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Legal aspects of transboundary biodiversity conservation and creation of the "Ural River Sturgeon Park"

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ABSTRACT OF THESIS submitted by:
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The presented research analyzes international and national regulatory mechanism of the Russian Federation and the Republic of Kazakhstan intended at assisting in formulating functioning and applicable biodiversity conservation schemes aimed at rescuing sturgeon population from extinction in the Caspian Sea and its tributaries. General overview of the reasons for sharp decline of sturgeon population for the past decade, as well as steps taken by each littoral state, and especially by Russia and Kazakhstan is examined.

Despite being the cradle of the sturgeon for many centuries, Ural River has not been seriously considered for the restoration programmes carried out in the region. Ural River has least managed hydro cycle and largest number of sturgeon spawning grounds compared to other rivers in the Northern and Eastern Caspian region. Considering its importance for the ecosystem of the Ural-Caspian Basin and survival of the sturgeon, possibility of creation of ecosystem based "Ural River Sturgeon Park", as suggested by Lagutov in the "Rescue of sturgeon species in the Ural River Basin", on the basis of existing bilateral, multilateral and international agreements is examined. This joint venture unlike zonal reserves and natural protection sites, will utilize cultural and historic knowledge of the communities living near the Ural River and international best practices on the biodiversity conservation.

Transboundary cooperation is an important aspect of any sound action plan, therefor joint, collaborative, ecosystem based approach involving all littoral states and layers of society is needed to change the fate of the sturgeon population and restore its former glory as a "King Fish".

Keywords: Sturgeon, conservation, Caspian Sea, Ural River, CITES, ecosystem based, transboundary cooperation, fish, littoral.

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I would also like to thank all the experts who were willing to talk and discuss this very controversial topic. Their inputs allowed me to put collected information into perspective of the geo-political relationship.

Last, but certainly not least, I would like to thank my family, and especially Olga Khon for supporting me during difficult times of thesis writing. It was definitely challenging several months those tested our strength.

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List of Abbreviations

CaspEco	The Caspian Sea: Restoring Depleted Fisheries and Consolidation of a Permanent Regional Environmental Governance Framework
CBD	The Convention of Biological Diversity
CEP	The Caspian Environment Programme
CEU	Central European University
CITES	The Convention On International Trade in Endangered Species of Wild Fauna and Flora
CoP	Conference of the Parties
CSA	Caspian Security Agreement
EIA	Environmental Impact Assessment
EU	European Union
FAO	United Nations Food and Agriculture Organization
FWS	The U.S. Fish and Wildlife Service
GEF	Global Environmental Facility
ICARCS	The International Commission on Aquatic Resources of the Caspian Sea
IWRM	Integrated Water Resource Management
LMOs	Living Modified Organisms
MCI	Monthly Calculation Index
NAP	National Action Plan
NCAP	National Caspian Action Plan
NSAP	National Strategy and Action Plan
OSCE	The Organization for Security and Co-operation in Europe
PES	Payments for Ecosystem Services
PSMA	The Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing
SAP	Strategic Action Plan
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environmental Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNTC	United Nations Treaty Collection
USSR	The Union of Soviet Socialist Republics
WB	World Bank

1. Introduction

1.1. Background information

Proper management of natural bioresources, land and water is an important aspect of sustainable development of any nation. Formation of new states as a result of fall of the Soviet

Figure 1- Ural River Transboundary Watershed (Russia-Kazakhstan) (Source: GRID-Arendal)

Union introduced new administrative boundaries and geopolitical change into the region, destabilizing the decision making system established by the Central Government. This resulted in formation of transboundary watercourses shared by 2 or more states, with all its living and non-living natural resources being the focus of heated political discussions and socio-cultural tension of bordering states. Biggest challenge that has been extensively discussed and

researched by international community of experts is Aral Sea catastrophe. However, less talked and discussed issue is disappearance of endemic species and ecosystems those have high cultural and economic values along the transboundary watercourses in other places of former Soviet Union, especially in the Ural-Caspian Basin. Many of the ecosystems within the watercourses have been overexploited and destroyed as a result of anthropogenic activities driven by economic gain, leading to the environmental degradation (Williot et al. 2002). Environmental challenges are most acute in downstream nations and in closed ecosystems. When it comes to transboundary watercourses, an effective solution would require joint efforts of all involved and interested stakeholder actors. The Ural-Caspian Basin, discussed in this research, is a transboundary water course, shared by the Russian Federation and the Republic of Kazakhstan. However, Caspian Sea is shared by five littoral states: Azerbaijan, Iran, Kazakhstan, Russia and Turkmenistan, which creates even more difficulties when searching for a solution to environmental challenges.

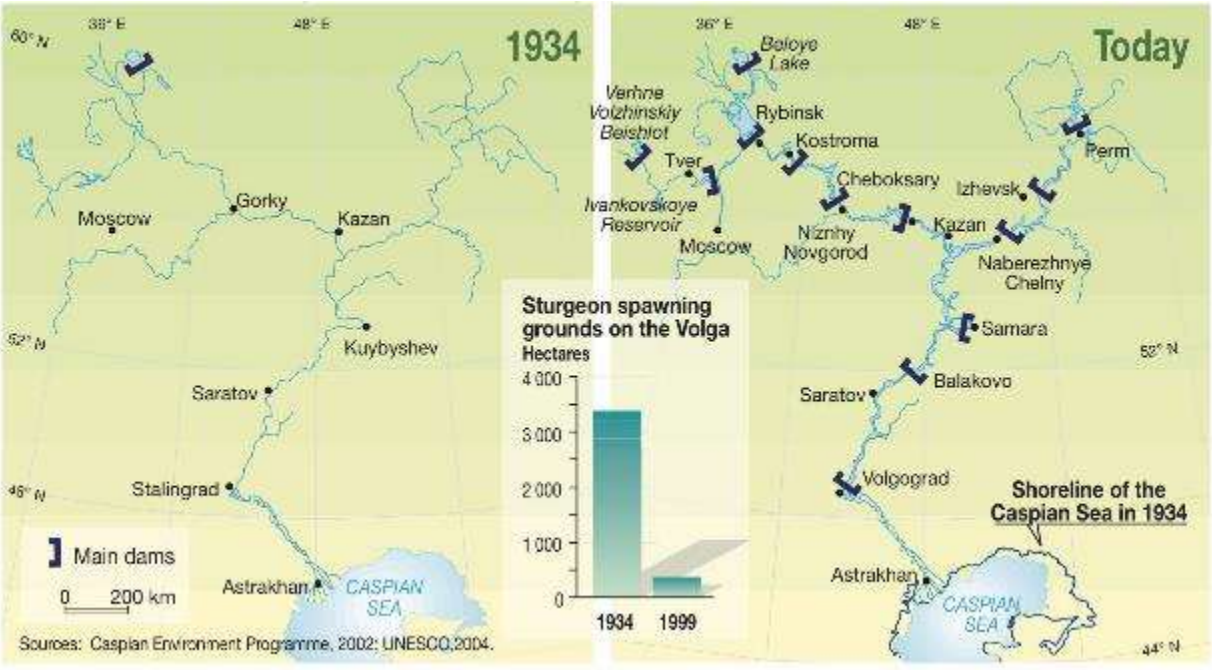
The Caspian Sea, once known for the abundance of its aquatic bioresources, for the past several decades has been experiencing strong decline of fish stocks due to pollution and overfishing. Even survival of the sturgeon is under question, unless a comprehensive, complex, ecosystem based protection and regulation mechanisms are urgently implemented by all stakeholders. According to Marta Coll, humanity has been unsustainably exploiting marine fisheries since 1970, increasingly exceeding the levels of fish stock replenishment ever since (Coll et al. 2008). This is true not only about marine fisheries but also about freshwater fish species as suggested by Lagutov (Lagutov 2008).

Sturgeons are among few fish species those have been threatened by economic activities as an economically valuable fish species, resulting in sharp stock decrease and even almost total depletion in Europe and other parts of the world. Currently about 90% of the world's sturgeon

population exists in the Caspian Sea and its tributaries. Since sturgeon is a migratory fish species, their survival depends on the safe migration from feeding to spawning grounds. Volga and Ural Rivers historically have been "cradle" for the sturgeon, but due to extensive hydro cycle management as a result of construction of numerous dams and hydropower stations, number of spawning grounds along the Volga River have drastically decreased (Lagutov 2008;Janusz-Pawletta 2015).

Despite numerous attempts to restore sturgeon population within the Caspian Sea and Volga River (Figure 2), few restoration programmes, if any, brought any improvements and reasonable results. The Ural River, on the other hand, despite having natural unregulated hydro cycle has not been previously considered important by national and international programs. However, for the past decade sturgeon issue has seen many changes in all littoral states of the Caspian Sea, and it is believed that inclusion of Ural River into the restoration programmes or creation of protected zone will have significant positive effect in addressing the issues of sturgeon preservation and restoration (Burmenko 2014).

Figure 2- Fragmentation of the Volga River over the last 60 years (Source: GRID-Arendal)



In 2014 all Caspian littoral states banned the commercial fishing of sturgeon and agreed on creation of the Commission on the Conservation and sustainable use of Aquatic Bioresources of the Caspian Sea. Nevertheless, ecosystem based transnational protection and conservation mechanism has not yet been formulated on national or international level (Burmenko 2014).

1.2. Research problem

The research builds on the knowledge that has accumulated over the years in the field of sturgeon biodiversity conservation and focuses on the issues of the sturgeon population decline in the Ural-Caspian Basin. Current and past biodiversity conservation programmes have mainly focused exclusively on the Caspian Sea and the Volga River, employing zonal conservation techniques which were not successful in halting the decline of sturgeon population in the Caspian Sea and its tributaries. Inclusion of the Ural River, as an important component of sturgeon survival has not been considered, disregarding expert findings indicating that the Ural River Basin has unregulated hydro cycle and a large number of spawning grounds. Regional and international experts do not have unanimous consensus on the reasons for failure of previous programmes and mechanisms used for sturgeon restoration and conservation. In order to stimulate community involvement into the ecosystem processes and state actions, transnational ecosystem based conservation mechanism, which would empower local population to take necessary protection action along the Ural River Basin, such as "Ural River Sturgeon Park" suggested by the Lagutov (2008) is needed. Suggested park takes into consideration past experience of the communities historically living on the shores of the Ural River Basin, who have sustainable managed sturgeon migratory path, spawning grounds and wintering sites.

1.3. Research Aim

This research aims to identify applicable legal and institutional mechanisms allowing for transboundary biodiversity cooperation on the Ural River Basin between Kazakhstan and Russian Federation leading to creation of the "Ural River Sturgeon Park".

1.4. Research Questions and Objectives

The research will focus on two research questions:

RQ-1. Can the creation of the ecosystem based "Ural River Sturgeon Park" result in sustainable management of aquatic natural bioresources of the Ural River Basin and lead to restoration of the sturgeon population within the Caspian Sea and its tributaries?

RQ-2. What are the existing national and international biodiversity conservation legal institutional mechanisms, incorporation of which into transnational biodiversity conservation strategy could result in establishment of the "Ural River Sturgeon Park"?

The objectives of the study are as follows:

1. Identify existing international and regional legal and institutional mechanisms dealing with IWRM and biodiversity conservation;
2. Analyze national and regional sustainable bioresources management strategies contributing to the recovery of the sturgeon population;
3. Assess effectiveness of international frameworks in halting biodiversity loss and sturgeon population decline;
4. Identify weaknesses in existing national laws
5. Advise regionally applicable necessary policy changes.

1.5. Limitation of the study

One of the biggest limitations of this research were time and financial constraints to conduct in-depth field research. Since the Ural River Basin covers vast area that requires time and money to travel, it was not possible to make thorough, on-ground research and visit necessary administrative units along the Ural River, those could shed some light on the current condition of sturgeon habitat and ecosystem. Therefore, the study was primarily conducted through desk research and interviews with regional experts and government officials.

It should also be noted that despite numerous and persistent attempts to meet and interview high government official and "Old-timers" working in the region and especially in the Ural-Caspian Basin, many have simply refused to communicate with master student from foreign university, others refused to share information even anonymously fearing to "upset" donors financing their work in the region by disclosing some sensitive information. While others have not responded to the request at all. Though, information they may have provided could have been useful in a generic sense to confirm statement of other experts, who have agreed to communicate, it does not significantly affect the finding of the research.

National statistical data was also not openly available despite both countries being signatories to the Aarhus Convention. Attempts to acquire from paid national data centers also failed, due to lack of interest and effort from the representatives of those data centers. It should also be noted that international experts working in the region also highlighted that lack of open information sharing is one of the biggest challenges Central Asia is facing in terms of project implementation and result assessment. Therefore, statistical data used for this research was obtained through desk research and open sources and could differ from data available at the national statistical centers.

1.6. Outline

This research consists of six chapters. The first chapter, Introduction, gives generic overview of the issues discussed, research subject that is being examined, its aims, objectives and limitations encountered during the course of the work. The second chapter, Literature Review, provides an analysis of the theoretical review of studies and discoveries made in this field by other esteemed researchers with the focus on Caspian Sea, Ural River, sturgeon conservation and creation of multilateral agreement on joint operation and management of natural resource by thorough analysis of books, scientific journals, electronic sources, government official documents, national and international reports and other relevant documentation. The third chapter, Research Methodology, presents methodological framework and details of the conducted research. The fourth chapter, Factors contributing to the creation of the "Ural River Sturgeon Park", summarizes the findings of the desk research and interview results within the context of legal possibilities of the "Ural River Sturgeon Park" creation on a bilateral basis. The fifth chapter, Conclusion, presents summary of the findings with subjective analytical perspective of the author within the context of the research aim.

2. Literature review

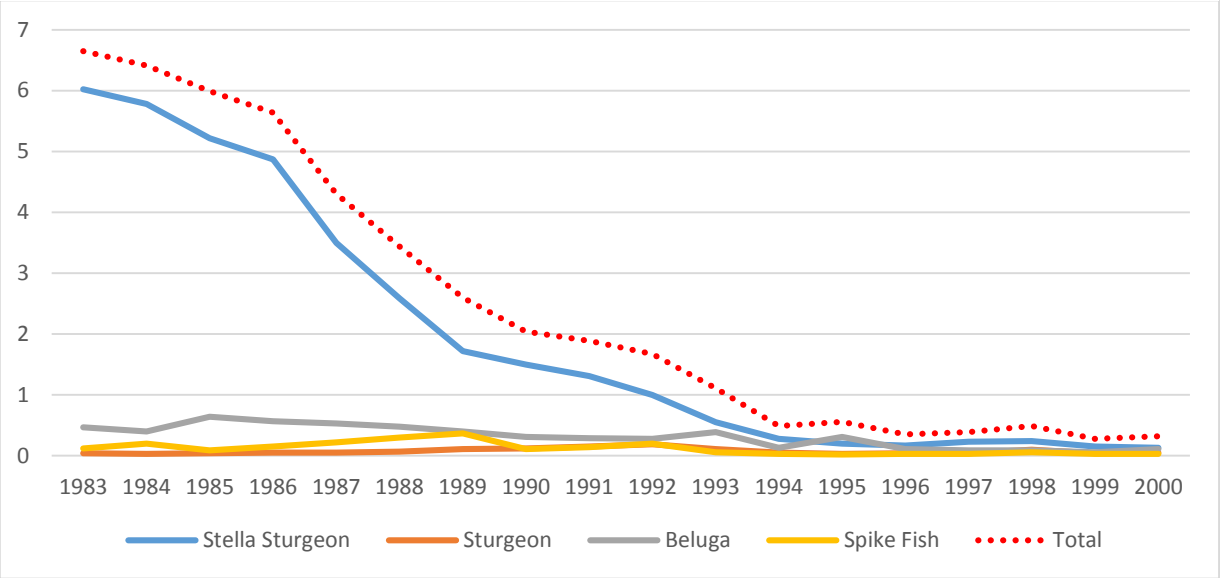
2.1. Main reasons for sturgeon population decline

Nowhere in the world sturgeon population is currently stable. It has been constantly declining despite numerous attempts to save these species from extinction. Only about 30 years ago species of this fish were abundant in most of the natural habitats around the world, and especially in Caspian Sea, but today many of them are facing "possible and even probable extinction" (Raloff 2006). Raloff also quotes Molly A.H. Webb sturgeon physiologist of the Bozeman (Mont.) Fish Technology Center, who suggest that sturgeons are living fossils, who have lived on this planet for more than 200 million years and have not physically changed since. This is also supported by the findings of Lagutov in the "Rescue of sturgeon species in the Ural River Basin", where he points out that some species of sturgeon, like Beluga and Russian Sturgeon, can live up to 150-200 years (Lagutov 2008). They resemble prehistoric sharks both in the skeleton formation (their frame is made of cartilage, not bones), and in terms of low reproduction rates (male fertility may start as late as12 years of age and female fertility at 25 years of age. They also take 3 to 5 years before they are ready for reproduction again). High commercial value and low reproduction rate makes them vulnerable to overfishing, since these species do not have sufficient time for restocking if commercial and illegal fishing is not properly controlled (Raloff 2006;Lagutov 2008).

Fisheries biologist Dylan Fraser of Concordia University in Montreal and lead scientist Phaedra Dukakis of the Institute for Ocean Conservation Science at Stony Brook University in New York affirm that survival of the sturgeon species, due to its unique reproductive cycle, depends solely on protecting the older female fish. Farm-hatched fry is not capable to sustain the sturgeon population, as many of them are extracted from the wildlife before they actually have chance to reproduce, therefore, the only possible solution, as suggested by the study, to stop

extracting individuals younger than 31 years of age in order to have minimal positive effect on the fish population restocking (Ehrenberg 2010;Lagutov 2008).

Table 1- Sturgeon catch by all littoral states in mil.tons per year (1983-2000) (Source: Salimgerey 2007)



According to the data provided by Salimgereyev, Deputy Director of the Institute of State and Law of Kazakh State University, Ural-Caspian Basin is Kazakhstan's main fishery basin which accounts for more than 40% of all catches of the country, especially sturgeons. He points out that in 1970th official sturgeon catch in the Ural-Caspian Basin was exceeding millions of kilograms per year, but it has been declining since the late 1980th (Table 1). In 2000 total catch from the Ural-Caspian Basin was as low as 0.32 thousand tons per year. Author stipulates that this is attributed to the sharp decline of the sturgeon population in the Ural-Caspian Basin since 1985 due to increased pouching activities and limited resource availability of the environmental protection agencies and authorities (Salimgerey 2007).

Decrease of the catch volume and increase of the pouching activities are also supported by the findings of Isbekov, Director General of the LLP "Kazakh Research Institute of Fisheries". He suggests that due to changing political situation as a result of collapse of the Soviet Union and worsening of the socio-economic condition of the population, there was a decrease in the number of staff and police working in the Volga-Caspian Basin on protecting the natural

resources from illegal intruders, this in turn forced economically challenged layers of society to resort to pouching as a means to provide for their families. However, due to the magnitude of the illegal activities and weak protection mechanism this had a devastating effect on the sturgeon population, which is still in a great danger (Isbekov et al. 2015).

Based on the interview given by Andrey Molodianov, the Contre-amiral (commodore) of the Russian Navy, small scale poacher who is trying to feed his family uses small boats and catches very few fish. However, commercial pouching that is taking place in the northern part of the Caspian Sea, in the area of Chechen and Tulenyi Islands, as well as in the area of Kulalinskaya banks, Kulaly and Ural Borozdina Islands off the coast of the Republic of Kazakhstan is something to worry about. Poachers there equipped with satellite phones, navigation systems, large powerful boats and carry gun. They have all the necessary tools to avoid punishment, but biggest challenge is to persecute international poachers. Due to the weak international cooperation mechanisms, and disagreements on the legal delineation of the Caspian Sea, quite often violators are let free without any charges. This makes any anti-pouching activities meaningless (Deinega 2012). This point is further supported by the statement made by Lebedev, Head of the protection of marine bio-resources of the Border Service of Federal Security Service of Russian Federation, during interview to News Kazakhstan Information Agency. He pointed out that poaching is no longer localized to a regional population, it has reached international levels that involves citizens of other Caspian Sea Littoral States (Lada Press 2014;Janusz-Pawletta 2015).

According to the Atyrau Regional Territorial Inspections of Forestry and Wildlife, in 2010 - 3426 kg of sturgeon fish and 5.6 kg of sturgeon caviar, while in 2014 – 670 kg of fish and 4.6 kg of caviar was confiscated. Border Service of the National Security Committee of the Republic of Kazakhstan reported that in 2014 – 524.7 kg of fish and 2.47 kg of caviar was

confiscated during border crossing attempts. The deputy chief of the water police of DIA of Atyrau region Baktygali Amaniyazova informed that in 2013 a total of 63 tons of fish, including 2118 kg of sturgeon fish and 14.5 kg of sturgeon caviar was confiscated during raids (Isbekov et al. 2015).

Another factor influencing the ecosystem of the Ural-Caspian Basin and resulting in further worsening condition of the sturgeon population in this water basin is environmental degradation (as a result of increased activities of metal and oil industries) and water mismanagement (as a result of increased population and agricultural activities). As suggested by the information provided by Bektenov to the FerganaNews, and also supported by the findings of Lagutov, Ural is experiencing extensive pollution from the Magnitogorsk Iron and Steel Plant, Southern Ural Nickel Plant and mining in the Mangystau Region, as well as increasing number of oil and gas industries in the West Kazakhstan and Atyrau Regions of Kazakhstan. The situation is worsened by the chaotic construction of earth dams in small rivers and tributaries feeding Ural River. This may lead to decrease of Ural River water level to a degree that it will stop reaching Caspian Sea, repeating the fate of the Emba river which does not fall into Caspian Sea since 1939(CBD 2014). Specialist of the Russian Research Institute located in Yekaterinburg, Russian Federation, point out that "social ecological culture" of the settlements along the Ural River, especially in small settlements, is not sufficiently high, as many use backdoor channels for waste disposal and gutters which is also negatively effecting ecosystem of the river basin (Bektenov 2016). Andrey Kravchenko, Deputy Attorney General of the Republic of Kazakhstan, raises a worry that due to anthropogenic factors (pouching, oil and gas industries, agriculture) water cycle of ecosystem of the Ural River has been damaged to a degree that may result in extinction of sturgeon within next 4-5 years (Konyrov 2013).

Following the international best practices of sustainable fisheries and use of aquatic resources United Nations Food and Agriculture Organization (FAO) in 2007 published the "Technical Guidelines for Responsible Fisheries" focusing on different technical aspects of fish stock recovery. The Guide clearly indicates that due to sharp increase of fish stock exploitation rate worldwide population of many fish species are threatened. A complex approach from international and local environmental protection agencies, economic and financial players, socially active groups, governments, fishermen and researchers is required in order to save what we have left (FAO 2007).

As suggested by Barannik et al. there is a strong need in establishment of the Integrated Water Resources Management (IWRM) policies those reflect local natural and socio-economic conditions in order to start the work of sustainable development within the regional waters. He proposes an idea that inadequate expert advice due to lack of information and political freedom, as is the case with the regional Commission on Aquatic Bioresources of the Caspian Sea, leads to unsustainable extraction of natural resources, which is clearly seen from the case of sturgeon population decline over the last few decades. He also argues that selfish interests of riparian states and widespread instances of corruption in the region are limiting the effect national and international programmes may have on the conservation and protection of commercially valuable and threatened species. Local control organization should undergo complex reorganization and strengthening measures before some faceable outcome can be achieved (Barannik et al. 2004).

2.2. International initiatives in protection of sturgeon population in the world

2.2.1. CITES

Expressing the concern of unsustainable management of commercially valuable species of sturgeon, that resulted in its sharp decline in the world and especially on the territory of former Soviet Union, the Convention On International Trade In Endangered Species Of Wild Fauna And Flora (CITES) listed all sturgeon species into the Appendix II[1] (except for the *Acipenser brevirostrum* and *Acipenser sturio* which are the only sturgeon species currently listed in Appendix 1) and introduced strict certification methods that enabled the control of international trade of all forms of sturgeon products since 1998, after the decision was adapted at the CoP10 meeting in Harare in 1997 (Janusz-Pawletta 2015;CITES n.d.a;CITES n.d.c). In 2001 as a response measure to high levels of illegal poaching activities in the Caspian Littoral States, the CITES Secretariat under the "Paris agreement" prohibited the export and trade of wild caviar from Azerbaijan, Kazakhstan, Russia and Turkmenistan until all requirements to protect and restock sturgeon population were met (CITES 2004). On January 3, 2006, the CITES Secretariat announced a treaty that prohibited all the international commerce of wild sturgeon products from the Caspian Sea Basin, the Black Sea, lower Danube River Basin, and the Amur River Basin; however, this did not apply to the products of farmed sturgeon. All 169 signatory nations were obligated to enforce the treaty until mentioned riparian states agree on export quotas and took necessary steps in sturgeon conservation via national programmes and implementation of management techniques (Raloff 2006;UNEP 2007).

Raloff (2006) suggest that sturgeon-product producing and exporting nations may not always have sufficient financial wealth to protect commercially valuable fish stock from poaching, not

[1] Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival.

to mention the preservation of endangered species. The situation of illegal catches is something that all caviar-exporting nations are facing, even the U.S., despite this countries strict judicial system. This situation is even worse in the post-Soviet caviar-exporting states. Because of the CITES' ban on export of wild sturgeon caviar the price of this delicacy has increased worldwide, which inevitably led to the increased number of people willing to break the law for the profit. Dr. Pikitch argues that since large portion of sturgeon caviar comes from Caspian States, and U.S. is importing about 60% of beluga caviar from abroad, interlinkage of the market forces are driving beluga population in the Caspian Sea to extinction, therefor, U.S. and other nations should step-up in their attempts to protect sturgeon species by changing their consumer choices to caviar of other none threatened species (Raloff 2006; Crownover 2004).

Reviewing the effect of CITES' enforcement mechanism, it was concluded that since new requirements were set upon exporting states, illegal pouching has exceeded the legal catches by 3 to 5 times, indicating that simple export quotas are not effective way to minimize the pressure on the fish stock, but additional actions are required to decrease demand and therefor supply of sturgeon caviar worldwide (Roberson 2007). As a response to the active awareness raising campaign and petition filed by the environmental organizations addressing the U.S. Fish and Wildlife Service (FWS) to include beluga to the national threatened species list, on September 30, 2005 U.S. banned the import of beluga caviar (Pala 2005).

One other reason for CITES failure that is less discussed in the international media and published materials, is increased local market demand for Caspian sturgeon meat and caviar as a result of socio-economic growth of the oil rich region and price increase that attracts poachers. As Kazakhstan's oil capital, Atyrau – located in the West Kazakhstan region, attracted oil companies with large salaries, allowing demand dictate the rules of the game for suppliers, less economically advantageous layers of society, as well as, those looking for "fast and easy cash",

now are ready to break the law. As competition to catch few left fish increased, poachers are seen further and further off the shore as reported by a sturgeon scientist Sagiden Yerbulekov from Atyrau region of Kazakhstan (Pala 2007). According to the Order #18-05 / 839 of the Minister of Agriculture of the Republic of Kazakhstan dated September 22, 2015: On the pricing of products sold by the state monopoly entity the price of 1kg of sturgeon caviar was set at about US $780 (140 661,5 tenge) as of November 2015, whereas on the international market the price of the same caviar ranges from US $1000 to US $3000 (Adilet 2015).

2.2.2. Port State Measures Agreement (PSMA)

The Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing proposed by FAO and adopted in 2009 by 12 port nations serves the purpose of the preventing, deterring and eliminating illegal, unreported and unregulated fishing by utilizing state enforcement and control mechanisms, is entering into force on July 6, 2016 (FAO 2016;FAO 2009). According to the FAO, this mechanism should help in combating 23 billion dollars illegal fishing business that is responsible for 26 million tons of fish withdrawal ever year. As of June 3, 2016, some 57-port states (including EU) have jointed the PSMA, which according to Matthew Camilleri, the Food and Agricultural Organization's chief shepherd of the Port State Measures Agreement: "At a minimum [enforcing the agreement] will mean that vessels engaged in illegal fishing will be forced to travel further to land their fish or refuel". However, Elizabeth Wilson, director of the International Ocean Policy at Pew Charitable Trusts, is not so optimistic, as she suggest that some threatened species of fish, such as the Pacific Blue Fin Tuna is in a critical condition because states continue to issue fishing quotas despite continues research finding and recommendations indicating that fishing is no longer sustainable at any level (Rowlands 2016). John Kerry, Secretary of State, states that "By joining the Port State Measures Agreement, the United States commits to work together with other nations to prevent illegally caught fish from entering into commerce worldwide by

reducing the number of ports where these fishing products can be unloaded and making it harder for bad actors to do business"(Department Of State. The Office of Website Management 2016).

2.2.3. Aarhus Convention

As stated in Article 1 of the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention): "In order to contribute to the protection of the right of every person of present and future generations to live in an environment adequate to his or her health and well-being, each Party shall guarantee the rights of access to information, public participation in decision-making, and access to justice in environmental matters …". The aim of the Convention is to provide public with information that can help protect the environment and their livelihoods from illegal and harmful actions of third parties (UNECE n.d.).

At the moment 47 states are signatories to the Convention. However, even though Russian Federation actively participates in the discussions and meetings of the member states to the Aarhus Convection, it has not yet been accepted as an official member. Discussion on inclusion and signing of the Convention are ongoing. Kazakhstan has been the member of the Aarhus Convention since its ratification in 2001, and has been working on fulfilling its international obligations. However as stated in the First progress review of the implementation of decision V/9i on compliance by Kazakhstan with its obligations under the Convention: "During the 13 years since Kazakhstan ratified the Convention, the public had repeatedly made clear that the country lacks mechanisms of public opinion. Moreover, there was a huge gap in Kazakhstan between the law and its practical application". Contrary to the claims made by the government of the Republic of Kazakhstan in the progress report on the implementation and compliance with rules and regulation of the Convention, it has been suggested that public participation and

feed-back mechanisms are not properly functioning and EIA discussions are not carried out at a necessary level (UNTC n.d.;UNECE 2015).

During the meeting organized by the Organization for Security and Co-operation in Europe (OSCE) Programme Office in Astana, Natalia Zarudna, Head of the Office, highlighted that there is a need to strengthen mutually-beneficial co-operation at the national and regional levels and ensure equal participation of representatives of civil society and the business community in addressing environmental and economic challenges. Oleg Chernishov, Deputy of the regional council in East Kazakhstan Region, the Maslikhat, added that: "In order to protect environmental rights, [one] should primarily engage in dialogue with the government, which must protect its citizens and adhere to its international commitments. The Aarhus Convention is not just a tool to protect the environment, but a means to promote democracy by enhancing the role of civil society in protecting the environment for generations to come" (OSCE 2015).

2.2.4. UNECE Water Convention

The Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UNECE Water Convention) is a regional framework adapted in 1992 and entered into force in 1996. It provides its member states with detailed set of practical and theoretical tools those could be used to promote cooperation and environmental sustainability with neighboring states within the context of transboundary water cooperation. The UNECE Water Convention is interlinked with ecosystem protection, since transboundary watercourses and freshwater supply are of a high important to national wellbeing and economic prosperity. It's functions also correlate with the aims of the CBD as health ecosystem is the key for healthy environment in all its forms, since poor water management has negative and devastating effect on biodiversity and ecosystem (Ganoulis *et al*. 2013).

Dniester River Basin Projects in Eastern Europe that was carried out by UNECE in 2006-2012, is a great example of transnational cooperation, implementation of IWRM principles and ecosystem based approach. Dniester River is one of the largest Eastern European rivers. It starts its course in the Carpathian Mountains of Ukraine, flows through the Republic of Moldova and discharges into the Black Sea. The project was jointly managed by the OSCE, the United Nations Environment Programme (UNEP) and United Nations Economic Commission for Europe (UNECE) as part of the Environment and Security Initiative. It mainly focused on transboundary cooperation and sustainable management of the Dniester River. The outcome of the project was creation and implementation of the Action Programme and signing of the bilateral Treaty on Cooperation on the Conservation and Sustainable Development of the Dniester River Basin. The new Treaty identifies principles and provides a framework for cooperation on water pollution prevention and control, water flow regulation, conservation of biodiversity and protection of the Black Sea environment (UNECE 2013).

As indicated on the UNECE website, UNECE under the auspices of the Water Convention is working on the "integrated approach to water management, improvement of water quality and the protection of ecosystems and biodiversity in several transboundary basins": Afghan-Tajik cooperation on environment and hydrology in the upper Amu Darya Basin; Kazakh-Kyrgyz cooperation in the Chu and Talas River Basins, Georgia and Azerbaijan coopetition on develop of a bilateral agreement on the shared water resources of the Kura River Basin(UNECE n.d.;Tanzi *et al*. 2015).

In the "Recommendations on payments for ecosystem services in integrated water resources management: Convention on the Protection and Use of Transboundary Watercourses and International Lakes" it is suggested that in order to "to prevent, control and reduce impacts on the environment, including human health and safety, taking into account biodiversity

conservation and restoration" it is important to implement Payments for Ecosystem Services (PES) methods of management of transboundary waters, which could be done though awareness raising campaigns, bilateral and multilateral cooperation, economic stimulation of local communities and integration of ecosystem protection mechanisms into regulatory law (Vereinte Nationen 2007).

Both Russian Federation (1993) and Republic of Kazakhstan (2001) are members of the Water Convention (UNTC n.d.), and have been closely working with UNECE on number of projects thought all these years. A lot of work has been carried out to implement principles and international best practices into national strategies of Integrated Water Resource Management (IWRM), but till this day some shortcomings of cooperation, especially related to information sharing can be seen. In the 2011 UNECE Report on the Assessment of transboundary rivers, lakes and ground waters discharging into the Caspian Sea, the data use for both countries are outdated or missing (UNECE n.d.).

2.2.5. Convention of Biological Diversity (CBD)

The Convention of Biological Diversity (CBD) is a legally binding international agreement (Parties who ratified it are obligated to its provisions) that entered into force on December 29, 1993 and aimed at setting principles for the conservation of biological diversity around the world, sustainable use of all forms of flora and fauna, as well as fair and equitable sharing of benefit arising from the use of biological resources. The convention offers decision-makers a precautionary principle that obligates decision-makers or action takers to prove that an action does not have adverse effect on the ecosystem or environment, if this have not been proven by the science or any other finding. Any action taken should not threaten the survival of the species and lead to biodiversity loss. There are 2 Protocol that further support and strengthen the objectives of the Convention:

- **The Cartagena Protocol on Biosafety** is an international agreement which aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health. It was adopted on 29 January 2000 and entered into force on 11 September 2003.
- **The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization** is an international agreement which aims at sharing the benefits arising from the utilization of genetic resources in a fair and equitable way. It entered into force on 12 October 2014 (CBD n.d.).

Both Russian Federation (1995) and Republic of Kazakhstan (1994) have ratified the Convention. Kazakhstan has been added to both protocols by an accession (Cartagena Protocol: 2008 Nagoya Protocol: 2015), where as Russia has not yet joined (CBD 2015).

According to the Fifth National Report On Progress in Implementation of the Convention On Biological Diversity prepared by The Ministry of Environment and Water Resources of the Republic of Kazakhstan in 2014, National Strategy and Action Plan on the conservation and sustainable use of biological resources of the Republic of Kazakhstan are based on the analysis of "economic and social environmental benefits" when implemented at a national and local levels. The main strategies implemented in achieving biodiversity conservation are: Reduction of threats and ensuring conservation of biological diversity; Improvement of the system of coordination of actions aimed to resolve biodiversity issues; Environmental reconstruction and rehabilitation of damaged ecosystems. However, it is also noted that the national strategy was developed in 1999 and may not reflect up-to-date condition and necessary actions. In addition, due to the fragmented structure and weak interaction of the governmental ministries, much of the carried out activities are slow and incompletely (CBD 2014).

According to the findings of the Fifth National Report: Conservation of Biodiversity in the Russian Federation, biggest threat to the sturgeons, whitefish and some groups of salmonids, red king crab, wood grouse, mountain ungulates, tiger, leopard, snow leopard, etc. is associated with the expansion of poaching and unauthorized use of biological resources. It is also stated that since 2009 numerous ratifications and revisions to Criminal Code and National Sustainable development strategies were done to protect valuable species and lands from unlawful activities, including providing legal rights to workers at national protected zones to protect their lands and increased penalties for poaching (Tishkov et al. 2015).

2.3. Transnational Initiatives

2.3.1. The Caspian Environment Programme (CEP) and its evolution

The Caspian Environment Programme involved all five Caspian littoral states: Azerbaijan, Iran, Kazakhstan, Russia and Turkmenistan. It was aimed at halting the degradation and deterioration of the ecosystems within and around the Caspian Sea and set a path to sustainable development of this region by joint action of all states. CEP was supported by Global Environmental Facility (GEF), United Nations Development Programme (UNDP), World Bank (WB), UNEP and European Union (EU), other international organizations and a private sector (United Nations University (UNU) n.d.).

The Caspian Environment Programme was carried out in two phases between 1998 and 2007:

Phase I - Addressing Transboundary Environmental Issues in the Caspian Environment Programme;

Phase II - Towards a Convention and Action Programme for the Protection of the Caspian Sea Environment.

At the end of the CEP, new project evolved that aimed at "The sustainable use and conservation of the Caspian Sea's bioresources". It was titled The Caspian Sea: Restoring Depleted Fisheries and Consolidation of a Permanent Regional Environmental Governance Framework "CaspEco" and was carried out between 2009-2012. It also involved 5 littoral states and had USD $5 million budget that was co-financed by all states and international donors. According to the CEP Terminal Evaluation Report the project outcomes was rated as "moderately satisfactory" with its biggest and main achievement being promotion of collective ecosystem based management of the Caspian Sea and facilitation of the further development of the Tehran Convention as an only legally binding mechanism between all littoral states (Lenoci 2012). Overarching Strategic Action Plan (SAP) and National Caspian Action Plans (NCAP) were drafted addressing the overall regional issues, as well as national challenges in achieving sustainable development initiatives.

In the SAP - Ural River is mentioned only once with regards to the Target-2: Rehabilitate stocks of migratory (sturgeon, inconnu, herring) commercially valuable fish species. – Indicator-b: Key spawning grounds restored, protected and maintained at productive levels including Kura, Sefidrud, Anzali Wetlands, Ural and Volga. NCAP of the Republic of Kazakhstan presents larger scope of activities aimed at addressing the environmental degradation of the Caspian Sea, including: Restoration of spawning sites and performing melioration activities in Volga and Ural River Deltas, establishing stricter regulation mechanisms to combat oil and industry pollution, increase public awareness in the coastal regions and control illegal sales of commercially valuable fish species (UNU n.d.).

Under the auspices of The International Commission on Aquatic Resources of the Caspian Sea (ICARCS) a draft Agreement on Conservation and Management of Aquatic Bioresources of the Caspian Sea has been discussed resulting in signing of the Framework Convention for the

Protection of the Marine Environment of the Caspian Sea (The Tehran Convention) in 2003 (Janusz-Pawletta 2015).

2.3.2. Tehran Convention

The Tehran Convention adapted in 2003, entered into force upon ratification by all member states (Azerbaijan, Iran, Kazakhstan, Russia and Turkmenistan) in 2006. It provides set of obligations that each state, individually or jointly, should take in order to facilitate sustainable management of bioresources of the ecosystem and combat any environmental challenges leading to biodiversity loss and deterioration of the environment. In addition to the Framework Convention, all littoral states are working on putting together protocols addressing specific issue areas and possible joint solution to them. Currently there are 3 formulated protocols and one is being drafted:

- **The Protocol Concerning Regional Preparedness, Response and Co-operation in Combating Oil Pollution Incidents ("Aktau Protocol")** was adopted and signed at the (CoP3) in Aktau, Kazakhstan on August 12, 2011. This is the first Protocol to the Tehran Convention ratified by all Parties. It will enter into force on 25 July 2016.
    - Article 3 of the Atyrau Protocol stipulates:

    "The objective of this Protocol is to provide regional measures for preparedness, response and co-operation for protection of the Caspian Sea from oil pollution caused by activities referred to under Articles 8 and 9 of the Convention and marine oil pollution originating from land-based sources."

- **The Protocol for the Protection of the Caspian Sea against Pollution from Land-based Sources and Activities ("Moscow Protocol")** was adopted and signed at the CoP4 in Moscow, Russian Federation on December 12, 2012. Kazakhstan and Russia have not yet ratified this protocol.

    - Article 4 of the Moscow Protocol indicates that:

"The Contracting Parties shall individually or jointly take all appropriate measures in accordance with the provisions of the Convention to prevent, control, reduce and to the maximum extent possible eliminate pollution of and other adverse effects on the marine environment and coastal areas of the Caspian Sea from land-based sources and activities."

- **The Protocol for the Conservation of Biological Diversity ("Ashgabat Protocol")** was adopted and signed at the CoP5 in Ashgabat, Turkmenistan, on 30 May 2014. It has been ratified only by the government of Turkmenistan.
    - Main objective of the Protocol, as suggested by the Article 2:

"The objectives of this Protocol are to protect, preserve, and restore the health and integrity of the biological diversity and the ecosystem of the Caspian Sea as well as to ensure the sustainable use of biological resources."

Table 2- Status of ratification of the Protocols to the Tehran Convention (Source: Rizzolio 2016)

Protocol	Status	Azerbaijan	Iran	Kazakhstan	Russia	Turkmenistan
"Aktau protocol"	Signed	12/08/2011	12/08/2011	12/08/2011	12/08/2011	03/11/2011
	Ratified	21/12/2012	15/08/2012	18/03/2016	25/06/2013	22/12/2012
"Moscow Protocol"	Signed	x	12/12/2012	05/05/2013	02/05/2013	12/12/2012
	Ratified	25/02/2014	12/05/2014	Pending	Pending	23/05/2015
"Ashgabat Protocol"	Signed		30/05/2014		22/02/2015	30/05/2014
	Ratified					23/05/2015
4th Protocol	Text being drafted: The Protocol on Environmental Impact Assessment in a Transboundary Context					

2.3.3. Caspian Security Agreement (CSA)

Caspian Security Agreement CSA is a multilateral agreement between all 5 littoral states of the Caspian Sea. The document serves as a "legal basis for cooperation between parties' in such areas as combating terrorism, organised crime, smuggling, human trafficking and illegal migration, trafficking in weapons of any kind, ammunition, explosives and poisonous substances, military equipment; illicit traffic in narcotic drugs, psychotropic substances and their precursors; the laundering of proceeds of crime; illegal extraction of bioresources (poaching). The agreement also provides for cooperation in maritime and navigation security,

and in the fight against piracy"(Presidential Press and Information Office 2011). The adoption of the above agreements indicates the possible direction of future actions aimed at seeking and reaching agreements by the coastal states in relation to the specific important aspects of their cooperation in the Caspian Sea Basin. The agreement has not yet been ratified by all members to the agreement.

2.3.4. Bilateral cooperation mechanisms between Russia and Kazakhstan

Article 3 of the Decree # 1484-P of the Government of Russian Federation dated 06.09.2010: **On signing the Agreement between the Government of Russian Federation and the Government of the Republic of Kazakhstan on joint use and protection of transboundary water bodies** stipulates:

"In accordance with the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) dated March 17, 1992, and revised in September 7, 2010, the Parties have agreed to organize annual working group meetings to discuss protection and management mechanisms and challenges of the Ural, Irtysh, Ishim, Tobol, Kigach, Great and Small Uzen Rivers and prevent (minimize) cross-border impact by:

- refrain from actions (inaction), which can lead to deterioration of the hydrological and hydrochemical regime of transboundary water bodies and state associated ecosystems;

- take measures to prevent, control, reduce and eliminate pollution of transboundary water bodies;

- take measures to prevent or mitigate the negative effects arising from changes in the status of transboundary waters, including floods, ice jams, infections transmitted by water, silting of river beds, coastal erosion;

- take measures to ensure that the content is in good technical condition of waterworks, sewage ponds and liquid wastes, which are a potential source of physical cross-border impact." (Decree RF 2010). Based on the agreement, additional work is being carried out to create the Intergovernmental Commission and the Interstate Fund on Preservation of Ural River Basin Ecosystem. (FSSNR OR 2011). As suggested by the Russian Ambassador to Kazakhstan Bocharnikov in his interview to "MK in Kazakhstan": Since 2010 the work in formulation and creation of "The Intergovernmental Commission" and "the Interstate Fund on preservation of Ural River Basin Ecosystem" has been carried out between Russia and Kazakhstan, but decision has not been adopted so far (Shishanova 2016).

2.3.5. Moratorium on sturgeon fishing

Since 2005 Russian Federation has unilaterally announced moratorium on commercial fishing of sturgeon in the Caspian Sea. In 2010 Republic of Kazakhstan has joint the initiative, and in 2012 all other littoral states (Azerbaijan, Iran and Turkmenistan) also joint, indicating strong desire to revive the sturgeon population. However, fishing of wild sturgeon is still permitted for scientific and reproductive purposes (Burmenko 2014). During the annual meeting of the Commission on the Conservation and sustainable use of Aquatic Bioresources of the Caspian Sea it was generally agreed that moratorium on sturgeon fishing will be extended until the end of 2016 (Pravda.ru 2016).

Forth summit of Caspian Littoral States resulted in the signing of the Agreement on the Conservation and Sustainable use of Aquatic Biological Resources of the Caspian Sea in September 2014, in Astrakhan, Russian Federation. The agreement has already been ratified by all 5 littoral states and entered into force in May 2016. The document defines the principles and forms of cooperation in the sustainable use, management and protection of aquatic bioresources of the Caspian Sea, commitments to combat illegal fishing, as well as, measures

each states needs to take in order to facilitate captive reproduction and fish stock recovery. The agreement envisages the formation of the Commission that will coordinate the activities associated with the conservation, reproduction, management of shared aquatic bioresources, set annual allowable catch quotas. Prohibition of fishing in certain areas and on certain types of resources in certain periods are also part of the responsibility of the newly formed commission (Decree RF 2014).

Valeriy Paltsev, Deputy General Director of the Caspian Research Institute of Fisheries, points out that moratorium and formation of the commission is only an initial step in the battle for sturgeon. It is important to make sure that illegal fishing activities are stopped in all littoral states and special emphasis is given to water and spawning grounds quality. This is complex issue that requires participation and joint effort of all actors across all socio-economic and geopolitical spectrum (Burmenko 2014).

2.4. Protected areas and restoration parks

Establishment of State Nature Reserves or any other types of Protected areas is curial in combating biodiversity loss, protecting the gene pool, increasing social awareness and promoting sustainable use and management of natural bioresources. Awareness raising campaigns focused at one specific territory or a single animal species may be beneficial to the survival of that particular species, if all necessary actions are taken to protect and revive the existing population, but quite often zonal conservation techniques fail, because they do not take into account the ecosystem aspect of the species survival (Cooke et al. 2011). Therefore, any action that is taken in an attempt to protect species from extinction should be ecosystem based, especially when it comes to the anadromous fish species, such as sturgeon. Since these species spend most of their lives in the sea and migrate for spawning into freshwater rivers, it is essential that complex ecosystem based protection mechanisms are implemented. This is

especially true for the Caspian Sea region, since sturgeon there depend on the upstream migration. As suggested by Lagutov, creation of "Ural River Sturgeon Park", ecosystem based multinational protected area, will ensure that ecosystem of the Ural River Basin with all its unique flora and fauna, and especially sturgeon population, will have a chance of survival (Lagutov 2008).

2.4.1. "State Nature Reserve "Akzhaiyk"

By a decision of the Government of the Republic of Kazakhstan, in 2009 "Akzhaiyk" was given the status of State Nature Reserve, which gives it a legal protection of the State. The reserve is located in the delta of the Ural River and the northern Caspian Sea. It is considered as "the most important land on the Eurasian continent" because large number of migratory birds, mammals and fish use Ural River delta and wetlands for reproductions and spawning. The reserve occupies the area of 111,500 hectares and intersects the Siberian-East African flyway for migratory birds. It is a home to many endemic and unique species of flora and fauna, including sturgeons. (CFW RK n.d.). The creation of reserve was the initiative of the Ministry of Energy and Mineral Resources that developed the Comprehensive Plan for Development of the Coastal Area of the Kazakhstan Sector of the Caspian Sea as part of the National Action Plan (NAP) to Combat Desertification in the Republic of Kazakhstan for 2005-2015. The aim of this project was to create protected area that would allow to perform ecological restoration and melioration activities, involve local population and conduct awareness raising campaigns (UN 2008).

Being important part of the ecosystem of the region, "Akzhaiyk" Reserve was also included into the list of protected wetlands under the Ramsar Convention since 2009 to which Kazakhstan is a member since 2007. This unique habitat has been listed into the Bonn Convention on the Conservation of the Migratory Species of Wild Animals (CMS Convention)

since 2007. In June 2014, during the 26th Session of the International Coordinating Council of UNESCO's "Man and the Biosphere" (UNESCO MAB), "Akzhaiyk" and "Katon-Karagay" national parks were included into the list of UNESCO heritage sites, however the work to include it into the list started in 2010, along with the "Park in Ural Delta" Project financed by Italian Oil Company ENI and implemented by researchers from the University of Bologna (Ministry of Ecology of RK 2014;CFW RK n.d.;Ramsar 2016).

In 2015 Administration of the "Akzhaiyk" State Nature Reserve with reference to the **Order of the Committee of Forestry and Wildlife of the Republic of Kazakhstan** announced that for the period from 21 March to 4 April of 2015 hunting would be allowed on the territory of the reserve. For 3971,2 tenge (22 USD as of 2015) the cost of hunting permit and additional 198,2 tenge (1.1 USD as of 2015) for each hunting day, hunters will be allowed to enter the reserve on foot, horses or boats to shoot drakes of wild ducks (Sultangaliyev 2015).

2.4.2. "Park in Ural Delta"

In the official response by the Prime Minister of the Republic of Kazakhstan to the parliamentary inquiry made by Ryskaliyev about measures taken in order to halt ecological challenges facing Ural River Basin, Karim Massimov informed that "the agreement was reached with the representatives of the Italian oil company "ENI" to launch the "Park in Ural Delta" Project, which is designed to assist the measures to ensure sustainable management of wetlands and coastal resources in the Ural River delta region, promoting the conservation of biodiversity and the environment"(Tamm 2010).

As part of the biodiversity and ecosystem conservation action plan, Italian oil company "ENI" has invested $1 million US Dollars to facilitate the development of ecotourism in the Atyrau region within the "Akzhaiyk" reserve which aimed at contributing to the socio-economic condition of people living in the region and attract interest to the ecological problems of the

region. The idea and design of the project ordinated from the park in the delta of Po River located in the northern Italy. Both Rivers share similar biological, ecology, and climatic characteristics that makes this place ideal for fish spawning and birds nesting. The main difference is that Po River Park has become a favourite destination for many local and international nature lovers. Involvement of local population was core idea that could sustain the project, allowing local communities to engage in providing traditional goods and services to visiting local and international tourists (Shilov 2012).

As suggested by the administration of the State Nature Reserve "Akzhaiyk" the project failed to achieve any significant result due to lack of financial support and investment from the government or international institutions. After 4 years there are still no infrastructure in place that would provide necessary minimum services to tourist, no roads or Tour Agencies those could and will be willing to prepare necessary documentation. Ever administration itself does not have dedicated building or office (Guzikov 2014).

2.4.3. Mixed collaborative action

As suggested by the study of the "Incentives for Collaborative Governance: Top-Down and Bottom-Up Initiatives in the Swedish Mountain Region", mixed collaborative approach to environmental management is the key to ecosystem based conservation and restoration. Government (top-down approach) is responsible for necessary and appropriate policymaking, creation of incentives and favorable procedural conditions for participation of local actors, and establishment of national and international financial support mechanisms and initiatives. Local players (down-up approach) assist government initiatives by taking the core of concerned citizens and utilizing the financial opportunities generated by the state and international players. This approach was also found to be true when reflecting on the successful management of Italian and Swiss Alps (Eckerberg et al. 2015; Ros et al. 2012). The idea of joint collaborative

action to save sturgeon species in the Ural-Caspian Basin by creating "Ural River Sturgeon Park" is presented by Lagutov, who suggest that historically local communities living along the Ural River Basin were responsible for the protection and sustainable management of natural fisheries and ecosystem as a whole (Lagutov 2008). When investigating the Sava River Basin peacemaking and capacity building, Amar Colakhodžic et al. conclude that, both top-down and bottom-up approaches are needed among government officials, local authorities and public in order to engage stakeholders at all levels to ensure proper implementation of policies, compliance with the word of law and properly functioning feedback mechanism that brings stability and peace to the region (Weinthal *et al.* 2013)**.**

During the scientific-practical conference on the issues of cross-border rivers, held in 2012 in Orenburg, Russian Federation, with the participation of policy-makers, representatives of Ministry of Environmental Protection, Ministry of Agriculture, representatives of West Kazakhstan and Orenburg Regions, national and international experts, scientists noted the fact that there is a general deterioration and degradation of the Ural River ecosystem as a whole. It was concluded that a complex programme is required in order to make any long lasting and effective changes in the Ural River Basin. It was also highlighted that previous attempts to solve the issue on a local level has failed. Conference participants suggested adapting the best experience and practice in this field, and work with the 1994 Convention on Cooperation for the Protection and Sustainable Development of the Danube River adapted by 13 states. The preservation of the Ural River ecosystem largely depends on the joint collaborative action of Russia and Kazakhstan, as none can do it alone (Bapakova 2012).

3. Research Methodology

3.1. Research design

Taking into consideration the complexity of the biodiversity and ecosystem conservation on a transboundary watercourse, such as Ural River Basin, and its direct linkage to the principles of the Integrated Water Resource Management and Transboundary Cooperation between riparian states, the main focus of the research was to:

- Establish the necessity and effectiveness of the ecosystem based conservation mechanisms those could result in sustainable management of the aquatic natural bioresources of the Ural River Basin and lead to restoration of the sturgeon population within the Caspian Sea and its tributaries.
- Assess the preparedness of the national and international regulatory and legal frameworks of the Russian Federation and the Republic of Kazakhstan in establishing transnational biodiversity conservation territory.

Considering history and current political and economic cooperation between Kazakhstan and Russia, the research focused on understanding the effects creation of the "Ural River Sturgeon Park" will have on the sustainable management of the sturgeon population as part of the ecosystem services, and national legal base that could foster the creation of such ecosystem based conservation mechanism, as well as recommendation to further strengthen cooperation initiatives to make the system work on the basis of interviews with experts working in the region who could provide practical (experience based) feedback on the transboundary cooperation and biodiversity conservation mechanism implemented within the region and especially in the Ural-Caspian Basin, literature review of the past and current condition of the sturgeon stock in the Caspian Sea on the basis of international NGOs and UN affiliated

agencies' reports, as well as on the review of the legal national documents from the e-government resources of the Russian Federation and the Republic of Kazakhstan.

3.2. Data collection and analysis

Qualitative and traditional document analysis methods were employed in this work during the primary and secondary research. Legislative and judicial documents were examined to assess their change over the years that implicitly and explicitly presents the overall trend of the national government in decision making when it comes to saving sturgeon population.

3.2.1. Primary research

Primary research was based on the interviews with experts using semi-structured open questionnaire (See Appendix 1). For the purpose of this work, regional experts from international organizations working in the field of transboundary cooperation and environmental management were interviewed. Out of initially scheduled 13 interviews only 5 were conducted, 8 interviews had to cancel or did not respond to final call. Considering the complexity and controversy behind the topic raised, all of the interviewees requested to stay anonymous to avoid any further difficulties in their work in the region. Their answers were recorded and analyzed.

3.2.2. Secondary research

Secondary research was performed through the literature review of books, journals and other printed materials, as well as electronic library resources at the CEU Library. Legal national documents were obtained from online database of responsible departments and ministries of both countries subject to this research. Statistical data was obtained from published journals and reports prepared by international institutions and organizations.

3.3. Ethical consideration

All of the interviewees agreed to take part in the research freely without coercion. They were presented with relevant information on aims and objectives of the research, as well as organization and purpose this research is conducted for before interview took place. Considering the sensitive matter of the issue raised in this research, majority of the interviewees requested to keep anonymity.

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4. Factors contributing to the creation of the "Ural River Sturgeon Park"

The results of the study suggest that the Caspian Sea region has greater socio-economic and geo-political importance for the Republic of Kazakhstan in terms of dependency on the natural aquatic bio-resources, valuable raw minerals and fossil fuel. However, due to long political history of being part of the USSR and good diplomatic ties between Russia and Kazakhstan, many of the programmes and initiatives carried out by one country is supported and implemented by the other country, including those related to transboundary water courses and restoration of bioresources. This relationship is further strengthened by the newly formed Eurasian Economic Union that lifted borders between states, indicating good perspectives for further bilateral development in the field of sustainable management of natural bioresources.

The Caspian Sea is an enclosed, endorheic water body with unique endemic flora and fauna. The Ural River, one of the tributaries feeding the Caspian Sea plays an important role for the ecosystem stability of the Caspian region by providing spawning grounds to commercially valuable sturgeon species and supporting international migratory pathways and wintering grounds for hundreds of bird and animal species. Thus, the Ural River Basin is an integral part of the salvation of the Caspian Sea and its ecosystem, that requires immediate action if its ecosystem with all its goods and services to be preserved for future generations.

Findings presented here are primarily discussed within the context of two research problems set forth in the introduction part of this research and will assess the importance of the ecosystem based conservation techniques and legal base for the "Ural River Sturgeon Park" creation as an effective biodiversity conservation technique.

4.1. Ecosystem based transnational approach

As analyzed, unilateral zonal conservation techniques, even with the support of international organizations working in the field of biodiversity conservation and natural resource

management are most likely to fail without mixed collaborative action of state support and community involvement. At the moment there is an urgent need in the creation of the ecosystem based transnational body that will involve local communities in the process of biodiversity conservation and protection of natural resources within their respective habitats along the Ural River Basin. This would ensure that unemployed families have sufficient income and local knowledge of the ecosystem, as well as personal interest in sustainable management of bioresources and protection of the ecosystem they live in is utilized.

4.1.1. Factors affecting sturgeon population

Increased anthropogenic activities as a result of expansion of industrial complex, as well as oil and gas exploration in the Northern and Eastern Caspian Sea greatly contributing to the complicated environmental situation of the Ural-Caspian Basin, impacting both human settlements and living bioresources. However, industry is not the only cause of the sturgeon population decline. The following list presents primary issues responsible for reduction of this commercially valuable fish species in the Ural-Caspian Basin:

- Significant decrease in size and quality of natural spawning grounds;
- Management of hydro cycle of major tributaries feeding Caspian Sea;
- Blocking of migratory ways of fish for illegal catch;
- Loss of habitat and feeding grounds;
- Mature sturgeon females are not reaching spawning grounds and juveniles are not reaching Caspian Sea;
- Ineffective natural protection mechanisms as a result of corruption and limited financial support;
- Poaching and illegal fishing;
- Insufficient number of natural protected areas and absence of ecosystem based protected areas;
- Limited information availability and lack of cooperation between state and NGOs.

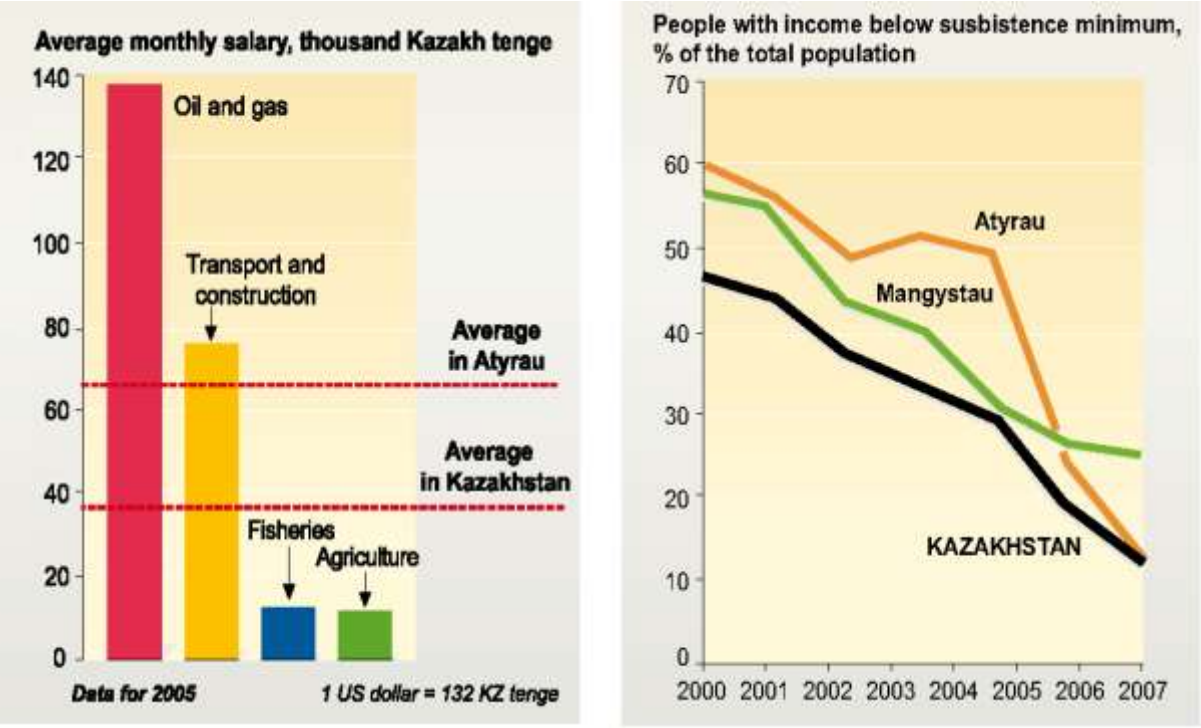
Most of these factors have zonal characteristics and are interlinked with one another. Since zonal approach would only stabilize the situation, if all necessary actions are taken, only in one part of the ecosystem, its effects would not be felt in other parts due to other factors negatively

affecting ecosystem. For instance, by performing melioration activities in the delta of the Ural River the migratory passage would be open only in the zone where activities took place and it would not have any significant effect on the number of females migrated or the quality of spawning sites upstream. Therefore, a complex, ecosystem based approach is required to tackle any challenge that ecosystem maybe facing as a result of anthropogenic activities.

4.1.2. Economic challenge of public obedience

There is a consensus among experts that increase of the pouching activities especially in Kazakhstan and Russia resulted from socio-economic degradation as a result of the fall of the Soviet Union and failure of the newly established government to provide sufficient social benefits for their citizens. As shown in the Figure 3 settlements located along the Kazakhstan's part of the Ural River, in the Atyrau and Mangystau regions, have always had higher

Figure 3- Average monthly salary in Atyrau Region and Poverty level in Kazakhstan (Source: GRID-Arendal)



percentage of population living below the subsistence minimum. With the increase of industrial and oil exploration activities in the Atyrau Region, this number has levelled out at the Republican average in 2007, however it is necessary to note that salary differences and increase

in commodity prices, as well as, high levels of unemployment in this region forced many to find alternative means of providing for their families, often illegally.

Economic stagnation of the states also leads to the poor management of natural resources and limited capacity of protection agencies to perform their duties to the fullest extent. As suggested by the Federal and National protection agencies and border control services of both States, pouching is no longer localized activity, but rather international affair, that requires transnational action and support of local population. As suggested by the findings and opinion of the expert working in the region, population that was initially driven to provide for their families are now whipped up by the possible monetary benefits of black caviar sales and incapability of national protection agencies to control (inspect) all fishing vessels due to limited financial and technical support from the state. Poachers today have much superior technical and financial situation that allows them to escape punishment either by running away from the coastal guard or bribing the low ranked officials.

Despite increase in the number and scope of laws and regulation those protect natural bioresources from illegal extraction, there has not been considerable change in the amount of the confiscated fish for the past 5 years, indicating either predetermined amount that is required to be submitted by every agency to show their work or quality of the work performed by the protection agency is constant and limited to the resources at their disposal. In any case, even numbers presented by boarder control and natural protection agencies illustrate that illegal fishing is widespread and requires joint support of local communities and state actors.

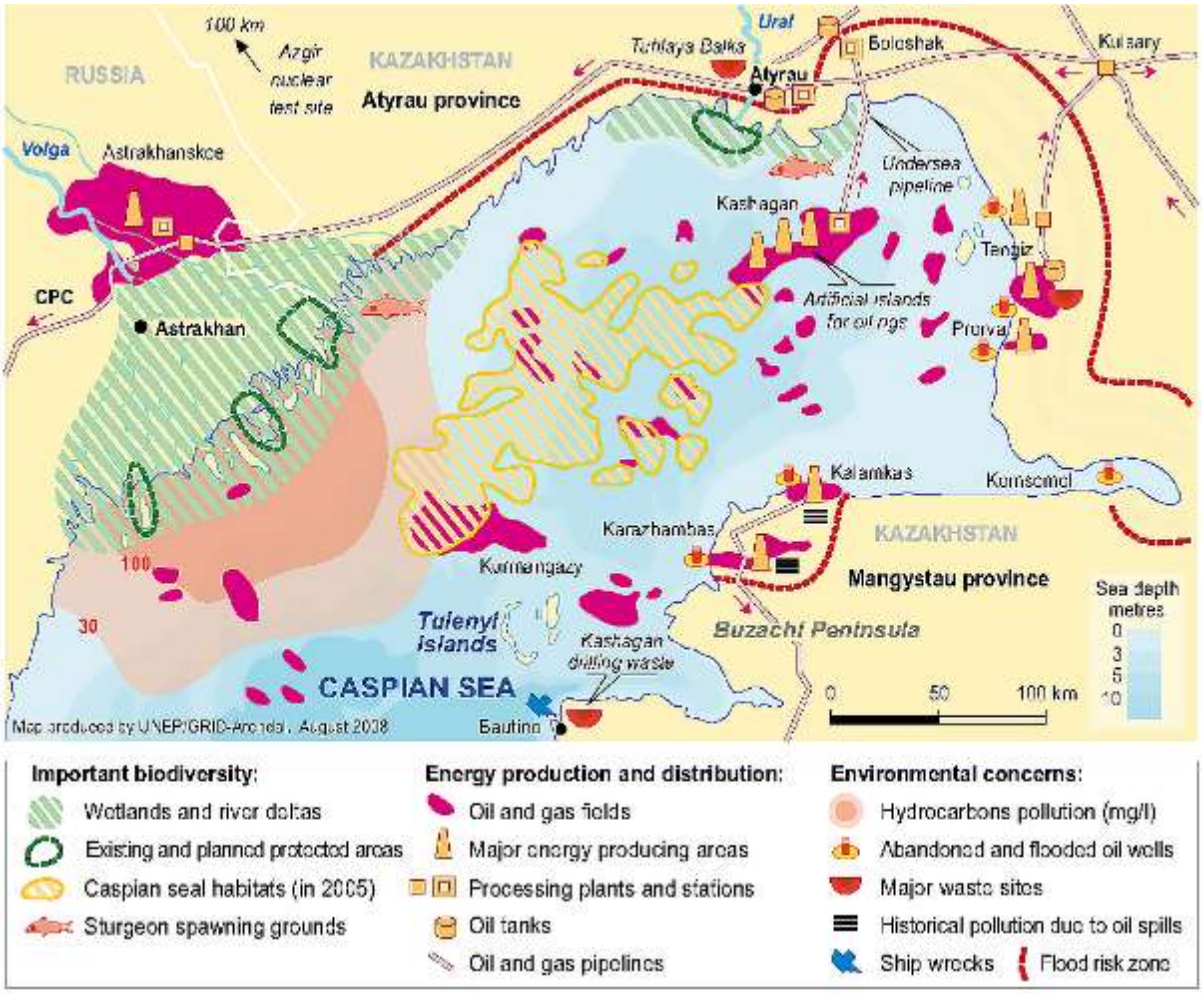
In the situation when the "Ural River Sturgeon Park" is formed, representatives of communities living along the Ural River appointed as rangers to protect ecosystem services will have greater chance of spotting illegal activity and informing law enforcement authorities, due to their numbers, than would law enforcement authorities have otherwise. Local communities,

especially those layers who are interested and historically have been protecting ecosystem of the Ural River Basin would be useful as a day-to-day protection measure.

4.1.3. Pollution is changing the ecosystem

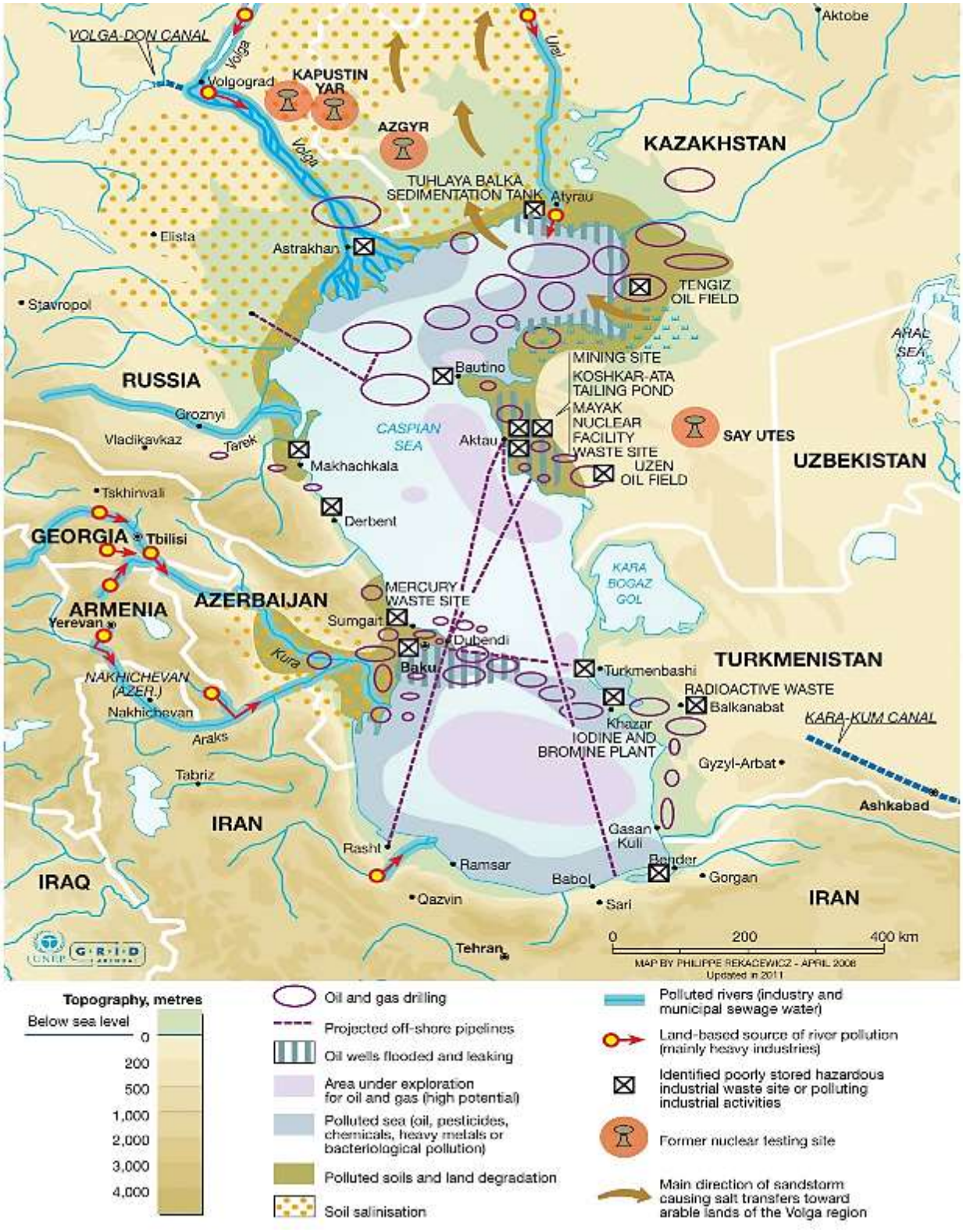
The unwanted side-effect of the industrial development and socio-economic growth is land, air and water pollution. Ural-Caspian Basin is facing serious pollution related issues resulting in biodiversity loss and worsening of the ecosystem ecology of the region. Activities of oil and gas industries, mining and smelting businesses, energy production, chemical factories and extensive agriculture result in increased discharge of pollutants into air, water and soil those settle down as toxic sediments on the sea and river beds effecting every living organism that gets into contact with them. As a result, this also deteriorates the quality of the spawning sites,

Figure 4- Environmental issues in the northern Caspian Sea (Source: GRID-Arendal)



as it shifts desirable pH levels for sturgeon reproduction, reducing the meager chances for survival.

Figure 5- Zones of high anthropogenic activities in the Caspian Sea (Source: GRID-Arendal)



Accumulated industrial waste and lack of processing facilities are the major causes of ground water and run off pollution. Mangystau and Atyrau Regions, famous for their industrial activities, are responsible for the buildup of toxic waste on the landfills outside the city limits, but toxic runoffs are still reaching ground waters, rivers and Caspian Sea. Due to large number of oil and gas rigs being located on the Northern part of the Caspian Sea, Ural and Volga river deltas feeding into the Caspian Sea are the most polluted of all tributaries of all littoral states. Most of the oil and gas fields, as well as major waste sites and processing plants are located on or near the sturgeon spawning grounds as could be seen from the

Figure 5.

State involvement is required to make changes to resolve the pollution issue. Introduction of stricter regulations and higher fines to the polluting companies should result in cleaner operations and higher quality work. Currently imposed standards and requirements obligate oil and gas companies to make contribution to the state infrastructure, but as suggested by regional expert most of the money collected from oil and gas companies are used to build new schools or buy equipment, rather than being implemented for cleanup activities or some habitat restoration and conservation programmes. Financial support from oil and gas industries can be used to co-finance the creation of the "Ural River Sturgeon Park" that could be responsible for clean-up procedure of the Ural River bed and its delta, as well as spawning grounds on the migration pathway from Caspian Sea to middle stream of the Ural River. This will ensure that industries feel the pressure of working in more sustainable manner and financial support to the local communities involved with ecosystem restoration will be used for its intended purpose, rather than being lost in the bureaucratic machine.

4.1.4. State Reserves and Ecotourism

In accordance with the **Law #593-II of the Republic of Kazakhstan dated July 9, 2004: On the protection, reproduction and use of fauna (red. 29.03.2016)** (Law RK 2016) the Republic of Kazakhstan has established state reserves to protect rare and endangered species of flora and fauna by implementing the zonal method. In Mangystau, Atyrau and Caspian regions there are West Altai, Shortanbay, Aktay-Buzanchinsk, Karakia-Karakol, Korgalzhyn and Kuludzhin national natural reserves serve variety of purposes, from protecting historical heritage sites to working as a biodiversity conservation zones. They all occupy relatively large territories, but due to zonal, fragmented approach their effectiveness in supporting ecosystem based population conservation and restoration methods are not successful.

Very few reserves actually work in the deltas of Volga and Ural River, where environmental degradation of aquatic habitat affect the migratory species the most. Due to change in the natural hydro cycle of the Volga River as a result of construction of hydro power station and reservoirs, as well as decrease of the water volume during the flooding seasons in the Ural River many spawning sites and migratory routes are deteriorating as a result of siltation.

In order to facilitate community participation in the zonal protection of the natural bioresources, the government of the Republic of Kazakhstan with financial support from Italian Oil Company "ENI" working in the Caspian oil and gas exploration and its implementation partner Bonn University tried to implement the concept of ecotourism into the "Akzhaiyk" National Natural Reserve. Some 2 million USD were spent on creation of zonal project within the "Akzhaiyk" reserve called "Ural River Delta Park". However, despite having international implementation partner and been added to the list of Ramsar and UNESCO sites, the project has not succeeded. Sufficient infrastructure and community based business schemes were not created that would interest international visitors. It should also be noted that despite being

implemented and reported by state officials as a success, no reporting or statistical data is available for public use. It is difficult to estimate what the expenditures were and what was intended to be constructed.

Cultural, historic and geographic context of the territory has to be taken into account when developing an action plan or a strategy to protect an ecosystem. Ural River Basin has a cultural heritage of supporting sturgeon population. Therefore, it is important to implement projects that would take into account history of the community living near the Ural River and empower them to do what their ancestors have done, protect nature and use its bioresources sustainably. Idea of the "Ural River Sturgeon Park" employs this concept, creating optimal opportunity for community to earn their living, while helping nature and state to preserve its valuable bioresources for next generations to come.

4.2. National and international regulatory mechanisms

Unsustainable management and intensive exploitation of natural resources for the past several decades created a necessity to introduce new forms and mechanism of rational and sustainable use of those resources. It involves all stakeholders engaged in the use of ecosystem goods and services. In the current form of national and international laws regulating the interaction of natural resource users and ecosystem, community plays an active role in the processes of protection, restoration, use and regulation of the ecosystem at large.

The Russian Federation and the Republic of Kazakhstan have been working in formulating complex scheme of action, via amendments to the national laws and taking on international obligations, to combat anthropogenic and climate related environmental degradation, restore ecosystems and involve community into these processes. Considerable work is done to save sturgeon population from extinction, but much more is needed to make it happen.

4.2.1. CITES no longer needed

Before the fall of the USSR, Soviet Union and Iran were littoral states sharing the natural bioresources of the Caspian Sea. They were also jointly responsible for the caviar market from the Caspian Sea, alas their practices were far from sustainable. With disintegration of other states from the USSR, controlling and monitoring of the sturgeon population stock became even harder. By 1997 the problem of sturgeon population decrease in the Caspian Sea was well know all around the world, which led to inclusion of all sturgeon species into the Appendix II of the CITES that marked new era for sturgeon and black caviar market.

As a number of sturgeon available to catch decreased, the amount that each littoral state was putting into the market also decreased, but inclusion of sturgeon into Appendix II and quotas change the market dynamics, that resulted in skyrocketing the prices of sturgeon caviar. This in turn resulted in increase of the pouching activities in the Caspian Sea and its tributaries.

It is safe to say that CITES by limiting the commercial catch of sturgeon in the Caspian Sea opened the door for illegal fishing that was not previously so compelling. This once again indicates that in addition to the limits imposed by the international community, government has to step in with stricter laws and better enforcement mechanism in order to minimize the incentives to break the law. At the moment all littoral states have to agree on quotas for export to comply with the CITES regulations, however, since 2012 all Caspian Littoral States agreed to stop commercial extraction of wild sturgeon, making CITES less important in the fight to save sturgeon in the Caspian Sea.

4.2.2. Tehran Convention and moratorium

According to the finding of the research, Tehran Convention is considered to be the break-through in multilateral cooperation mechanisms involving all five littoral states of the Caspian Sea. Since its ratification in 2006, it took 9 years for all states to sign and ratify "Aktau

Protocol" - The Protocol Concerning Regional Preparedness, Response and Co-operation in Combating Oil Pollution Incidents, which will enter into force on 25 July 2016. Though "Moscow Protocol" - The Protocol for the Protection of the Caspian Sea against Pollution from Land-based Sources and Activities has been ratified by all states in 2015, it is still not clear when it will enter into force. Despite these two Protocols being very important, especially considering the extent of the oil and gas industry in the Caspian Sea, it is still missing the focused approach on the biodiversity conservation offered by the "Ashgabat Protocol" - The Protocol for the Conservation of Biological Diversity which has been ratified only by Turkmenistan. It should also be pointed out that there is no direct reference to the protected areas in the Caspian Sea or nearby territories, actions each states unilaterally or jointly is obligated to take in order to make survival of the sturgeon more effective or financial commitment each state will have in order to counteract the environmental degradation.

Article 14 "Protection, Preservation, Restoration and Rational Use of Marine Living Resources" of the Tehran Convention states that:

"The Contracting Parties shall have particular regard to the protection, preservation, restoration and rational use of marine living resources and shall take all appropriate `measures on the basis of the best scientific evidence available to:

(a) develop and increase the potential of living resources for conservation, restoration and rational use of environmental equilibrium in the course of satisfying human needs in nutrition and meeting social and economic objectives;

(b) maintain or restore populations of marine species at levels that can produce the maximum sustainable yield as qualified by relevant environmental and economic factors and taking into consideration relationships among species;

(c) ensure that marine species are not endangered by over-exploitation;

(d) promote the development and use of selective fishing gear and practices that minimize waste in the catch of target species and that minimize by-catch of non-target species;

(e) protect, preserve and restore endemic, rare and endangered marine species;

(f) conserve biodiversity, habitats of rare and endangered species, as well as vulnerable ecosystems."

As a result of long term negotiations and considering the need for urgent actions to save sturgeon from extinction, in 2012 all Caspian Littoral States joined the initiative of the Russian Federation to stop all commercial activities in the Caspian Sea and its tributaries related to the sturgeon species. This is truly remarkable decision, but it should be pointed out that none-commercial fishing (for scientific and reproductive matters) is still permitted. About 12-13 tons of sturgeon fish is allowed to be extracted each year only by Kazakhstan, 97% of which comes from the Ural River. These numbers are too high considering the condition of the sturgeon fish stock. In addition to the none-commercial fishing, sturgeon population is constantly threatened by the illegal fishing.

4.2.3. Stricter laws

Both the Russian Federation and the Republic of Kazakhstan have modified their Administrative and Criminal Codes directly related to the illegal extraction of rare and endangered species from wild within the past decade. Some of them prescribe imprisonment for up to five years with confiscation of property. However, there is no clear evidence that it had significant effect on the number of poachers caught or the volume of fish and caviar confiscated during raids.

According to Ermakhaliev, Head of Fishery Inspection and Coordination HQ, "number of illegal pouching and volume of fish catch that has been identified during the "Bekire-2014"

has considerably decreased in comparison to previous years". He attributed this to the awareness-raising campaigns, as well as to the tightening of the administrative and criminal liability associated with the illegal extraction of valuable fish species. For the period of the "Bekire-2014" operation 26 tons of fish, including 843 kg of sturgeon fish and 14.8 kg of black caviar was confiscated (Baynekeeva 2014). However, Andrey Kravchenko, Deputy Attorney General of the Republic of Kazakhstan highlights that "about 357 kg of black caviar is sold through the duty-free shops in Almaty and Astana airports. No one from the field service and monitoring agencies have noticed that part of the sturgeon caviar was certified by "Atyrau-Balyk", a factory that has not been operating for the past several years. This clearly indicates that channels of illegal distribution and cash flow mechanisms are not carefully examined. (Isbekov et al. 2015).

An integral part of any properly functioning regulatory mechanism is its proper enforcement across all stakeholders. Imposing moratorium and tightening of laws associated with the sturgeon extraction from the wild is an important and necessary action that both Russia and Kazakhstan took, but enforcement mechanism is still lagging behind.

4.2.4. Laws of the Republic of Kazakhstan

Law #593-II of the Republic of Kazakhstan dated July 9, 2004: On the protection, reproduction and use of fauna (red. 29.03.2016) (Law RK 2016)**:**

- Article 8.4 stipulated that:

"The Government of the Republic of Kazakhstan defines administrative authority and scientific organizations in order to fulfill the obligations set by the Convention On International Trade in Endangered Species of Wild Fauna and Flora".

- Article 11 indicates that:

"The Government of the Republic of Kazakhstan has a monopoly on protection, reproduction and use of fauna", including extraction of wild sturgeon species and further commercial distribution of its products and derivatives. It also states that Individuals and legal entities shall release alive individuals of sturgeon species or pass into the hands of the state authorities unsustainable individuals to avoid any legal incompliance.

Resolution #1308 of the Government of the Republic of Kazakhstan dated October 10, 2001: On the prohibition of fishing of sturgeon in the Ural-Caspian Basin has restricted the sturgeon fishing only for the scientific purpose, all other forms of fishing are considered illegal(Resolution RK 2001).

Resolution #200 of the Government of the Republic of Kazakhstan dates April 8, 2016: On approval of the General Scheme of complex use and protection of water resources emphasises the importance of transboundary cooperation related to the Ural River Basin and settlement of all matters (issues) with the Russian Federation in terms of equal water distribution and sustainable use of flora and fauna. It is indicated that, if water level distribution, especially during dry years falls below previously agreed levels, it will have strong environmental impact on the ecosystem of the Ural River Basin, and potentially cause further decrease of sturgeon population and other forms of flora and fauna (Resolution RK 2016).

According to the Order #73 of the Minister of Agriculture of the Republic of Kazakhstan dated February 22, 2016: On approval of the removal quotas of wildlife with the periods from February 15, 2016 until February 15, 2017 – total amount of all species of sturgeon that is permitted to extract from wildlife is 12.32 tons, of which 97.8% is allowed for extraction from Ural River and only 2.2% from Caspian Sea. 88% of the total permissible extraction is used for reproduction purposes (MoA RK 2016). This number is slightly smaller than the previous year's scientific and reproductive quota of 12.37 tons(MoA RK 2015). 2012-2013 – 12.34 tons (MoA RK 2012), 2013-2014 – 13 tons (Resolution RK 2013, 20), 2014-2015 – 12.8 tons (Resolution RK 2014), Extraction quotas for 2004-2005 give us real reason for the Ural's

importance – 244 tons (224.5 of which are to be extracted from Ural river) (Resolution RK 2004).

Article 298-1 of the Administrative Code of the Republic of Kazakhstan on Administrative Offences provides for administrative liability permits to file a fine, those violating the fishing and protection regulations, ranging from 3 to 100 Monthly Calculation Index (MCI)[2]. **Article 287 of the Criminal Code of the Republic of Kazakhstan provides for criminal liability** for illegal extraction of fish resources and other aquatic animals and plants. The punishment under this article ranges from a fine (200-700 MCI) to an imprisonment for up to 5 years (The prosecutor's office of Pavlodar Region 2014). **Article 339 of Criminal Code of the Republic of Kazakhstan revised on April 4, 2016: On illegal handling of rare and endangered, as well as prohibited for use of species of flora and fauna and their parts or derivatives** shall be punished by a fine of up to three thousand MCI, correctional labor for the same amount, or imprisonment for up to three years with confiscation (CC RK 2016).

Resolution #1034 of the Government of the Republic of Kazakhstan dated October 31, 2006 (rev. 2014): On approving the list of rare and endangered species of animals and plants has only two sturgeon species listed: "Acipenser baeri - Siberian sturgeon" and "Acipenser nudiventris - Fringebarbel sturgeon (Aral and Ili population)". All other species have not been included into this list as of yet (Resolution RK 2006).

Resolution #59 of the Government of the Republic of Kazakhstan dates January 21, 2004: On approval of the list of water bodies of national importance and special features of the legal regime of economic activities on water bodies of special national importance has no

[2] MCI – 2015: 1982 tenge, 2016: 2121 (tenge) - https://uchet.kz/week/mrp-mzp-na-2016-god-v-kazakhstane/

mentioning of the Ural River Basin despite meeting all the criteria indicated in the document (Bapakova 2012).

4.2.5. Laws of the Russian Federation

Article 4 of the Federal Law # 333 of the Russian Federation dated December 6, 2007: On Fisheries and Conservation of Aquatic Biological Resources states that if the International Treaties in the field of fishing and preservation of aquatic biological resources stipulates other rules than those stipulated by the legislation on fishing and preservation of aquatic biological resources, the rules of International Treaties have the superiority over Federal Law (Law RF 2004). On June 24, 2015, revisions to the Federal Law on Fisheries and Conservation of Aquatic Biological Resources was made to include prohibition on use of drift fishing nets for industrial, commercial, scientific, monitoring purposes during offshore and inland fishing of the Russian Federation, in the territorial sea of the Russian Federation in order to ensure the conservation of anadromous species of fish (FFA RF 2015).

Article 258.1. of Criminal Code of Russian Federation dates February 7, 2013: On the illegal extraction and trafficking of particularly valuable wildlife and aquatic biological resources belonging to the species listed in the Red Book of the Russian Federation and (or) protected by International Treaties of the Russian Federation stipulates that: "Illegal extraction, maintenance, purchase, storage, transportation, transfer and sale of particularly valuable wildlife and aquatic biological resources belonging to the species listed in the Red Book of the Russian Federation and (or) protected by International Treaties of the Russian Federation, their parts and derivatives - shall be punishable by compulsory works for a term of up to four hundred and eighty hours, or imprisonment for up to three years with a fine of up to one million rubles (CC RF 2013)".

List of particularly valuable species of fish belonging to the species listed in the Red Book of the Russian Federation and (or) protected by International Treaties of the Russian Federation in relationship to the Article 258.1 of Criminal Code of Russian Federation are (Decree RF 2013;Khlebushkin 2016):

- Amur sturgeon (acipenser schrenckii);
- Atlantic sturgeon (acipenser sturio);
- Sturgeon (huso huso);
- Kaluga (huso dauricus);
- Persian sturgeon (acipenser persicus);
- Russian sturgeon (acipenser gueldenstaedtii);
- Sakhalin sturgeon (acipenser medirostris);
- Sakhalin taimen (parahucho perryi);
- Sturgeon (acipenser stellatus);
- Siberian sturgeon (acipenser baerii);
- Fringebarbel sturgeon (acipenser nudiventris).

The Federal Law #33 of Russian Federation dated March 14, 1995 (rev. 2015): On Protected Areas regulates relations in the field of organization, protection and use of specially protected natural areas in order to preserve the unique and typical natural complexes and objects of cultural heritage and natural formations, flora and fauna and their genetic pool, study natural processes in the biosphere and monitoring the change in its status, environmental education of the population (Law RF n.d.).

Article 2 of the The Federal Law #52 of Russian Federation dated April 24, 1995 (rev. 2015): On Fauna regulates relations in the field of protection and use of wildlife and its habitat in order to ensure biological diversity, sustainable use of its components, creation of conditions for the sustainable existence of wildlife, genetic conservation of wildlife and other protection of the animal kingdom as an integral element of the environment. Article 59 Stipulated that illegally obtained objects of wildlife and their derivatives, as well as the tools used for illegal extraction of wildlife, including vehicles, are subject to seizure without compensated in the

order established by the legislation of the Russian Federation. Confiscated animals are subjects to return to the natural habitat, however, if their condition is not sustainable they are subject to sale or destruction in accordance with the procedure established by the Government of the Russian Federation (Law RF n.d.).

4.2.6. Access to information and public participation

As a result of primary and secondary research it can be concluded that access to information and public participation in the state matters are still not being carried out to a sufficient degree. International and regional experts working in the region have pointed out on numerous occasions that lack of access to the information makes any work of the international agency extremely difficult since realistic picture cannot be seen. During awareness raising campaigns social involvement is limited to participation in the meetings. Quite often it is the same people who come to the meeting year after year and ask the same question, but never hear an answer.

Despite being signatories to many international conventions, agreements and protocols, very little work is done by the state authorities to engage community into taking active action to sustainably manage ecosystem services within their communities. Russia and Kazakhstan have capacity to jointly tackle socio-economic and environmental challenges of the Ural-Caspian Basin by creating the "Ural River Sturgeon Park" that would empower local communities to take responsibility to protect the ecosystem.

4.3. Recommendations

4.3.1. National government:

- Based on the socio-economic, ecological and geographical characteristics of the Ural River Basin it is necessary to create transnational, ecosystem based body, "Ural River Sturgeon Park", with representatives from local communities partially

supported by the riparian states to carry out duties of civic rangers responsible for taking care of protected areas and compliance with laws by users of natural resources and its derivatives.

- On the basis of the "Ural River Sturgeon Park" create national Ecological Monitoring and Research Centers those will collect ecosystem based information about air and water quality, number of flora and fauna species, work with state and international experts on formulation of necessary action for sustainable management of the ecosystem.
- With the help form the representatives of the states government and "Ural River Sturgeon Park" rangers organize discussion with regional governments on the issue of equal water distribution and prohibition of constriction of small clay dams on the tributaries to the Ural River located upstream, especially during spring and autumn migration periods, when level of water is essential for the successful migration of sturgeon species upstream to the spawning grounds.
- In order to minimize anthropogenic impact on the spawning sites, prohibit exploration and placement of water intake facilities, oil and gas pipelines, oil tankers in the spawning and wintering grounds by amending national land use code, water code and fishing law.
- As a means of awareness raising and public educating develop and implement "Habitat Conservation and Protection" educational programme to be taught on a national level with emphasis on measures that every citizen can take in order to make a world better place, aimed at cultural environmental education.
- Introduce mandatory Polluter Pays Principle within the framework of the Convention of Biological Diversity to all industries adversely effecting environment and human health.

- Considering the environmental importance of the Ural River Basin in the reproduction processes of flora and fauna assign to the Ural River a status of the river of national importance, and make negotiations on a bilateral level to assign this river status of the river of transnational importance.
- With assistance from the International Organization and participation of local and national small and middle businesses support development of sustainable ecotourism by providing marketing and business planning workshops to interested community members, involve local communities in providing ethnic goods and services, subsidize travel agencies to promote newly formed touristic routes and amend national laws allowing easy access to visitors interested in sightseeing.
- Amend National Fishing Law to ban extraction of sturgeon of all species younger than 30 years across all sectors to ensure that surgeon species have capacity to reproduce before being extracted from wild.
- Amend the list of prohibited goods for consumption and include sturgeon meat and all its derivatives, and implement administrative penalties for purchase and distribution of uncertified sturgeon products, implement criminal punishment for distribution of uncertified sturgeon products in all amounts and forms.
- With the support from the oil and gas industries, as well as other industries in the region effecting Ural River Basin, organize annual cleanup and melioration activities.

4.3.2. International Actors:

- Assist state and local communities in transition to the sustainable ecosystem management techniques by providing best know-how around the world with in the and beyond previously agreed International Conventions and Agreements.

- Establish financial support grants to researchers working at finding biodiversity conservation mechanisms capable of sustainable performance with in the transboundary context in the region.
- Through international financial institutions organize business seminars and workshops in order to increase social understanding of communal business strategies and opportunities available for business.
- Using the case study of Danube River Basin and Dniester River Basin assist the government of the Russian Federation and Republic of Kazakhstan in formation of the transboundary cooperation and biodiversity conservation mechanism. On the basis of established IWRM principles suggest amendments to water and land code to include land and water protection laws based on the Polluter Pays Principle.
- With assistance of the Aarhus Convention, the UNECE Water Convention and the CBD implement procedures of transparency involving procedures addressing sustainable use of natural resources, information sharing and public participation, especially in matters of financial distribution and implementation of state and international funds to combat ecosystem degradation;

4.3.3. Actions of high importance:

- With the support from local and state governments discuss and organize annual flooding simulation by discharging water from the Iriklinskoe Reservoir. This will act as a melioration of the river and help to clean river bed from sediments those negatively effecting the spawning grounds.
- Remove any obstacles in the lower stream of Ural River and its deltas those may affect the passage of sturgeon to the spawning sites located in upstream.
- Prohibit the development of sand - gravel deposits in the bed and banks, as well as, dredging on the Ural River;

- During the migration period of sturgeon prohibit (limit) motor vessels from traveling from lower Ural to upper Ural River to minimize disturbance caused by vehicles that may affect navigation of the sturgeon to the spawning grounds.

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5. Conclusion

The Ural River Basin has a unique ecosystem and plays a crucial role in the survival of the sturgeon population in the Caspian Sea. Out of all tributaries feeding Caspian Sea, Ural River has the largest number of spawning grounds and the least regulated hydro cycle. As a result of improper management of natural resources and extensive anthropogenic activities within the Ural River Basin and Caspian Sea adversely affecting the stability of the ecosystem, resulted in sharp decline of the fish population. Considering long historical and cultural heritage embedded into the geopolitical environment of the Ural River Basin, joint cooperation is an ultimate solution to the endangered sturgeon population.

Based on the outcome of the research, it can be concluded that even at the age of information sharing it is not very easy to obtain necessary information to perform analysis and prepare constructive action plan, even for the United Nation agencies working in the region. Well-functioning information gathering and sharing system is needed to fully understand the scope of the issue, and prepare functioning conservation strategy. Currently available data is scarce and Basin wide or ecosystem wide assessment of biological abundance of sturgeon stock has not been done in the Ural River Basin or Caspian Sea, despite high interest on the stock condition by CITES and Caspian Littoral States.

Dniester River Basin and Danube River Basin can be used as a case study for the formation of transnational ecosystem management body that could utilize all the international conventions and agreements by Russian Federation and Republic of Kazakhstan. The UNECE Water Convention and Convention on Biological Diversity possess sufficient experience and legal base to foster transboundary cooperation and implement biodiversity conservation mechanisms. Legally binding mechanism such as Aarhus Convention, through OSCE, UNEP

and UNDP can ensure public participation and increase public awareness of the Ural River Basin environmental condition and situation of the sturgeon population.

According to the desk research, it can also be suggested that most of the programmes and national strategies are aimed at the short term, temporary management, while due to very low reproduction rate of sturgeon species, any action taken requires long term dedication by the state and other involved stakeholders. Large sums of money are spent on the projects with indistinct results, such as "Ural River Delta Park" with budget of USD $2 million, that has failed due to insufficient involvement of the state and local actors. The Ural River – despite being one of the few main water bodies of high ecological importance has not received national protection and status of national importance. Being one of the very few rivers with unregulated water system with all the required ecosystems for sturgeon reproduction and having one of the important migratory stopping points on its delta, Ural River has not been attributed to rivers of transnational importance as well.

Both Russian Federation and Republic of Kazakhstan has improved their national administrative and criminal laws, they are actively participating in the international political arena and taking on international obligation on pollution reduction and biodiversity conservation. They are freely and openly allowing international organizations to assist in the attempts to formulate and implement necessary restoration and conservation mechanism that could ensure survival of the endangered species, however this has not resulted in successful halting of the decreasing sturgeon population in the Caspian Sea and its tributaries. Due to loss of spawning sites in almost all other tributaries of the Caspian Sea, Ural River remains the only hope for sturgeon population restoration. A complex basin wide ecosystem management mechanism is required to make any long-lasting effect to make any feasible change in the sturgeon population. Creation of "Ural River Sturgeon Park" that would cover all of the Ural

River Basin, and involve local population, which is historically has been part of this ecosystem is important. International and national legal base that would allow the creation of such joint transboundary mechanism already exist, however, additional work, both on national and international levels are required to make it happen.

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Appendices

Appendix 1. Questionnaire

The following questionnaire is used to the research on the issues related to the biodiversity conservation and protection of the sturgeon species in the Ural-Caspian Basin as part of the Master's Thesis research process at the

Central European University, Hungary. The aim is to understand the scope of the challenges faced by the conservation mechanism, including the biodiversity conservation for sturgeon population and water security in the region and ways to utilize existing regulatory and legal frameworks for better decision making.

Name: _____

Organization: _____

Position: _____

□ **I would like to remain anonymous**.

1. Can you please describe how you and your organization contribute to establishing water security and biodiversity conservation in the region?
2. What is the watershed that you are most familiar with?
3. What are the national policies aimed at protecting biodiversity in Kazakhstan/Russia that you know about?
4. Can you list few polities those work, in your opinion?
5. Can you list few polities those do not work, in your opinion?
6. What are the international programmes/frameworks for biodiversity conservation that both countries work within? How successful are they?

7. Could you name successful examples of transboundary cooperation between Kazakhstan and Russia on biodiversity conservation? Are there known example of biodiversity conservation of threatened fish species?
8. Have Kazakhstan and Russia been successful in protecting sturgeon population in the Ural River Basin
9. What are the challenges for transboundary biodiversity conservation in the Ural River Basin?
10. What are the major sources of pollution in the Ural River Basin? What has been done to eliminate them?
11. What international programme/framework could help to achieve transboundary biodiversity conservation in the Ural River Basin?
12. What policy recommendations you would give for better management of the Ural River Basin and its ecosystem?