in Turkey by
BILOFSET
Tesviyeci Cad. No: 7/5
06070 İskitler, Ankara,
TURKEY
Certificate Number: 23261

CHAPTER 282

A NEW APPROACH TO THE PREVENTION OF POLLUTION IN THE BLACK SEA: REGIONAL PUBLIC GOODS

Arman Zafer YALCIN

INTRODUCTION

One of the most fundamental tasks of modern nation states is to be able to present public services in accordance with the citizens' expectations in the light of public opinion (Sezer and Vural, 2010: 204). Globalization and regionalization processes, which gained importance in the 1990s, require the definition and functions of some public goods and services offered by modern nation states to be reconsidered at regional and global levels from the national levels (Çelebi and Yalçın, 2008: 1). The main reason for public goods and services to be handled again with regard to their definition and functions both at the global and regional levels is because goods and services in the benefit of humanity such as environment, health, security, poverty, and knowledge change dimension and quality by the influence of globalization. For example, the environmental problems have become a problem that involves mutual dependence between countries. Naturally, policies that exceed the borders of countries and that try to resolve the regional and global environmental problems need to be redesigned at supranational level (Yalçın, 2009: 288).

The study, by its editing, focuses on the goal of preventing pollution in the Black Sea. Today, as one of the world's largest inland seas, the Black Sea faces an extreme threat of pollution. The Black Sea, which is pointed out as the sea in the worst condition in the world in terms of environmental pollution and ecological deterioration, has a drainage basin reaching to five times its size, including the Sea of Azov. Apart from the Danube Basin, which covers a third of the continental Europe, the Black Sea, with its large river basins, such as the Dinyester, Dinyeper, Don, and Kuban where nearly thirty rivers disembugue concerns 22 states, 13 capitals hundred and 160 million people (BSTDA, 1997: 4). The enormous environmental problem in the Black Sea and the extensity of the population and geographical area affected by this environmental problem result that no state which is the subject of this problem can solve this problem on its own. Even though the dimension of the pollution in the Black Sea was understood in 1990s and the countries of the region came together and took a step concertedly aimed at the solution of the problem, in the process up to today, the dimensions of the pollution in the Black Sea have continued to expand gradually.

The fact that the pollution in the Black Sea has gained an international dimension by exceeding the nation-state dimension requires the solution of this problem to come from an international point of view. At the same time, the solution of the problem needs to include a multidimensional perspective including political, financial, legal and technical aspects. From this point of view, developments in the theory of public goods within the discipline of public finance in the recent years have the qualities to present a different perspective to the practitioners regarding the prevention of Black Sea pollution. In this sense, the main aim of this study is to try to present the necessity of the production of pollution prevention services and the conditions of efficiency in the Black Sea with public finance vehicles via examining the effort of clearing of the polluted Black Sea and of making the ecological life around it sustainable from the perspective of public finance and it to be handled as a regional public good. In this framework, first of all, the concept of regional public goods will be discussed at the theoretical level, then the pollution in the Black Sea will be handled in a multidimensional way with its causes and consequences and in the last part, it will be discussed to which extent the regional countries fulfill the political and fiscal regulatory functions required by regional public goods and what kind of a political and financial cooperation environment is needed to be provided from the perspective of regional public goods.

THE CONCEPT OF REGIONAL PUBLIC GOODS

It is possible to classify public goods according to the area in which the benefit is generated. According to this, if the benefit of the produced public goods is within the borders of the nation-state, it is referred to as "national public goods" and if the benefit is spread to a smaller unit or locality within the country, it is referred to as "local public goods". The resulting benefit is the "regional public good" when it is acquired by the people of countries with adjacent borders (Ortac, 2004: 13). Regional public goods represent a class of public goods located between national and global public goods in terms of the overflow areas of the utilities they provide (Arce and Sandler, 2002: 8).

In the explanation of regional public goods, being located between national and global geographical boundaries firstly requires the concept of region to be set forth transparently. Even though the region shows a geographical unit, a geographical area which covers more than one country in the definition of regional public goods is regarded as a region. In this sense, the region represents a subset of the

global system. A region can be based on geologically (e.g coastal strip), geographically (e.g continental) or politically (socialist country block) area. Regional political areas (EU, MERCOSUR and NAFTA, etc.) emerge as the outcome of preferential economic agreements. Such associations or integrations are essential in determining the extent to which the externalities of regional public goods are spread. The fact that those who are not members cannot benefit from the regional public goods constitutes one of the main political problems of regional public goods. The geological structures (mountain, river, sea, etc.) of the region determine the spillover range of the benefits of regional public goods (Arce and Sandler, 2002: 12-13).

According to Wolrad (2007), regional public goods are goods, services, rules and political regimes that are dominated by public property, produced by the common actions of neighboring countries in a given geographical area and which also share neighboring interests in the same geographical area. Highways, common markets, defense contracts, cable networks carry the character of regional public goods. Morrissey, Willem, and Te Welde (2001) define regional public goods as public benefits arising from countries with adjacent borders. Ferroni (2001: 1) separates regional public goods in three groups;

- **Non-Country Based Regional Public Sector:** It involves investments in information, education, and regional dialogue, as well as meetings conducted for negotiations to establish common political systems and standards.

- **International Mechanisms:** These types of regional public goods provide the management of negative cross-border externalities or coordination of public health measures to prevent the spread of disease along the borders. This includes the creation of regional institutions that will facilitate a wide range of solutions from the financial stability in the region to the creation of sustainable environmental policies.

- **Country Specific Policies:** In accordance with the two aforementioned items, it includes activities to bring out positive externalities advantages. This serves to improve governance and institutional representation or to bring out public goods. It also has an effect to decrease the cross-border negative externalities that spread from one country to another.

The first two of the three types of regional public goods listed above are referred to as “core activities” whereas the country-specific policies are considered “complementary activities”. Core activities aim to produce regional public goods while complementary activities have the triggering characteristic for core activities. Exactly like the global public goods, the difference between the core activities and complementary activities have many important results in the production and the finance of regional public goods (Çelebi ve Yalçın, 2008: 8). Arce and Sandler (2002:11-14), via benefiting from the classical public goods and services classification, created a quadrant regional public goods classification;

- **Regional Full Public Goods:** In classical public goods theory, for a public good to be qualified as full public good, it must have two basic characteristics. These are that there is no competition in benefit and cannot be excluded from benefit. These two basic characteristics, if collected in a public good of regional nature, gain regional full public property in this case.

- **Regional Semi-Public Sector:** The existence of partial competition in the consumption of a public good or service and the mention of exclusion of those who do not contribute, it gains the feature of semi-public goods and services. For instance, immunization activities and pest control at the regional level are semi-public goods and services. This is as it is possible that the beneficiary of the service can be excluded from the benefit of the activity in the case it does not contribute.

- **Regional Club Goods:** Goods the benefits of which can be divided and which can be reserved for a group against remuneration are defined as club goods. With the idea that due to overuse, the expected activity will not be realized from the public good, those who do not pay the entrance fee can be excluded from the use of the public good. The use of the national parks at the regional level, the regional major airports and the energy transmission lines are considered as regional club goods.

- **Regional Joint Products:** According to the degree of publicness, goods that produce two or more products at the same time are called common products. In other words, they are the activities that change in terms of publicity degrees and that provide fund for multi-production. Reduction of acid rain at the regional scale has the characteristics of a regional joint product.

Production of Regional Public Goods

Demand for public goods and services at the regional level to prevent external environmental costs arises as a result of excessive use of natural common goods and most of the time, the demand arises after there are negative effects on the human health and on the environment. In this case, it is very difficult to bring the regional service production to the pre-use state of the regional joint goods. The regional common goods can often lead to irreversible disasters, such as disappearance of biodiversity.

Because the public goods preferences cannot be explained at the national level, there are problems of information and makes the situation hard to detect. In global and regional public goods and services, to this situation, the problem of expansion of the benefit produced with the public service supply to many countries' borders of sovereignty is also added. In this case, the institutions and policies which decide the production amount of public goods to be produced and the type of finance require the collaboration between the relevant countries (Balseven, 2008: 67-68).

In the theoretical examination of the production of regional public goods, Samuelson's "Optimal Presentation Principle" and "Subsidiarity Principle" methods developed by Olson are used for national public goods in public goods theory. According to Samuelson's optimal presentation principle, optimal allocation of resources is ensured at the point where each individual's marginal payment power equals the cost of marginal presentation of this product. However, how to encourage people to explain their preferences and how to measure the power of payment are still uncertain (Kaul and Mendoza, 2003: 92).

The assignation of the ability to pay with regard to regional public goods and the reveal of the preferences show a difference from both the national and global public goods. While there are different mechanisms for determining preference and ability to pay at the national level, demand for different products is different at different times due to the fact that countries face different negative externalities in global public goods, which makes the production process of public goods quite complicated. On the other hand, the optimal presentation in the regional public goods has a different characteristic than the national public goods. While it is an important problem in regional public goods that there is no central authority to provide the financing on its own as there is in global public goods, the production process in regional public goods starts with a strong cooperation and there is a more concrete harmonization process between the countries compared to the global level (Çelebi and Yalçın, 2008: 10).

According to Olson's principle of location, the benefits presented from the public goods offered must be matched to the jurisdiction of the unit that will provide the service. This way, the participation of those who are affected by the externality of the goods will be ensured. Hereunder, the regional public goods must be presented at the local level whereas the universal public goods must be presented at the global level. For instance, it would be more appropriate to offer this service by the African Development Bank instead of the World Bank in the case of the existence of externalities in the African continent or in a small region of the continent (Anand, 2002: 11). If the other factors are not taken into consideration, the institutions ruling the externalities beyond borders must be created near to the area where externalities take place. For instance, in the case of negative externalities originating from the Nile River, by the legitimacy principle, the service needs to be produced via establishing unity only where the river exceeds. Here, there is no need for a global institution. However, the establishment of many institutions like this and the making of many agreements increase the operation cost. At the point of benefiting from the scale economies, the establishment of a single union for regional problems is rational. In the cases where interregional or global issues emerge, then the global institutions need to be created. However, subsidiarity causes to the emergence of more organizations than needed and the increased transaction costs (Sandler, 1998: 243).

Production Methods of Regional Public Goods

The methods developed at the theoretical level for the production of regional public goods are discussed together with the methods used in the production of global public goods (Sandler, 1998: 224). Production technologies have a structure that determines how to produce different types of global and regional public goods with different characteristics and what international activity is needed for the production (Çelebi and Yalçın, 2008: 11). Despite the large number of production techniques available, four major production techniques suitable for international development and cooperation (Arce and Sandler, 2001) will be addressed;

- **Collection Technique:** Total regional production of public goods equals the sum of the contributions of all participants for the goods. The contribution made by any actor has the same amount of influence on the production of regional public goods. There might take place the problem of collaboration in the regional public goods that are produced with the collection technique. The reason for this is that the countries have a completely free rider attitude. Besides, if the benefit of an international community from regional public goods is high at the expense of having to endure for production, that country fails to cooperate. All of these behaviors lead to financial uncertainties and the inability of regional cooperation to lead to inadequate production of regional public goods (Stalgen, 2000: 15).

- **Weighted Collection Technique:** In this production technique, the amount of production of regional public goods is equal to the sum of the weighted proportions of each country's contribution. In the case that the special benefit provided to a specific country by the regional public good is not

big enough that the relevant country needs to contribute more the production of this good can be pointed out as the most important feature of this technique. This production technique is stated as the most appropriate method for presentation of regional public goods. For instance, as it benefits the relevant country more, the abatement of emissions of sulfur that because acid rain will require more effort compared to the countries in the region to reduce sulfur emissions (Stalgen, 2000: 17).

-The Best Shot Technique: The production technique, in which the total amount of production of regional public goods determines the amount of contribution of the actor making the most contribution to this product, is called the best shot technique. On the contrary to the collection technique, what an actor does cannot be substituted for the others. Provided that the related production of the regional public good is provided in accordance with this techniques, the other operations the other actors will have will either provide either no or little benefit. There is only need for one actor for the best shot technique for regional public goods (Arce and Sandler, 2002: 25). In this method, the actor who will realize the production can be a solitary region country as well as an institution established at the regional level. For this reason, for regional public good to be produced in accordance with this technique, there needs a regional collaboration mechanism.

- The Weakest Link Technique: The aforementioned technique refers to the situation where the total amount of production of regional public goods equals to the production amount of this contributing country. That is to say, the country that provides the least contribution to the production is the weakest link and determines the total amount of production. As an example of the weakest link technique at the regional level, efforts can be made to prevent the spread of harmful insects and to monitor the danger of epidemics in infectious diseases (Arce and Sandler, 2002: 24).

Table 1. The Classification of Regional Public Goods According To Different Presentation Techniques.

Collection Technique	Pure Public	Pure Non-Public	Club	Joint Product
Collection Technique: the full level of public goods equals to the sum of country contributions	- Limitation of Air Pollution - Desertification	- Provision of Public Health Sub-structure - Market Boards for Commercial Products	- Satellite Communication Network - Regional Natural Parks	- Blocking Through Peace-Power - Protection of rain forests
Weighted Collection Technique: each amylin additive may have a different effect on the overall level	- Reduction of Environmental Pollutants - Limit the spread of AIDS	- Limiting the Flow of Pollution - Blocking the Acid Rain	- Free Trade Agreements - Energy Transmission Lines network	- Removing the Threat of Terrorism - Removing the Threats of Revolution
Weakest Link Technique: the smallest effort determines the level of public good	- Limitation of the Spread of Hazardous - Labor Standards	- Supervision of a Disease Outbreak - Drug Ban	- Transport Network - Basel Compatibility Between G-8	- Family Planning - Security Intelligence
Best Shot Technique: The greatest effort determines the level of public good	- Remedy for orphan diseases - Monitoring Technologies	- Agricultural Research Findings - Genetically Modified Products	- Crisis Management Team - Satellite launch pad	- Suppression of a Flaming Blaster by a Peacekeeping Force - Reporting of Biodiversity

Source: Arce and Sandler, 2002: 21.

Obligation to Financing and Cooperation of Regional Public Services

There are four different types of financing in the financing of regional public goods. These are public resources, private resources, user payments and partnership resources. Among the four different types of financing mentioned, the regional sources have a very important share. Among the regional sources, the significance of the loans and grants are pretty high. The core activities in the regional dimension are usually financed through a grant, while complementary activities are financed through loans. The reason for financing core activities through grants is because the free use of core activities is more appropriate (Ferroni, 2001: 2).

Regional development banks have an essential role in the presentation and financing of regional public goods. For example, the African Development Bank (AFDB) supports key areas such as trade, energy, international transport, health and fighting poverty at the regional level in Africa. For that

purpose, it established the New Partnership Initiative for Africa's Development (NEPAD) in the 1990s. Through NEPAD, the bank provides financing support to projects that will support development purposes all over the region, thus playing an important role in the presentation of regional public goods (Ferroni, 2002: 9). It is important to state that the other regional development banks established around the world have an important role in the presentation of regional public goods. The Latin American and Caribbean Development Bank (IADB), the Asian Development Bank (ADB), which covers South America and the Caribbean, plays an important role in the development of regional cooperation and in the presentation of regional public goods in the regions where it is established.

Today, there is an agreement on the necessity of a new understanding where the national sovereignty has become open to question and where this concept is questioned and where international cooperation is integrated with the concept of solidarity. Especially, there is a need for solid cooperation on solidarity in order for poverty struggles and common environmental policies to be managed with a new understanding, taking the sustainable development objective into account. It would be helpful to benefit from the advantages provided by the regional cooperation in order to make the activities coherent and integrated on the global level with the regulations conducted on the national level (Ferroni, 2001: 3).

That the problems the countries have faced during the process of globalization have exceeded the limit the countries can overcome brought up the global cooperation. However, due to the nature of some problems, it is inevitable to cooperate at the regional dimension, which is a sub-system of the global dimension, which transcends the nation state dimension but needs to be addressed on a smaller, global basis.

The cooperation among the local, regional and global institutions are the prominent aspect which goes by the cooperation among countries in the production of regional public goods and finance. The aforementioned aspect is the 'global governance' field. Governments' sharing their decision-making powers with the other actors inside the aforesaid cooperation network indicates an open and participatory process at national and international level. Inside the global governance, especially the broad attendance of the people is supported. One reason for this is that the devices which can control the environmental negativities can become ineffective with the reaction of the people in the opposite direction (Brunch, 2005:15; Balseven, 2008: 73).

In the model of global governance the globalization process brings, the governments have fewer devices to play an active role in the protection of the environment. Nonetheless, governments still remain in a decisive and privileged position to monitor and enforce specific legislative arrangements to address negative externalities. In spite of all the hindrances, in the production of regional public goods, governments need to play an essential role in providing broad-based public participation that will maximize social utility, as well as in generating national services that will support the functioning of the system. As a result, while nation-states formerly served only at the national level, they now have to consider the multi-actor and multi-dimensional governance (Balseven, 2008: 76).

In the following chapter of the study, the dimensions, and causes of pollution in the Black Sea which is a subject to the implementation of regional public goods and the topic of how the aforementioned pollution problem can be solved from the perspective of regional cooperation and regional public goods will be analyzed.

POLLUTION IN THE BLACK SEA: ITS REASONS, RESULTS AND REGIONAL COOPERATION MECHANISM

The Black Sea which is considered as the regional sea in the worst condition in terms of environmental pollution and ecological deterioration in the world is surrounded by six countries including Turkey, Bulgaria, Romania, Ukraine, Russia, and Georgia, including the Azov Sea. It is a semi-enclosed sea with a 2,405,000 km² basin tied with its throat (Güneş, 2001: 60). The Black Sea has a drainage basin that reaches five times its size. The major environmental problems in the Black Sea, to where the Dnieper, Dniester and Cuban River disembogue besides the Duna River are concerning not only for the six countries that have a coast to it but also twenty countries, thirteen capitals, and around hundred sixty million people.

The main feature that distinguishes the Black Sea from other seas is its two-layer structure. The top layer is a layer descending to a depth of 150-200 meters and giving life to the Black Sea. All the vital activities in the Black Sea such as biodiversity, fishing, transportation, and tourism are nourished from this plateau. It is a marine area that creates about 90% of the Black Sea and about 2000 meters thick, oxygen-free, rich in hydrogen sulfide and dead in terms of life.

However, the formation of hydrogen sulfide in this bottom layer and accordingly the end of life in this layer is not a new phenomenon. On the contrary, it is based on a process of hundreds of years.

Therefore, the dead life on the lower layer is not connected to the environmental pollution but the result of a completely natural process.

In the Black Sea basin where there appear to be six countries with a coast, a total of twenty-two countries discharge all of their industrial and domestic waste. In the North, the industrial waste from Russia's major industrial regions discharged to the Dnieper, Dniester and Cuban River and in the South, Sakarya, Yeşilirmak, Kızılırmak and Çoruh Rivers with very broad drainage basins which get increasingly polluted carry toxic substances to the Black Sea to a large extent. On the other hand, in the West, the Danube River which collects almost all of the industrial and domestic waste of Central and Eastern Europe carries a considerable amount of terrestrial pollutants to the Black Sea (Mater, 1995: 506-507).

One of the most important pollution sources of the Black Sea is oil transportation. The Black Sea is the most important transportation source for oil and petroleum products to the world market from Russia and Caucasus.

This is the most important reason for the pollution caused by sea transportation. Pollution resulting from oil transport is multidimensional and not only limited to the Black Sea. All aqueducts in which oil transportation is conducted face the threat of extreme pollution and the destruction of natural life. However, due to the fact that the Black Sea is an almost enclosed inland sea and has unique characteristics, the pollution from transportation needs to be handled separately from other pollutant sources. As transporting oil and its derivatives to the world market requires not only economic and commercial aspects but also geostrategic aspects.

Especially the fact that riparian states ignore the environmental problems derived from the Black sea for long time has caused the environment problems to become more dramatic in time and only in the last thirty years, the Black Sea has become a grand dump for poisonous wastes such as phosphorus, oil, mercury, nuclear waste of more than 160 million people, and a sewage pit, literally for a third of Europe. With the effect of being left alone for a long time, the Black Sea has had an ecological depression and is mentioned in the category of 'seas that are almost dying' along with Aral and the Caspian Sea. Coastal pollution has disrupted the nutrient balance in the Black Sea, causing fish and other sea creatures to either decrease or disappear. The dams made above the rivers in the northern and southern parts of the Black Sea, the change of the water beds for these dams or irrigation have decreased the amount and the quality of the water amount these rivers used to carry and as a result of these, the erosions have emerged on the coasts. Due to the reasons such as rapid economic growth, migration and unplanned urbanization, the introduction of the plains of the Black Sea coast to the extinction process brings the problem of natural buffer zones between the Black Sea and the polluted rivers (Gençkaya, 1995: 230).

The environmental regime created to fight against the environmental problems faced by the Black Sea has been the subject of three major international legal regulations. This regime established in 1992 among the states with coasts to the Black Sea, establishing its basic characteristics with the Bucharest Convention and its basic characteristics with the additional protocols, in the meeting realized by the ministerial level in 1993 in Odessa led by GEF (Global Environmental Facility) was shaped by the Odessa Declaration and with the acceptance of The Black Sea was shaped by the adoption of the Strategic Action Plan in 1996 in İstanbul. In the Bucharest Convention and its protocols, general rules are laid down for the liberation and protection of the Black Sea environment; however, no priorities have been identified and no action plans have been adopted in order to achieve the purpose of these rules (Güneş, 2001: 66).

Decision numbered 2, adopted at the Bucharest Convention oversees the cooperation between the states parties to the Bucharest Convention and those in the Danube basin. While this decision is not an international agreement, it is still an important legal document under the influence of international law. According to this document, the rivers disembarked into the Black Sea are the main source of pollution for the Black Sea region. In order for a contract to be made to fix the ecological conditions of the Danube which is the one that expands to the widest basin, the countries in the basin of the Danube and state parties of the Bucharest contract must be in cooperation (Güneş, 2001: 67).

The general policy of the Black Sea countries on the protection and use of Black Sea resources has been expressed in the Declaration of Odessa. This document was signed on 7 April 1993 by the Minister of the Environment of Bulgaria, Georgia, Russia, Romania, Turkey and Ukraine in Odessa, Ukraine. This declaration is organized in a justified way on the basis of the actions necessary to unite the efforts of all sections of society in order to protect the environment of the Black Sea. Also, this declaration improves and makes the ideas expressed in the Bucharest Convention concrete. Mostly, on the basis of this subject, under the patronage of the GEF, the "Black Sea Environment Program" was laid to support the governments of the Black Sea countries in fulfilling the contract conditions for 1993-1996 (Ökmen, 2011: 179).

The Black Sea Environmental Program recognizes the effective structure of non-governmental organizations in the context of increasing awareness and mobilization of the public, impact-driven activities, and emphasis on local and national interests and aims to encourage the relevant organizations' programs conducting effective research about the Black Sea deterioration to be adopted (Goyet, 1995: 27-28, Ökmen, 2011: 180).

Another important step of the regional cooperation process starting in the 1990s to prevent the pollution in the Black Sea and to protect the natural environment is The Black Sea Economic Cooperation Organization (KEİB). In the early years of the 1990s, when the Cold War was ending in the world, the Black Sea established a mechanism for regional, cooperative, political, economic and commercial cooperation not only in terms of environmental problems but in a broader context. As a result of efforts initiated under the leadership of Turkey, the Black Sea Economic Cooperation Area was established in Istanbul in 1992. At the summit meeting held in Yalta, Russia, in 1998, as a result of the adoption of the Treaty of Establishment of the Organization of the KEİB, the KEİB has become a regional economic cooperation organization with an international legal entity (Güneş, 2001: 59).

The partner states of KEİB have agreed to cooperate in taking the necessary measures to promote conservation and improvement of the Black Sea environment and conservation, development and operation of this marine biological potential, to encourage the development of common projects, and a special study group has been established in this respect. In the meetings conducted by this study group between 1993-199, the principles for the problems of the Black Sea and their solutions, for the partner states of KEİB to cooperate and implementation of various projects were determined, the decisions were taken, the declarations were adopted however despite all the efforts, within the framework of KEİB, there has been not much visible improvement for the protection of the Black Sea region and improvement (Güneş, 2001: 59-60).

It is possible to say that the efforts of regional cooperation for reducing pollution and improving the pollution in the Black Sea accelerated mainly from the beginning of the 1990s and from the beginning of 2000s these cooperation efforts have gradually gone off. At the beginning of the 1990s, the Soviet bloc's dissolution and the end of the Cold War era, the states having a coast to the Black Sea began to open up to the Western block where they were economically and socially away. In this process, naturally, there was a proper cooperation environment for the Black Sea which had been polluted uncontrollably until the beginning of the 1990s. Nonetheless, in the 2000s, especially the policies of Russia about being a hegemonic power in the region caused the efforts to fight against the environmental pollution to fail. The war Russia started against Georgia in 2000, the hot war Russia had with Ukraine in 2014 and later invasion of Crimea by Russia both increased the political tension and changed the economic and political balances throughout the region.

Besides the political instability and hot clash experienced in the region, the effectiveness of the Black Sea environmental regime, settled in the 1990s, is also highly controversial. Likewise, both the Bucharest Convention and the Black Sea Environmental Program are quite unsuccessful in terms of content and implementation results. It is possible to say this failure has two reasons; the first is that even though there are declarations of will and statements about the necessity of the cooperation, the legal texts created are extremely inadequate to be able to get concrete action and to receive results. The second reason is that the financial aspect of the regional co-operation mechanism trying to be established has been neglected. The issue of how it would be financed and by who has been pending. This regional cooperation mechanism trying to be established without creating a solid financial framework, even though it realized some concrete projects in order to prevent the pollution in the Black Sea, the increasing level of pollution and accordingly the deterioration of the natural balance show that we are way behind the what is aimed.

REGIONAL PUBLIC GOODS AND POLLUTION IN BLACK SEA

If a benefit resulted from the presentation of a public good and service is obtained by the people of countries that are border-bound or living in a particular territory, then this public good or service is considered to be a regional public good (Balseven, 2008: 77). In this sense, the scavenging of the pollution in the Black Sea and the created environmental regime are the examples of the regional good. As mentioned earlier, efforts to reduce the level of pollution in the Black Sea and to protect this sea have been regulated by regional agreements. Aforementioned agreements mostly emphasize the pollution in the Black Sea and state the importance of the multidimensional cooperation between the countries of the region in order to prevent this pollution. However, as mentioned earlier, even though the agreements are seen as binding for countries in terms of international law, it is seen that detailed action plans for the necessary activities in the environmental regime of the Black Sea, established through agreements, and important factors such as the ways in which such services will be financed are ignored.

The Bucharest Convention, which is the partake of basic law text signed for the prevention of the Black Sea pollution, fundamentally belongs to the Rio Conference of 1992. The most basic feature of the Rio Conference is that it underlines the governance on the national, regional and global level. Approaching the solution of a regional environmental problem that has reached such enormous size as the Black Sea with the classical concept of "cooperation between countries" means adopting a method that is not effective from the beginning in the solution of the problem. However, new concepts of globalization such as "sustainable development", "democratic participation" and "governance" which have come to the world agenda with the Rio Conference offer new perspectives on solutions for the common problems faced by the countries. The approach to regional public goods, the prevention of pollution in the Black Sea, brings a new multidimensional perspective in accordance with the sustainable development principles of the countries around the Black Sea for the solution of the problem. Especially, the presentation and financing of its services in the direction of its governance principles for the prevention of pollution in the Black Sea has the qualification the previous efforts have been lacking.

For the prevention of the pollution of the Black Sea and the protection of the Black Sea in the framework of sustainable development principles, it is necessary to examine the regional public goods at two different levels, as production and financing of these goods.

The production and the presentation of the regional goods necessary for the Black Sea and its surroundings, it is thought that Samuelson's "Optimal Presentation Policy" and Olson's "Substitution" principle used in the presentation of public goods in the national dimension will be instructive. According to the optimal presentation principle, when each individual's marginal payment power equals the cost of presentation of this commodity, the optimum distribution of resources is realized. How to determine the payment power in terms of regional public goods and the public goods preferences of the people living in the countries of the region differ according to the national and global regional goods. Especially in the presentation of global public goods, different groups of different countries might have different demands of goods. In this stage, a standard presentation of global public goods in the rest of the world becomes difficult. As the political decision-making mechanism in the production process of public goods on the national scale works in a more concrete way, it is the question of meeting the demands of the individuals through elections. In regional public goods, it is not the case that the countries of the region demand different products at different times as the presentation process of regional public goods starts with a strong cooperation and there is a more concrete cooperation process than the global dimension (Çelebi and Yağın, 2008: 10).

In order to fulfill the efficiency condition in the production of regional public goods, Olson's subsidiarity principle is an extremely appropriate theoretical tool. It is necessary for the activity to operate a regional organization established by strong cooperation of the countries in the region where the externalities take place, instead of a global organization that governs the negative externalities resulting from pollution in the Black Sea, in accordance with the principle of subsidiarity in the production of regional public goods. In addition to that, the existence of more than one organization to manage the environmental regime, prevention of the pollution in the Black Sea, a conservation-utilization balance in the direction of sustainable development principles, the presence of a single regional entity as it will increase the costs may be preferred in terms of scale economies.

The presentation methods developed by Arce and Sandler (2001) for the production of regional public goods for environmental purposes on the Black Sea scale are instructive. Relevant four different presentation methods; Collection, Weighted Collection, the Best Shot and the Weakest Link techniques. The effectiveness of these four presentation methods differs from region to region depending on a number of factors such as the nature of the present regional problem, its size, and the economic and political structures of regional actors. For instance, in the fight against AIDS virus, while weighted collection technique is effective in Africa, collection technique might be more effective in the prevention of regional conflicts and maintaining the peace which is seen as common public services. When we look at it in terms of regional public goods with environmental qualification in the Black Sea, it is very clear that many factors such as the economic and political characteristics of the Black Sea countries, the polluting factors in the Black Sea and the negative externalities resulting from them must be taken into consideration. To prevent the pollution in the Black Sea, it is accepted by all the regional actors that the countries that have a coast to the Black Sea must develop an effective cooperation program. In the situations that an effective cooperation is a must among the countries of the region for the presentation of the regional public goods, as long as there are no great gaps among the economic and political powers of the region's countries, weighted collection technique must be preferred. In this method of production, a number of regional public goods produced is equal to the sum of the weighted proportions of the

contributions of each country. In the case that the exclusive benefits of regional public goods to one specific country is more than the exclusive benefits to other countries, that country's contributing more to the production of the regional public good is stated as the most important feature of this technique. In this respect, when it is clearly determined which country will benefit how much from the services aimed at the decrease, protection, and improvement of the pollution, it will also be clear which country must show more effort.

The second dimension to be taken into consideration in the production of regional quality public goods for the prevention of pollution in the Black Sea is the financing dimension of the production of these goods. The most neglected issue in the process of environmental cooperation in the Black Sea starting in 1992, is the financing aspect of the production of these goods. In the process starting with the Bucharest Convention in 1992, the parties have always recognized that the financial dimension of this process has been ignored while acknowledging the need for an effective cooperation process for the solution of the pollution problem. In this process, the free economy problem of the public economy (free rider), unfortunately, has become very apparent. Regional actors have waited for the major actors to take responsibility for the financing problem by not seeking the benefit of public goods, while the major actors of the region, such as Turkey and Russia, favored the high growth rates in the short run over sustainable development costs in the long run.

Another reason for the lack of financial dimension in the prevention of Black Sea pollution is that emphasis is placed on orders and bans and public regulations within the public economy in order to solve the problem and market economy solutions for the environment are not included. In particular, the failure to integrate new public economic solutions, such as the "the polluter pays" principle, into the financial footprint of regional environmental policies appears to be the most important financial shortcoming in the long-term solution to the problem. In addition to that, the failure to include the private sector in the environmental foundation projects is another economical absence of the environmental regime in the region.

Until Bulgaria and Romania became members of the European Union (EU) in 2006, large regional and global actors from abroad were not involved in the subject of Black Sea pollution. However, after Bulgaria and Romania became EU members, the Black Sea officially won a European Sea identity. After these two countries became EU member states, the EU took part as a financier in seven projects for Black Sea pollution. GEF, which was established under the United Nations environmental program in the financing of the projects prepared to prevent pollution in the Black Sea before 2006, became the most important non-state financial actor.

As a result, it is necessary to establish a solid financing mechanism for an effective production process in order to ensure the production of regional public goods through an effective cooperation process from the perspective of public finance for the reduction, protection and development of environmental pollution in the region constituting the Black Sea basin. The findings and suggestions for the Black Sea from the public finance perspective are listed below.

1. Prevention of pollution in the Black Sea, producing regional public goods for effective protection and development is a technique of weight collection. As a means of this production method, effective legal and financial cooperation should first be developed among the riparian countries of the Black Sea. The financial burden of regional public goods should be distributed in accordance with this measure, by determining how much which country will benefit from the service to be provided.

2. In the Black Sea, orders and prohibitions and other legislative instruments have been used to control negative externalities in the prevention of environmental pollution until today. Commitments, prohibitions, and other legislative instruments are necessary for environmental pollution prevention and effective environmental protection. However, in the management of such a gigantic regional environmental problem, public economic solutions based on "the polluter pays" principle, such as economic and financial price regulations, pollution rights trade, have to be integrated into the process.

3. In order to prevent pollution in the Black Sea region, there is a need for major environmental infrastructure projects in the countries of the region. It is not possible to realize such large investments with the cooperation of a single state or states because of the problem of free agency and the tendency to use short-term benefits. For this reason, the realization of more effective reflection of private sector investments and public-private partnerships will also reduce public spending pressure on the states.

4. In the process of cleaning the Black Sea, those managing this process have not yet fully internalized the broad-based participation principle. Cleaning and preservation of the Black Sea are not only a technical issue. In addition to technical and scientific considerations, the governance principles required by today's world need to be adopted effectively in the region scale. In this sense, increasing

community participation in the solution of the problem and strengthening the role of non-governmental actors will increase the effectiveness of regional public goods. In addition to that, as long as the decision-making public institutions are not accountable, measures to ensure environmental sustainability will not be implemented completely and correctly.

5. The Bucharest Convention, which is based on the prevention of pollution in the Black Sea and formation of an effective environmental regime, does not fully apprehend the new economic and political developments due to changing regional and global conditions. For example, compared to the legal framework for the protection of the Mediterranean, the legal framework of the Black Sea appears to be inadequate. For example, the SPAMI Protocol on the protection of the Mediterranean is binding on the parties, and different sanctions may apply to noncompliant parties if the protocol is abided. However, there is no obligation or binding to ensure that all parties to the legal framework of the Black Sea comply with the contracts.

6. Key actors in the protection and development of the Black Sea are the coastal states, the BSEC and the EU. The fact that the EU is a party to the Bucharest Convention is very important in terms of the future of the Black Sea. Because of the considerable knowledge and experience, the EU has in the areas of environmental and natural resource management, it plays a key role in the long-term, sustainable and lasting solution to the problem.

7. The most important limiting factor in terms of the environmental sustainability of the Black Sea is the existence of conflicts that have reached hot war in recent years among the riparian countries. The hot conflicts between Russia and Ukraine, Russia and Georgia over the last decade and the occasional economic and political tensions between Turkey and Russia jeopardize the effectiveness and future of priority cooperation in the region.

DISCUSSION AND CONCLUSION

The phenomenon of globalization, which accelerated in the 1990s, has revolutionized many concepts in the world. It also has caused important changes in the concept of public goods. The basis of change in the public goods sector come from the fact that public goods are becoming regional and global. According to this, public finance discipline which is bound with the globalization process tries to deal not only with national problems but also other regional and global problems. Additionally, this discipline develops perspectives that will help other science fields in the solution process.

Prevention of the Black Sea pollution and protection of this sea with a sustainable understanding are now also in the interest of public finance discipline. Regional public goods, a new concept used to control the negative externalities in the area of public finance, offer a new perspective to the states that have coast to the Black Sea for the solution of this problem. In general, as in all environmental problems, Black Sea pollution is also a multi-dimensional, multi-actor environmental problem. The problem is further complicated by the regional, national and supranational level of actors as well as political, economic, cultural and administrative aspects of the problem. However, this problem is another dimension of the problem that can be solved by an effective cooperation mechanism formed by the participation of many actors. The countries that will be included in the cooperation mechanism for the solution are not limited only to the countries that have coast to the Black Sea. The sixteen countries in the Danube River have an important part in the pollution of the Black Sea, and therefore these countries are the parts in the Black Sea pollution even if they don't have a coast to the Black Sea. In this context, national governments and regional organizations have an important responsibility.

There is a need for a solution with long-term, balanced and sustainable development principles to prevent Black Sea pollution. One of the components of this multidimensional solution process is regional public goods from a public financial perspective. The control of negative externalities across the border and regional countries' sustainable environmental understanding and the design of public goods and services taking into account the production and financing techniques that will be offered for long-term and balanced economic growth and development are keys to the future of the region. The use of the weighted collection method in the presentation of regional public goods for the protection and development of the Black Sea basin will increase the effectiveness of these goods. On the other hand, in order to avoid the problem of free-riding in the financing of the regional public goods which is necessary for the Black Sea, alternative market economy solutions should be used within the framework of "the polluter pays" principle besides the common public financing. In the actualization of large environmental infrastructure projects needed to reduce pollution in the region In the actualization of large environmental infrastructure projects needed to reduce pollution in the region, public-private initiatives will reduce the pressure on the public spending of the riparian countries in the Black Sea.

In the production and financing of regional public goods for the Black Sea, complementary factors

are also needed to increase the effectiveness of these goods. The Bucharest Convention, which is the basis of the environmental regime in the Black Sea and signed in 1992, must be renewed in accordance with the requirements of the today. Governance principles at the regional level are needed for a transparent and accountable process that encourages the participation of non-governmental actors in the process of regional countries' co-operation. However, the most important limiting factor that leaves this positive viewpoint to the shadows is the political instability that occasionally reaches to the hot conflict between the riparian countries in the Black Sea Region. In the case of such serious political instability, it is of course very difficult to establish an effective cooperative mechanism with giving priority to the environment. For this reason, it is necessary to present the regional public goods together with the environment to prevent political conflicts in the Black Sea region.

REFERENCES

- 1.Anand, P.B. , “ Financing The Provision of Global Public Goods”, WIDER Discussion Paper 110, 2002. www.wider.uni.edu/publications/workingpapers/discussionpaper/2002/enGB/110 E.t. 21.09. 2016
- 2.Arce, M.D. ve Sandler, T. , “Transnational Public Goods: Strategies and Institutions”, *European Journal of Political Economy*, 17 (3), 2001.
- 3.Arce, M.D. ve Sandler, T., “Regional Public Goods: Typologies, Provision, Financing and Development Assistance”, Expert Group on Development Issues, Foreign Affairs of Sweden, 2002.
- 4.Balseven, H., “ Uluslararası Düzeyde Bölgesel Kamusal Hizmetlerin Üretilmesi Yaklaşımları: Tuna Nehri Kirlenmesi Örneği”, *Çağdaş Yerel Yönetimler*, 17(3), 2008.
- 5.Brasche, U., “ Avrupa Birliği'nin Bölgesel Politikası ve Türkiye'nin Uyumunu”, İktisadi Kalkınma Vakfı Yayınları, İstanbul, 2001.
- 6.Brunch, C. (2005). “ Evolution of public Involvement in International Water Course Management”, içinde: “ Public Participation in the Governance of International Freshwater Resources, ed. Brunch, C. United Nations University Press, Tokyo, 2005.
- 7.BSTDA., “ The Global Environmental Programme”, United Nations Publications, İstanbul, 1997.
- 8.Çelebi, K. ve Yalçın, A. Z. “ Kamusal Mallar Teorisinin Değişimi: Bölgesel Kamusal Mallar”, *Yönetim ve Ekonomi Dergisi*, 15 (2), 2008.
- 9.Ferroni, M., “ Regional Public Goods in Official Development Assistance”, Inter-American Development Bank Occasional Paper 11, 2001.
- 10.Gençkaya, Ö.F., “ Bölgesel İşbirliği ve Çevre Sorunları: KEİ Örnek Olayı”, *Yeni Türkiye*, (5), 1995.
- 11.Goyet, S., “ Karadeniz'in Korunması: Bölgesel ve Kurumsal Bir Yaklaşım”, Karadeniz Çevre Konferansı, Türkiye Çevre Vakfı Yayınları, Ankara, 1995.
- 12.Güneş, Ş., “ Karadeniz'de Çevresel İşbirliği, 1992 Bükreş Sözleşmesi”, *ODTÜ Gelişme Dergisi*, 28 (3-4), 2001.
- 13.Kaul, I. ve Mendoza, R., “ Advancing the Concept of Public Goods” içinde: “ Providing Global Public Goods, Monitoring Globalization” Ed. Kaul, I. vd., Oxford University Press, London, 2003.
- 14.Mater, B., “Türkiye ve Kıyıdaş Ülkelerden Karadeniz'e Taşınan Evsel ve Endüstriyel Atıkların Durumu”, *Yeni Türkiye, Çevre Özel Sayısı* (5), 1995.
- 15.Morrissey, O., Te Welde W. ve Hewitt A., “Defining International Public Goods: Conceptual Issues”, World Bank Study on International Public Goods, Overseas Development Institute, London, 2001.
- 16.Ortaç, F.R., *Global Kamusal Mallar ve Finansmanı*, Gazi Kitabevi, Ankara, 2004.
- 17.Ökmen, M., “Karadeniz'de Çevre Sorunları ve İşbirliğine Yönelik Yerel, Bölgesel Perspektifler”, *Bilgi, Sayı 56*, 2011.
- 18.Sandler, T., “ Global and Regional Public Goods: A Prognosis For Collective Action”, *Fiscal Studies*, 19 (3), 1998.
- 19.Sezer, Ö. ve Vural, T., “ Kamu Hizmetlerinin Sunumunda Devletin Değişen Rolü ve Merkezi Yönetim İle Yerel Yönetimler Arasında Yetki ve Görev Paylaşımı”, *Maliye Dergisi, Sayı 159*, 2010.
- 20.Stalgren, P., “ Regional Public Goods and The Future of International Development Cooperation”, Expert Group on Development Issues Ministry of Foreign Affairs, Working Paper 2, Stockholm, 2000.
- 21.Wolrad, K., “ Regional Public Goods: Promoting Regional solutions for Regional problems An Abstract”, Inter-American Development Bank, Bonn, 2007.
- 22.Yalçın, A. Z., “ Küresel Çevre Politikalarının Küresel Kamusal Mallar Perspektifinden Değerlendirilmesi”, *Balıkesir Üniversitesi SBE Dergisi*, 12 (21), 2009.