

THE LEGAL, POLITICAL SITUATIONS AND A FUTURE CONSERVATION STRATEGY OF THE GIANT FISH-BREEDING FOREST

HANAMATSU Y.¹, HORIGUCHI T.² AND ENDO T.¹

¹ *Research Institute for Humanity and Nature, Japan*

² *Hokkaido University, Japan*

1. INTRODUCTION

The purpose of the Group 10 was initially set as the “scenario-making” for the conservation of the “Giant” Fish-Feeding Forest (GFBF) system. However, it became clear that the word “scenario” is used with some different meanings in every discipline, and that social science is not necessarily familiar with such a task. After the discussion, we have decided that (1) our final goal is the “agenda-setting” for the conservation of this system, (2) this will be in the form of a package deal combining an ideal or general framework including a international legal system or policy, with a realistic or specific one which reflects the political or economic situations in each countries, and (3) we are trying to show the theoretical idea as an academic outcome, not just a political tool.

The objective of our group is to construct a framework of “Giant” Fish-Feeding Forest to better understand the conservation strategy of the Amur-Okhotsk system, and to find a way to conserve this ecosystem. Particularly, we have focused on the international dimension, and did the (1) research of the possibility of international cooperation, and (2) analysis of the existing international and domestic laws and policies, and (3) Agenda setting and institutional design for the future conservation. Finally, as the agenda document, we all members adopted the “*Agenda Statement for the Conservation of the Amur-Okhotsk Ecosystem*” (Appendix 1).

2. NATIONAL BORDERS AND INTERNATIONAL COOPERATION

2.1. Transnational Nature of the GFBF System

The GFBF and its impacted area encompass nearly 4 million km². It includes parts of the territories of Mongolia, China and Russia as well as the Russian and Japanese exclusive economic zones (EEZ). In other words, these areas consist of the huge ecological system that cuts across the boundaries between four countries. However, these countries do not share the same benefits or costs concerning the conservation of this system.

The Sea of Okhotsk and the Oyashio region are known to be one of the most productive oceanic areas in the world. Almost all of these areas are within the Russian EEZ (exclusive economic zone), and the most important fishing areas with almost 60% of the Russian national catch. Approximately 50% of the sea product of Japan is from these areas. A share of the processed seafood from Russian-origin raw material finds its way back to the booming Russian market. China, for instance, is the key supplier of fillets of Alaska pollock to Russia with close to 15,000 tonnes of exports in 2006 (FAO/ EBRD 2008).

The primary beneficiary state is considered to be Russia, whose catch is highly dependent on the fish resources in the Sea of Okhotsk and Oyashio region. The fishing industry is crucial not only for the food supply for the Russian peoples, but also for the national economy since approximately half of the total Russian catch is exported, particularly from these oceanic areas (FAO/ EBRD 2008, Oude Elferink 2001). However, this does not mean that other states could not have a claim to share the benefits of fish products in these areas. China and Japan in particular have also enjoyed the benefits of these fish resources.

On the other hand, major states that have largely contributed to the transportation of the dissolved iron from the Amur River basin to the ocean and also may possibly make a negative impact on this transport are Russia and China. The main sources of dissolved iron are wetlands and forests in Russia and China. The land-use change from wetlands to agricultural fields, excessive loggings and deforestation in these countries may threaten the ecological system of the GFBF. From this perspective, Russia and China should make an effort not to make a detrimental effect on this ecosystem.

At first glance, Japan may appear to be only a beneficiary of the fish resources in the Sea of Okhotsk and Oyashio region. It is clear that Japan does not supply dissolved iron to these oceanic areas in such a large scale as the Amur River basin. Nevertheless, it has been recently indicated that Japan has given the financial and technical assistance to the Chinese development programs, including the farmland development activities in the Sanjiang Plain Wetlands. Therefore, Japan may have a serious effect on the dissolved iron transport in the Amur River basin. Mongolia, whose impact on the GFBF system has not yet been assessed in the Amur Okhotsk Project, also seems to influence the flux of the dissolved iron to some extent.

In this situation, the conservation of the whole system of the GFBF can not be achieved without mutual cooperation among the four countries. For example, even if we assume that Russia implements strict regulation for the sustainable management of forests and fish resources, China still may promote wetland development policy resulting in a decrease of the dissolved iron concentration in the future. In this case, until the fish stock is exhausted, China can continue to enjoy these fish resources without contributing to its conservation. This is the so-called free-riding problem (Kaul, Grunberg and Stern 1999). When Russia notices the possibility of China's free-riding, it may feel better to stop its conservative policy and place a fish export ban on China. In this sense, the GFBF ecosystem cannot or will not be adequately addressed by individual countries acting alone. This means that in order to conserve this system, we need international or regional cooperation among these four nations. Unfortunately, in spite of the importance and uniqueness of this ecosystem, there has been no cooperative framework among the relevant countries.

2.2. National Borders and International Cooperation

Moreover, the area has been under extreme political tension since the middle of the 19th century and there has been little transboundary cooperation. This situation has resulted in the Amur River becoming one of the most seriously polluted waters in Russia.

The Amur River has been the site of political boundaries between China and Russia since the “Treaty of Aigun” and “Convention of Peking” signed by the two countries in 1858 and 1860, respectively. Since the two agreements were considered to be unequal treaties, the boundary was rather unstable until the two countries finally agreed to define the boundary in 2004 (Figure 1, Iwashita 2005). This history has made the Amur River one of the most difficult rivers to monitor for conservation purposes.

China and Russia ratified the *Treaty on Good Neighbor Relations, Friendship and Cooperation* in February 2002, which includes the cooperation for the transboundary water protection. The two governments had also appointed respective departments for monitoring the Amur River and Ussuri River. The departments concerned in China and Russia have monitored for the waters of these rivers eight times so far. And then, the notorious accident involving a petrochemical company in Jilin Province of China occurred in November 2005. This accident significantly polluted the Songhua River, the largest tributary of the Amur River (UNEP, 2006a). The Chinese State Environmental Protection Administration (SEPA) invited an expert team of the United Nations Environmental Programme (UNEP) for a field mission to the affected region. Moreover, cooperation between the Chinese and Russian governments on transboundary water protection also helped find a solution to this problem (Han Zaisheng et al. 2008). The two countries agreed to set up a joint monitoring team and implemented the monitoring measures from December 2005. At the same time, upon the request of Russia, Heilongjiang Province of China built a diversion dam on the Fuyuan waterway. This dam prevents polluted water from flowing through the drinking water resources of Khabarovsk City and also protects Russian residents along the lower reaches of the Ussuri River from being affected by pollution.

The accident motivated both China and Russia to collaborate to prevent transboundary pollution of the Amur River. After the accident, the two countries began annual joint-monitoring of the water quality of the Amur River at the international level. This does not necessarily mean that foreign scientists can join this program, but the accident contributed to further conservation of the Amur River by increasing people’s consciousness of the shared environment (Faure and Ying 2008).

The Sea of Okhotsk has also been a political hot spot between Russia and Japan. It is true that Russia has the jurisdiction with regard to marine scientific research and the protection and preservation of the marine environment in the Sea of Okhotsk, and in



Figure 1. Sino-Russian border and the Amur River (Iwashita 2005)

performing its jurisdiction Russia shall have due regard to the rights and duties of other states¹(Figure 2). Owing to the territorial conflict, however, it was practically impossible for Japan to join the monitoring of environmental problems in the Sea of Okhotsk during the last half of the 20th century. A collaborative effort between Russia and Japan for the environmental conservation of the Sea of Okhotsk is urgently needed owing to the increasing activities relating to oil mining and natural gas exploration in the Sea of Okhotsk and its vicinity (UNEP 2006b).

Recently, Japan and Russia signed the cooperative program on the research, conservation and sustainable use of the ecosystems in the adjacent areas². This includes the cooperation concerning joint research, monitoring and information exchange on the ecosystem in the Sea of Okhotsk and Oyashio region. Special attention is paid to the fact that this program refers to the research concerning the impact of the Amur River basin upon the Sea of Okhotsk. While this program neither is legally binding nor constitute the international agreement, it is expected that this program could promote a cooperative framework for the environmental protection in these oceanic area and also mutual understanding of the GFBF ecosystem.

In short, national boundaries within the GFBF system have long been an obstacle for the conservation of this system. In addition, national border conflicts have made the international environmental cooperation between countries more difficult. Therefore, what is needed is to “blur” the strength of boundaries by establishing the international cooperative framework. At least, joint-monitoring, data exchange and mutual communication will be indispensable as a starting point for the protection of shared ecosystems.

2.3. Lessons from the Helsinki Convention of the Baltic Sea and HELCOM

Concerning international environmental cooperations, we studied the activities of Helsinki Commission (HELCOM) on the Protection of the Marine Environment of the Baltic Sea as a desirable model. HELCOM is the governing body of the *Convention on the Protection of the Marine Environment of the Baltic Sea Area (1992)* - more usually known as the *Helsinki Convention*. HELCOM deals with marine pollution from all sources including land-based sources, response to maritime accident, land-use and biodiversity all together. It is composed of 9 coastal states and EU (Figure 3). In this sense, the situation is different from



Figure 2. The Map of the Sea of Okhotsk and the Russian Jurisdiction (Izumiyama 2006)

the Sea of Okhotsk almost all of which is dominated by Russian jurisdiction. But the interesting point is that inland countries such as Belarus and Ukraine are neither the coastal states nor the contracting parties, these states participate in the conservation framework as the observer status.

And, Protection of the Marine Environment of the Baltic Sea started in the late 1960s from warning of the scientific researchers. They put pressures on the coastal states to take measures, and after about 40 years, in 2007, HELCOM adopted the detailed action plan for the conservation of the marine environment of the Baltic Sea.

However, no multilateral governmental framework has existed concerning the conservation of the GFBF system. At this stage, first of all, joint-monitoring, data exchange and mutual communication at the academic level are necessary as a starting point for the protection of the GFBF system. For this purpose, we have establish the *Amur-Okhotsk Consortium* as a multinational academic network to discuss the conservation and the sustainable use of the GFBF. The *Amur-Okhotsk Consortium* was established by the “*Joint Declaration by Researchers toward the Environmental Conservation of the Sea of Okhotsk and Surrounding Regions*” (Appendix 2) which was adopted with unanimous applause at the International Symposium on Environmental Conservation of the Sea of Okhotsk in November 2009. From a theoretical perspective, this network can be thought of as comprising “*epistemic communities*”, that is proposed by Peter Haas as networks of knowledge-based experts which play the role in helping states identify their interests, framing the issues for collective debate, proposing specific policies, and identifying salient points for negotiations (Peter Haas 1992).

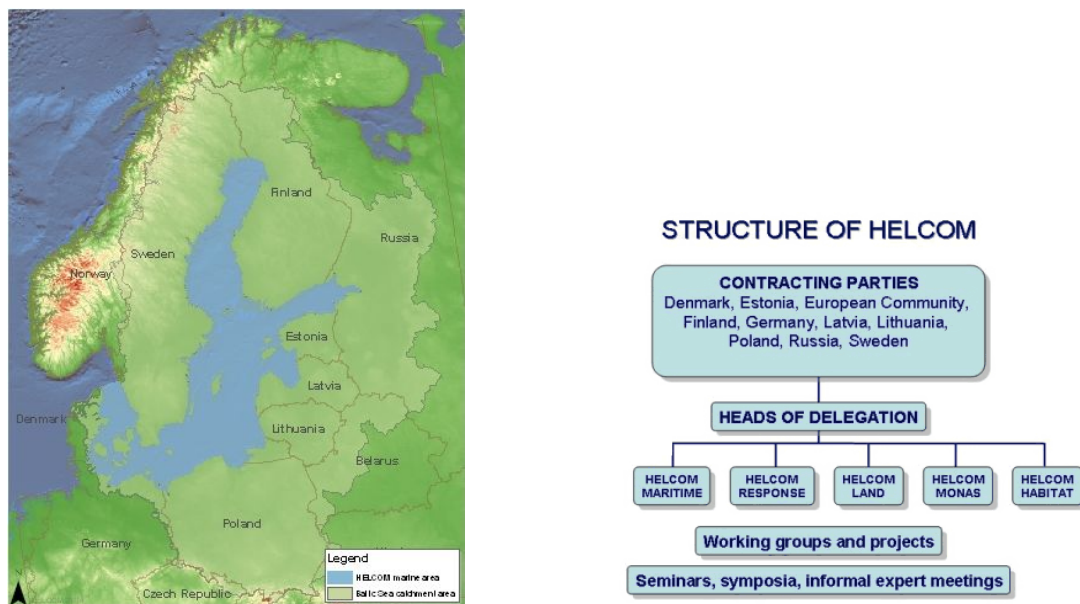


Figure 3. Baltic Sea Catchment Area and the Structure of HELCOM

The history of the marine environmental protection of the Baltic Sea has a close link with international political situation in Europe (Räsänen and Laakkonen 2008). During the Cold War, the Baltic Sea was divided by the Iron Curtain, and against this background the

Helsinki Convention was a remarkable achievement; at the time it was the first multilateral convention signed by members of two mutually competing military alliances. The underlying issue was the division of Germany. As the 1970s began, neither the German Democratic Republic (GDR, East Germany) nor the Federal Republic of Germany (FRG, West Germany) officially recognized each other. Their respective allies also failed to recognize the sovereignty of the opposing states. This deadlock, known as the German question, prevented the signing of any multilateral agreements on the protection of the Baltic Sea, since the signing of governmental treaties between all the Baltic Sea states would have meant mutual recognition between the two German states.

Among the coastal states in the Baltic Sea, Finland had not recognized either German states, so Finnish government was able to promote multilateral agreements on environmental protection without the disadvantage faced by the German question, and strengthen its policy of neutrality and its role as an active international player. And also, Finland has a good relationship with Soviet Union. Bilateral environmental research cooperation between Finland and Soviet Union had functioned well. This led in 1970 to discussions on extending the cooperation to include a third states, in particular Sweden.

Soviet Union had tried to persuade Finland to recognize the GDR, hoping that other Western countries would follow suit. It was hoped that a multilateral agreement on the protection of the Baltic Sea would promote a resolution to the GDR question. In other words, the Soviet Union paid lip service to environmental concerns with a view to advancing longstanding political goals; the desire to achieve political recognition for the GDR. Thus, it may be argued that the Soviet Union used environmental politics as a new tool of power politics.

On the other hand, Finland feared that a decision to recognize the GDR and establish a multilateral agreement among the Baltic Sea states might bring about retaliation from the Western powers. However, the German question has finally resolved in 1972, when the two German countries signed the agreement in which the FRG finally recognized the GDR as an independent state. The resolution of the German question removed the most difficult obstacle to international cooperation on the protection of the Baltic Sea. Then, Finland has taken the initiative in arranging official conferences and expert meetings, drafting the text of the convention, finally leading to the ratification of the Helsinki Convention.

In the GFBBF system, it seems that no countries have similar political incentive to take an initiative in establishing multilateral environmental conservation frameworks. It is partly due to the geographical and socio-economic conditions in this region. But then, bilateral environmental cooperation has grown recently, in particular between China and Russia on the joint-monitoring of the Amur River, and Russia and Japan on the conservation of the Sea of Okhotsk. China demands financial and technical assistance cooperation for the purpose of continuing large-scale food production in the Sanjiang Plain in a sustainable way without making a negative impact on the ecological conditions. Japan can play a critical role in promoting the sustainable use of wetlands and environmental protection in Heilongjiang Province from the financial and technical aspects.

Taking into account that the development of the environmental protection framework in the Baltic Sea region was based on the suggestions of the scientific researchers and the existing bilateral cooperations, a multilateral framework for the conservation of the GFBF system can be established in the near future comprising bilateral cooperative frameworks working among four countries, and a proposal based on the results of scientific research and information exchange carried out in the *Amur-Okhotsk Consortium*.

3. COORDINATION OF ENVIRONMENTAL GOVERNANCE REGIMES IN THE GFBF SYSTEM

As explained in the previous section, GFBF is the enormous ecological system that cuts across the national boundaries between Russia, China, Mongolia and Japan. There is another set of boundaries that has made the effective conservation of GFBF difficult; boundaries between environmental protection rules, regimes and authorities. Parts of the environmental factors in GFBF has already been regulated by international and national laws and policies, but these management regimes have been concluded and implemented independently, and sometimes overlap or conflict, therefore are not appropriate for the conservation of the whole system of GFBF. In recent years, such phenomenon is found in other environmental management cases or other issues, and generally described as “fragmentation”, “sectionalism” or “inter-linkage” problem in legal and political discourses (Wolfrum and Matz 2003, Chambers 2008, Oberthür and Gehring 2006). Nevertheless, little attention has been paid to this issue concerning environmental protection in these areas.

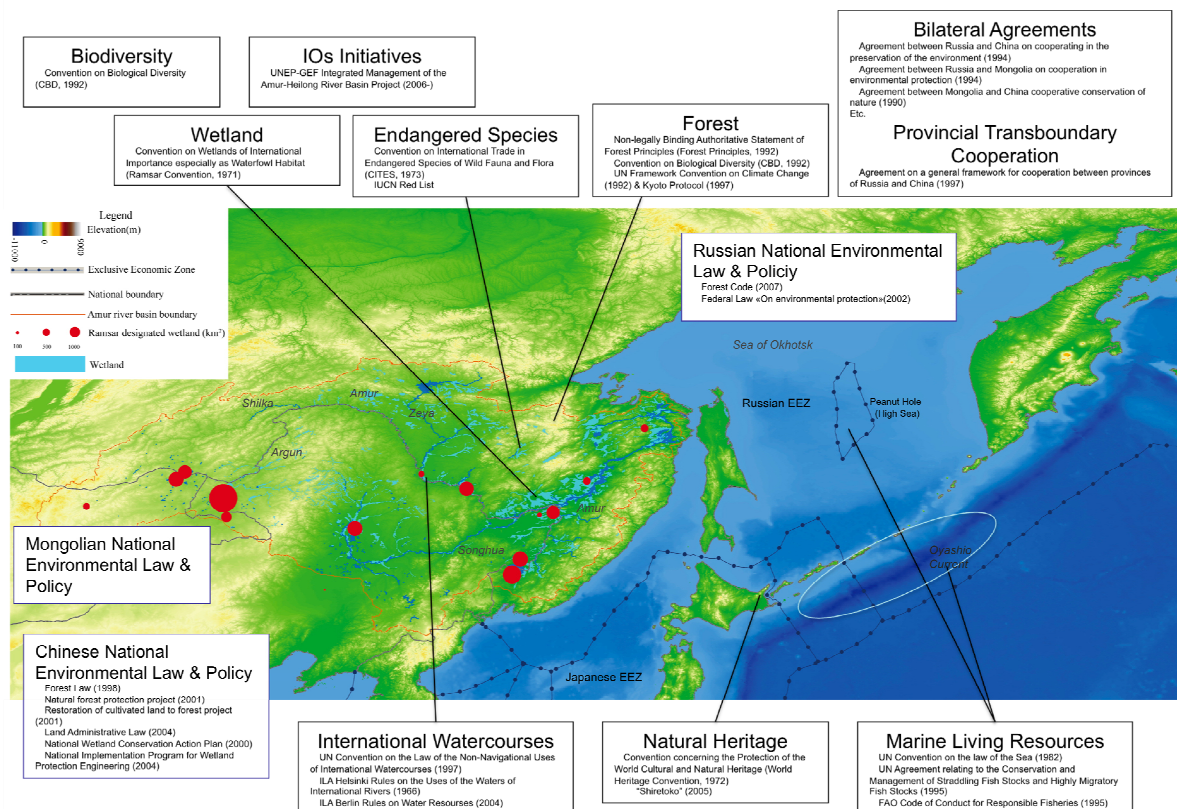


Figure 4. Existing Environmental Regimes in the GFBF system

When analyzing the existing international and domestic laws or policies that seem to be applicable for the conservation of this system, the question that must be addressed is whether existing legal systems and policies are adequate for the conservation of the whole system of the GBBF. According to the scope of application, there are three possible categories of laws or policies; global multilateral environmental treaties, bilateral environmental agreements, and domestic laws and policies in each country (Figure 4). The analysis of each category will show the difficulties of the conservation of this system, and moreover, help us understand what is needed for an effective management of this ecological system as a whole.

3.1. Global Multilateral Environmental Treaties

International law has traditionally regulated the use of natural resources indirectly by determining the basis on which rights are allocated among states. The legal status of natural resources varies according to whether the resource is under the sovereignty of one state, shared by several states, or held in common for the benefit of all. In general, it was assumed in the early development of international law that the control of natural resources is within sovereignty over land territory and territorial seas (Brownlie 1979). This tradition was reinforced by two famous UN General Assembly Resolution *Permanent Sovereignty over Natural Resources*³ and *Declaration on the Establishment of a New International Economic Order*(NIEO).⁴ Therefore, in principle, states have the freedom to exploit resources within its territory and territorial sea, unless their exploitation could harm other states. However, recent environmental concerns have eroded state sovereignty and involved a redefinition of sovereignty itself. In contemporary situation, states only have the limited sovereignty over resources within their jurisdictions unless international rules and principles regulate their use of them (Schrijver 1997: p.294).

Global multilateral environmental treaties applicable to this system contain the law of the international watercourses, law of the conservation of nature, species and biodiversity, and law of the marine living resources and diversity.

3.1.1. The Law of International Watercourses

The major instruments of the law of the international watercourses are the *UN Convention on the Law of the Non-Navigational Uses of International Watercourses* (1997) and *UNECE Convention on the Protection and Use of Transboundary Waters and Lakes* (1992). The former is not yet in force, and China voted against the adoption of this convention at the UN General Assembly (Benvenisti 2002). The latter has been drafted in the European context, and ratified by Russia, but not applicable to China, Mongolia and Japan. Another instrument is ILA (International Law Association) *Helsinki Rules on the Uses of the Waters of International Rivers* (1966), which is non-binding in itself but considered to be customary law. These rules are based on the broader concept of the “drainage basin”, which is a geographical area “determined by the watershed limits of the system of waters, including surface and underground waters, flowing into a common terminus”⁵. The Problem is, however, that all these instruments are exclusively concerned with allocating water supply between upstream and downstream states, or preventing pollution or damage (McCaffrey 2007, Ying 2008), not

relevant for the transportation of the dissolved iron, much less the conservation of this whole system.

3.1.2. The Law of Conservation of Nature, Species and Biodiversity

The law of conservation of nature, species and biodiversity includes the *Convention on Wetlands of International Importance especially as Waterfowl Habitat* (Ramsar Convention, 1971); the *Convention concerning the Protection of the World Cultural and Natural Heritage* (World Heritage Convention, 1972); the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES, 1973); the *Convention on Biological Diversity* (CBD, 1992), and *Non-legally Binding Authoritative Statement of Forest Principles* (Forest Principles, 1992). The Ramsar Convention aims to conserve wetlands from its segmented approach to the landscape, and promote wise use of wetlands in a sustainable way. Particularly, 15 wetlands in the Amur River basin including a small part of Sanjiang Plain in China have already been included in the List of Wetlands of international importance under the Ramsar Convention (Ramsar list) (Simonov and Dahmer 2008). The Ramsar convention in principle focuses narrowly on land and water use within wetlands rather than the broader catchments of which they are an intimate part, but recently has adopted the integrated river basin management program which links wise use of wetlands with river basin management and protection of biodiversity (Simonov and Dahmer 2008: p.312.). While this program will attract a special attention for the conservation of GFBF, it is not certain whether this may expand its scope to the relationship between wetlands and the ocean environment.

On the other hand, the CBD has through the implementation process taken the “ecosystem approach”, which is, by definition, “a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way”.⁶ Nevertheless, it is not yet clear whether this approach serves as a practical guide to the conservation of the huge and complex system of GFBF. The Forest Principles are of limited legal authority and content reflecting the absence of international consensus on the subject. The Principles do not “internationalize” forest issues, and instead confirm that “their sound management and conservation is of concern to the governments of the countries to which they belong”.⁷ Forest conservation is only indirectly regulated by CBD as one of the components of the biodiversity, or by the UN Framework Convention on Climate Change (UNFCCC, 1992) and subsequent Kyoto Protocol (1997) as one of the means for the mitigation of climate change.

3.1.3. The Law of the Sea and the Marine Living Resources and Diversity

The *UN Convention on the Law of the Sea* (UNCLOS, 1982) and the subsequent *UN Agreement relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks* (Straddling Stocks Agreement, 1995) regulate the management of the marine living resources in this area. Almost all of the Sea of Okhotsk and the Oyashio Current are within Russia’s exclusive economic zone (EEZ). Therefore, Russia has the primary obligation and jurisdiction for the conservation and optimal utilization of the marine living resources in this area according to its capacity to harvest. Although other states may in

certain circumstances have a claim to share in Russian EEZ fishing, it is clear that there is neither freedom of fishing for other states, nor unfettered freedom of scientific research. On the other hand, concerning the linkage between land and sea, these instruments only establish a general framework for the regulation of land-based sources of marine “pollution”, and, therefore, do not refer to the relationship between the conservation of the marine living resources and any land-based substances which sustain these resources rather than cause “pollution”, such as the dissolved iron (Hassan 2006, Mensah 1999).

3.2. Bilateral Environmental Agreements

A few bilateral environmental agreements between China, Russia and Mongolia have been concluded since the early 1990s. These include the agreements concerning general environmental cooperation, monitoring of transboundary waters, fisheries and forestry, such as the *Agreement on Cooperation in Protection of the Natural Environment between China and Russia* (1994); *Agreement on Cooperative Conservation of Nature between China and Mongolia* (1990); and *Agreement on Cooperation in Protection of the Natural Environment between Russia and Mongolia* (1994). In addition, *Agreement on a General Framework for Cooperation between Provinces of Russia and China* (1997) permits provinces to develop any international agreements across the river that do not encroach on exclusive responsibilities of central governments, and to establish cooperative mechanisms to implement these agreements. Based on this framework, some provinces in Russia and China have concluded the agreements concerning primarily the prevention of transboundary water pollution.

Until now, these agreements have been effectively implemented by appointed departments of each country according to designed procedure, the ways to information exchange are unblocked, the related data also can be downloaded in internet. While it should be said these agreements are successful, they are formulated and implemented without taking into account the ecological linkage between land and ocean in the Amur-Okhotsk ecosystem.

3.3. Domestic Laws and Policies

In addition to the international or regional level, environmental protection policies have been taken at the national level as well. Domestic laws and policies relevant to this system should be particularly analyzed concerning the conservation or sustainable use of wetlands and forests in Russia and China, because these policies in two countries could have a significant impact on the sustainability of GFBF system.

Russia. It is commonly acknowledged that forest resources have been degraded and the major cause of degradation is forest fire and logging activities in Russia. Recently timber export to China has rapidly grown and is expected to accelerate degradation of forest resources in Russian Far East. Russian forest policy is under major reform and is considered to have significant influence on forest management and the timber industry. Policy system has been decentralized and the local government has become a key player in forest policy and management at the local level. Capacity building to formulate policy and plan at the local level has become important and is an emerging issue. Major reorganization of the field level

forest management system has been carried out and large number of staff has been dismissed. In addition, the revision of the *Forest Code* in 2007 intends to support large scale companies which have enough ability to invest processing facilities. Together with the increase in log export tax, the concentration of timber industry companies will increase. There are strong concerns about the weakening of forest management ability at the field level.(see reports by Yamane and Kakizawa)

Wetland conservation in Russia is not confined to the protection of Ramsar sites. Large wetland areas are conserved as part of the protected natural areas. Outside protected natural areas, wetland management is regulated by a number of laws (Federal Laws ‘*On the Conservation of the Natural Environment*’, ‘*On Environmental Impact Assessment*’, ‘*On Wildlife*’, and the Water and Forest Codes, etc.). However, there is still no efficient legal system that would allow for an integrated solution of various problems arising in the field of wetland use and conservation.

China. Chinese forest management has long been under the strong control of the central government, while other environment regulations is within the jurisdictions of SEPA (Chinese State Environmental Protection Administration) or other inferior agencies. In 2001, the significant national project for the conservation of forest has started, including the “*Natural Forest Protection Project*” which provides the prohibition of logging and the limitation of access in a large scale area of the natural forests, and the “*Restoration of Cultivated Land to Forest Project*” which purports to promote an afforestation for the water retention function of forests. These projects are partly successful, however, it has resulted in the increase of the import of timber from Russian Far East.

The wetland conservation, management and development in China involve more than 10 governmental departments, such as State Environmental Protection Administration, Ministry of Agriculture, Ministry of Water Resources, Ministry of Land and Resources and State Forestry Administration, etc. At present, no special national laws for wetland conservation are available in China. About 15 laws and regulations are applicable to the wetland conservation in China, for example *Forest Law* (1998 revision), *Land Administration Law* (2004 revision), *Water Law* (2002 revision) and *Regulation on Nature Reserves* (1994).

At provincial level, in particular in Heilongjiang Province, the conservation and management of wetlands have developed and been successful in recent years. To date, 28 Natural Reserves have been established in the Sanjiang Plain in Heilongjiang Province and possess of the total area of 5958 km², in which 3 Natural Reserves have already been listed for Ramsar sites as the international importance wetland of Ramsar Convention. Most of them have been listed into importance wetland catalog of Asia. Also, the plain has been programmed as the key region of eco-function protective region of China in national degree, the purpose is to protect wetland biodiversity.

The reclamation of the Sanjiang Plain has reflected the historical background, which were food demand and imperception to the functions of wetland. China joined the Ramsar Convention in 1992, which is 21 years late after the signature of the convention in 1971. But most of reclamation activities took place before 1990’s. After 1992, the perception of wetland

functions was thoroughly turned from utilization to protection in China. A large numbers of wetland reserves were established in this way. Wetland protection was becoming mainstream. In 1998, Heilongjiang Province government issued *Decision about Strengthening the Conservation of Wetlands* which stopped all reclamation and mining in the natural wetlands and in which any departments have no authority to authorize the development project in wetlands. After 1998, the project of conversion of cropland to wetland in the plain had been implemented. *Regulation about Conservation of Wetland in Heilongjiang Province* was issued for enforcement in 2003. In administration of wetlands, the forestry departments at county level and above are mainly responsible for the administration of wetlands resources. Under the regulation, the construction projects which need use of wetlands should be approved by forestry department at provincial level and the project should implement environmental evaluation and related approval process. Any actions damaging wetlands are illegal and any wrongdoers are punished.

At national level, China has recently adopted some strict wetland management programs. For example, they includes the *National Wetland Conservation Action Plan* (2000) which is regulated under the leadership of State Forestry Administration and implemented by many relevant departments, and the *National Implementation Program for Wetland Protection Engineering* (2004) according to which by 2010, 50 percent of the country's natural wetlands and 70 percent of its important wetlands will be protected. On the other hand, the wetland conservation and management are not based on special laws and administrative regulations. The current laws and regulations have not provided a precise legal definition for wetland and its adjustment scope is not clear. It can be misinterpreted sometimes that some laws in fact encourage the development and utilization of wetland or land of this type, making excuse for legal development of land which is supposed to be protected. For example, the *Land Administrative Law* (2004 revision) classifies most wetlands as the type of un-utilized land, and encourages organizations and individuals to exploit un-utilized land for use such as farming. As a result, under this law, most wetlands can be considered to be categories of land for which exploitation is encouraged (Wang, Yao and Ju 2008, Wang et al. 2008). For this reason, it is necessary to establish special laws that will standardize the permitted and required behaviors for wetland protection and utilization, and also important to coordinate the existing laws so that they are compatible and people can use wetlands properly and consistently.

3.4. Summary

The results show that while environmental factors in GFBB have already been partially regulated by international and national laws and policies, these management regimes have been established and implemented independently; therefore, they are not adequate for the conservation of the whole GFBB system. We conclude that it is important to coordinate and strengthen existing laws and policies in an integrated manner to manage this system consistently and effectively.

4. FUTURE CONSERVATION STRATEGY

4.1. Realistic Strategy and Agenda-Setting

To date, an urgent threat to the GFBB ecosystem has not yet existed, and the significance of the conservation of this ecosystem has not made much known. At the present time, it is early to think of a substantial content and structure of a concrete strategy. However, this does not mean that we have to do nothing about the conservation of the GFBB ecosystem, because it has already become clear that the supply of dissolved iron from the Amur River basin regulates the primary production in the Sea of Okhotsk and Oyashio region and that the land surface disturbances such as land-use change from wetland to farmland, forest fire and loggings may impact the system in the future. On the other hand, more data and information is needed, in particular, concerning to what extent such land surface disturbances can in the end adversely affect the primary production in the Sea of Okhotsk and Oyashio region directly or indirectly. Without such information, international cooperation for the fair distribution of the costs and profits is difficult.

In the circumstances, based on the precautionary principle, we should first of all promote joint-monitoring, data exchange and mutual communication at the academic level among the four countries for the purpose of identifying the ecological condition in the GFBB system more clearly. For this purpose, we have established the “*Amur-Okhotsk Consortium*” as a platform to discuss issues grounded on scientific knowledge for the purpose of sharing a common recognition through the exchange of opinion and discussions on the natural environment of the Sea of Okhotsk and the Amur River basin. It is expected that “*Amur-Okhotsk Consortium*” will offer an excellent opportunity to share information and reach a common recognition of what the problems are.

Furthermore, we can sum up proposals for promoting interest in this ecosystem of both governmental and non-governmental decision-makers, and for urging them to initiate action on immediate and effective measures, as follows. These proposals will help us promptly establish a detailed strategy when the international political situation in these areas allows in the near future.

- a. It is necessary to promote understanding and acceptance by all stakeholders in the GFBB system of the importance of the GFBB ecosystem. For that purpose, it will need to ensure that stakeholder representatives can participate in the conservation framework and play an effective role in developing conservation measures. Only when their interests are reflected in the framework in this way, understanding and acceptance can be achieved. In particular, socio-economic interests of local peoples in the sustainable use of the GFBB ecosystem should be taken into account in the conservation framework.
- b. There should be urgent implementation of monitoring and research in order to enable a full assessment of the adverse impacts from human activities in land in the light of their extent, intensity, duration and the decrease in the dissolved iron flux on the primary production in the Sea of Okhotsk and Oyashio region.

- c. Management measures must be developed that will ensure the sustainable use of the Amur-Okhotsk ecosystem, and the balance of the interests of different sectors. In particular, in domestic systems, cooperation between fisheries, agriculture, land administration, nature conservation and forest policy authorities must be achieved.
- d. While the GFBF system is the transboundary ecosystem and inevitably needs international cooperation among relevant countries, this does not mean that management measures at the regional and local level are ineffective for the conservation. Local actions and measures of both governmental and non-governmental actors can successfully accommodate conflicts of interests among various stakeholders.
- e. Based on the monitoring and scientific research, setting objectives for environmental quality in the GFBF system is needed in support both of the formulation of policy and of assessment of the ecological condition. Then, at the next stage, an action plan, time frame for the implementation of the conservation measures, and procedures for the monitoring and assessment should be determined in the future.
- f. In order to carry out such a conservation measures, it is also necessary to develop an effective mechanism for economic and technical assistance from any international organizations, NGOs and relevant countries. Taking into account the fact that China and Russia have largely contributed to the transportation of the dissolved iron from the Amur River basin to the Sea of Okhotsk and Oyashio region, it may be necessary for other beneficiary states including Japan to share part of the costs for the conservation of the GFBF ecosystem. In a future conservation framework, relevant countries should discuss whether the beneficiary-pays-principle is applicable to the conservation of the GFBF system.
- g. The tasks for scientists are the scheme-making and scenario-optimization for management measures and ecological compensation measures. We should make an effort to ensure that the results of joint research, information exchanges and recommendations should be reflected in the conservation policies at international, governmental and local administrative levels.

4.2. Institutional Design

In order to achieve the elements mentioned above, we would like to propose a multilateral institutional framework for the conservation of the GFBF system (Figure 5). The aim of this framework will be to develop the common knowledge, facilitate information exchange, promote confidence-building between nations and other stakeholders and to work coherently and effectively towards a holistic approach to the conservation of the GFBF ecosystem, paying special attention to;

- a. The GFBF should be recognized as a guiding principle, that promotes the coordination, integration and reinforcement of existing international and domestic laws and policies;
- b. Directed by this principle, the “Giant Fish-Breeding Forest Partnership” among four

states can be built as a comprehensive flexible framework;

- c. This should be established as the multi-layered governance system composed of multilateral, regional, bilateral, national and local level communications and conservation measures;
- d. This should respect the bilateral agreements and communiqué already concluded between relevant countries;
- e. This should encourage the public participation of the local peoples, indigenous peoples, non-governmental organizations and academic researchers such as the “*Amur-Okhotsk Consortium*”;
- f. This should facilitate inter-linkage and further development of the existing international agreements that have already prescribed the basic obligations of the relevant countries for the environmental protection in these areas;
- g. In this partnership, relevant countries should conclude a new multilateral environmental agreement that requires these countries to facilitate mutual communication, negotiation and cooperation for the monitoring and assessment of the GFBB ecosystem, and prompt to take measures for the conservation;
- h. To promote consistency, other relevant measures which have been agreed or are being negotiated by some or all relevant countries in other forums should be taken into account; in particular, collaboration with the agreements between China and Russia concerning the joint-monitoring of the Amur River;
- i. In order to provide a robust framework for policy formulation, financial and technical assistance from international organizations and facilities (ex. UNEP, UNDP, GEF) and other interested countries and NGOs should be provided for the effective and sustainable management of the GFBB system.

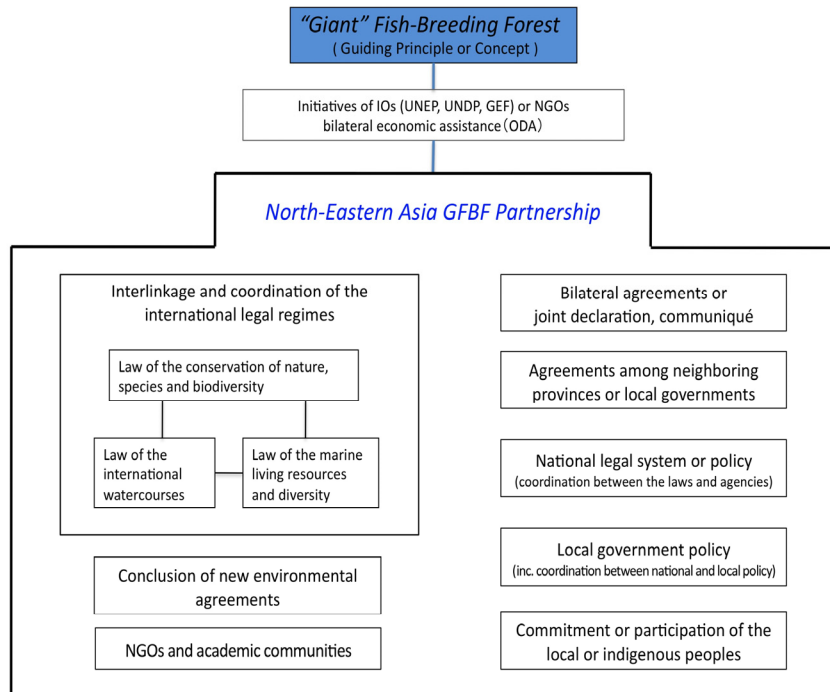


Figure 5. Structure of the “Giant” Fish-Breeding Forest Partnership

NOTE

1. United Nations Convention on the Law of the Sea (UNCLOS,1982), Article 56 (1)(b) and (2).
2. *Asahi News Paper*, 13 May 2009. The document has not yet been published (copy on file with author).
3. UN General Assembly Resolution 1803 XVII (1962).
4. UN General Assembly Resolution 3201 S-VI (1974).
5. ILA Helsinki Rules, Article 1 (1).
6. CBD, COP 5 Decision V/6 (2000), A1.
7. Forest Principle, Preamble para.(f).

REFERENCES

- Benvenisti, E. (2002): *Sharing Transboundary Resources: International Law and Optimal Resource Use*, Cambridge University Press.
- Boyle, A. and Birnie, P. (2003): *International Law and the Environment*, 2nd ed., Oxford University Press.
- Boyle, A. and Freestone, D. eds. (1999): *International Law and Sustainable Development: Past Achievement and Future Challenges*, Oxford University Press.
- Brownlie, I. (1979): “Legal Status of Natural Resources in International Law”, *Recueil des Cours: Collected Course of the Hague Academy of International Law*, tome.162, Martinus Nijhoff Publishers, pp.245-291
- Chambers, W.B. (2008): *Interlinkages and the Effectiveness of Multilateral Environmental Agreements*, United Nations University Press.

- FAO (2008): Review of Fishery Information and Data Collection Systems in China: FAO Fishery Circular No. 1029 (FIED/C 1029), FAO.
- FAO Investment Centre / EBRD Cooperation Programme (2008): Russian Federation: Review of the Fishery Sector: Study Supported Under the Japan Europe Cooperation.
- Faure, M. and Ying, S. eds. (2008): *China and International Environmental Liability: Legal Remedies for Transnational Pollution*, Cheltenham, UK: Edward Elgar.
- Haas, P. (1992): "Introduction: Epistemic Communities and International Policy Coordination", *International Organizations*, vol.46, pp.1-35.
- Han Zaisheng, R. Jayakumar, Liu Ke, Wang Hao and Chai Rui (2008): "Review on Transboundary Aquifers in People's Republic of China with Case Study of Heilongjiang-Amur River Basin", *Environmental Geology*, vol.54, pp. 1411-1422.
- Hassan, D. (2006): *Protecting the Marine Environment from Land-Based Sources of Pollution: Towards Effective International Cooperation*, Ashgate.
- Iwashita, A. (2005): "An Inquiry for New Thinking on the Border Dispute: Backgrounds of "Historic Success" for the Sin-Russian Negotiations", in Iwashita (ed), *Siberia and the Russian Far East in the 21st Century: Partners in the "Community of Asia"*, Sapporo: Slavic Research Center, pp. 95-114.
- Izumiya, K. (2006): "Conceptual Design of the Okhotsk Regime –Japan Proposal–", in Kitagawa, H. (ed.), *New Era in Far East Russia and Asia*, Ocean Policy Research Foundation (Ship & Ocean Foundation), pp. 277-290.
- Kakizawa, H. (2008): "Forest Policy Reform of Russian Federation", in *Report on Amur-Okhotsk Project*, No.5, pp. 99-105, September 2008, Research Institute for Humanity and Nature.
- Kaul, I., Grunberg, I., and Stern, M. (1999): "Defining Global Public Goods", in Kaul et al. (eds.), *Global Public Goods: International Cooperation in the 21st Century*, Oxford University Press, pp.2-19.
- MaCaffrey, S. (2007): *The Law of International Watercourses*, 2nd ed., Oxford University Press.
- Mensah, T.A. (1999): "The International Legal Regime for the Protection and Preservation of the Marine Environment from Land-based Sources of Pollution", in Boyle and Freestone (1999), pp.297-324.
- Oberthür, S. and Gehring T. (2006): *Institutional Interaction in Global Environmental Governance: Synergy and Conflict among International and EU Policies*, Cambridge: The MIT Press.
- Oude Elferink, A.G. (2001): "The Sea of Okhotsk Peanut Hole: *De facto* Extension of Coastal State Control", in Stokke ed., *Governing High Seas Fisheries: The Interplay of Global and Regional Regimes*, Oxford University Press, pp.179-205.
- Räsänen, T. and Laakkonen, S. (2008): "Institutionalization of an International Environmental Policy Regime: The Helsinki Convention, Finland and the Cold War", in Joas, M., Jahn, D. and Kern, K. (eds.), *Governing a Common Sea: Environmental Policies in the Baltic Sea Region*, London: Earthscan, pp.43-59.

- Sands, P. and Galizzi, P. eds. (2004): *Documents in International Environmental Law*, 2nd ed., Cambridge University Press.
- Schrijver, N. (1997): *Sovereignty over Natural Resources: Balancing Rights and Duties*, Cambridge University Press.
- Simonov, E. and Dahmer, T. eds. (2008): *Amur-Heilong River Basin Reader*, WWF, Hong Kong: Ecosystems Ltd.
- UNEP (2006a): *The Songhua River Spill China, December 2005, -Field Mission Report-*, UNEP, 26p.
- UNEP (2006b): Global international Water Assessment, GIWA Regional Assessment 30; Sea of Okhotsk, UNEP.
- UNEP (2006c): Global international Water Assessment, GIWA Regional Assessment 31; Oyashio Current, UNEP.
- Weiss, E.B. (2007): “The Evolution of International Water Law”, *Recueil des Cours: Collected Course of the Hague Academy of International Law*, tome.331, Martinus Nijhoff Publishers, pp.163-404.
- Wolfrum, R. and Matz, N. (2003): *Conflicts in International Environmental Law*, Springer.
- Yamane, M. (2007): “Recent development of forest resource use in Far East Russia, with a special focus on the relation to China”, *Journal of the Japan Paper Association, Pulp & Paper*, vol.57, No.3, pp.16-22. (in Japanese)
- Yamane, M. (2008): Recent Developments of the Sino-Russo Timber Trade in the Amur River Basin, in *Report on Amur-Okhotsk Project*, No.5, 107-116, September 2008, Research Institute for Humanity and Nature.
- Wang, Y., Yao, Y. and Ju, M. (2008): “Wise Use of Wetlands: Current State of Protection and Utilization of Chinese Wetlands and Recommendations for Improvement”, *Environmental Management*, vol.41, pp. 793–808.
- Wang, L. et al. (2008): *Conservation and Alternative Livelihoods: Study on the Sanjiang Plain Wetlands*, China: Social Science Academic Press.
- Ying, S. (2008): “International Legal Aspect of the Songhua River Accident”, in Faure and Ying (2008), pp.315-332.