ENVIRONMENTAL EFFECTIVENESS ANALYSIS OF CASPIAN HYDROCARBON DEVELOPMENT

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ABSTRACT

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Caspian region's hydrocarbon deposits constitute one of the significant reserves in the world. This has caused a competition among state and non-state actors in exploiting these resources since 19th century. After the Soviet demise, the newly independent states embraced the economic gains made possible with the existence of these reserves. However oil production may have negative implications on environment, ecological balance and biodiversity if carried out in an uncontrolled manner.

This study aims to identify these negative impacts and measures taken to control this process. Measures taken on national, regional and international levels are analyzed to find out the extent of their effectiveness in protecting the environment during oil operations. National legal frameworks of each littoral state, impacts of civil society organizations, regional and international legal frameworks and efforts of international organizations are evaluated. Since most of these improvements are relatively new with no viable outcome at hand, the process rather than the results is focused on. The application of time, holism and action-orientation parameters to these improvements to find out the environmental effectiveness of each shows that there is a preliminary burgeoning awareness in matters of environmental protection yielding to more effective efforts than before. Yet the economic gains remain too significant a temptation for the states in the region to be sacrificed. In the cases where measures taken to protect the environment undermine these economic gains, environmental effectiveness is forsaken.

Keywords: Caspian Region, oil production, environmental effectiveness, environmental protection, hydrocarbon development

ÖZ

HAZAR PETROLLERİNİN GELİŞİMİ SÜRECİNDE ÇEVRESEL VERİMLİLİK ANALİZİ

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Hazar Bölgesi'nin hidrokarbon kaynakları yeryüzünün en önemli rezervleri arasındadır. Bu durum 19. Yüzyıldan itibaren devlet ve devlet dışı aktörlerin bölgenin kaynaklarından fayda sağlamak için bir yarışa girmesine sebep olmuştur. Sovyetler Birliği'nin çöküşünden sonra yeni bağımsızlığını kazanan devletler de bu rezervlerin varlığı ile birlikte gelen ekonomik kazanç fırsatını benimsemiştir. Ancak petrol operasyonları kontrolsüz bir şekilde yürütüldüğü takdirde çevre, ekolojik denge ve biyolojik çeşitlilik üstünde olumsuz etkilere neden olabilmektedir.

Bu çalışma bu olumsuz etkileri ve petrol operasyonlarını kontrol etmek için alınan önlemleri tanımlamayı amaçlamaktadır. Ulusal, bölgesel ve uluslararası düzeylerde alınan önlemlerin petrol operasyonları sırasında çevre korunması hakkında ne derece etkili olabildikleri analiz edilmiştir. Her bir kıyıdaş devletin ulusal hukuki çerçeveleri, sivil toplum kuruluşlarının etkisi, bölgesel ve uluslararası hukuki çerçeve ve uluslararası örgütlerin çabaları değerlendirilmiştir.Bu gelişmelerin çoğu yeni olduğundan sonuçlarına dair tutarlı veri bulunmamaktadır. Bu sebeple sonuçlara değil sürece odaklanan bir araştırma tutumu benimsenmiştir. Zaman, bütünsellik ve sonuç odaklılık parametrelerinin bu gelişmelerin her birine uygulanmasıyla ortaya çıkmıştır ki çevre korunması hakkında filizlenmekte olan bir bilinç mevcuttur ve çabalar geçmişe göre daha etkindir. Ancak bölge ülkeleri için ekonomik kazanç fırsatları cazibesini korumaktadır. Çevre korunmasına dair alınan önlemlerin bu fırsatlarla ters düştüğü durumlarda etkinliğini kaybetmesi sözkonusudur.

Anahtar Kelimeler: Hazar Bölgesi, petrol üretimi, çevresel etkinlik, çevre korunması, hidrokarbon gelişimi

To My Mother and Father

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TABLE OF CONTENTS

LIST OF ABBREVIATIONS

CEP: Caspian Environment Programme

CITES: The Convention on International Trade in Endangered Species

COP: Conference of the Parties

COWI: Consultancy within Engineering Environmental Science and Economics

EECCA: European Union Water Initiative Working Group on Eastern Europe, Caucasus and Central Asia

EIA: Environmental Impact Assessment

EUCC: European Union for Coastal Conservation

FAO: Food and Agriculture Organization of the United Nations

GEF: Global Environment Facility

ICNL: The International Center for Not-for-Profit Law

ISAR: Initiative for Social Action and Renewal in Eurasia

IWP: Index of Water Pollution

MPC: Maximum Permissible Concentration

NEAP: National Environmental Action Plan

NEAPSD: National Environment Action Plan for the Sustainable Development of Kazakhstan

NEGAP: Turkmenistan's National Plan of Actions on Hygiene of Environment

OSCE: Organization for Security and Cooperation in Europe

PTRT: Protocol on Pollutant Release and Transfer Registers

SCAP: Strategic Convention Action Plan

UNCLOS: United Nations Convention on the Law of the Sea

UNDP: United Nations Development Programme

UNECE: The United Nations Economic Commission for Europe

UNEP: United Nations Environment Programme

UNFCCC: United Nations Framework Convention on Climate Change

CHAPTER 1

INTRODUCTION

1.1. Statement of the Problem

The Caspian Sea has rich oil and gas deposits, although the estimates do vary greatly depending on the source cited. Where one scholar claims that Caspian reserves are between 16 to 35 billion barrels of oil (Shaffer, 2001, p. 1), another sets forth that there are 123 to 273 billion barrels of oil and 237.3 to 279 trillion cubic feet of natural gas (Alam, 2002, p. 2). Among these fluctuating numbers, the share of Caspian oil in the world oil markets ranges from 5% to 16% depending on the source cited. However their suggestions lead to an estimation that Caspian reserves constitute significant hydrocarbon reserves by holding the third greatest hydrocarbon reserves in the world after Persian Gulf and West Siberia if the optimistic estimations are to be held admissible (Sarir, 1997, p. 14).

With this quality the reserves have attracted the attention of the world's most powerful international actors including both states and MNCs. From as early as the late 19th century on when Baku and its outskirts have been discovered to have great hydrocarbon reserves by the Nobel Brothers, a competition among state and non-state actors on the share each can get from the exploitation of these resources have been triggered. This competition has defined the destiny of the region and from then on the Caspian region could not avoid the determination of its fate in line with the exploitative wills of these actors.

One may argue that the hydrocarbon resources have been the motivation behind Imperial Russian and Soviet Armies in their determination to control the Caspian Region. The wealth brought by hydrocarbons' existence may also be cited as an important source of Soviet power during the Cold War. Similarly, today's littoral states, three of which relatively newly independent and in dire need of development, seem to embrace the economic advantages brought to them by way of exploiting these valuable natural resources in cooperation with the international actors.

The race to exploit more oil and gas to boost income may lead to an environmental catastrophe in the Caspian region due to possible oil spills, ecological imbalance, and extinction of economically valuable fish stocks, like sturgeon. Contamination of water, air and/or soil would pose great health risks for the peoples of the Caspian region.

Scholars and activists, especially from the West, tried to draw international attention to the environmental problems within this geography since the Cold War years (French, 1973; Goldman, 1970; Goldman 1972; Hollis, 1978; Kramer, 1974; Pryde, 1972; Pryde, 1983). This could have stemmed out of genuine interest in environmental awareness rising or out of typical Cold War hostility. However, the Soviets advocated that by virtue of them being a monolithic entity, it was far more feasible for them to make policies protecting the environment against individual profit-seekers than a capitalist system. Yet, as early as 1970s, researchers have started to publish articles concerning the environmental problems in the USSR, some of them caused by oil production. Kramer (1974, pp. 887-889) wrote that valuable bodies of water including Lake Baikal, Caspian Sea, Aral Sea and Black Sea have been sacrificed for industrialism and the profits brought by it.

With the dissolution of the Soviet Union, the hydrocarbon resources of the Caspian Region started to be developed by the new states to make use of the economic value they hold. Especially Azerbaijan and Kazakhstan initiated economic structures heavily dependent on hydrocarbon development. However the environmental problems brought along with this development have been looming

in the background more than ever and the possibility of an environmental catastrophe grew by day as these resources continued to be exploited. The use of old Soviet technology, lack of legal frameworks for environmental protection and economic struggles of these newly independent states leaving no room for environmental worries seemed to deteriorate the situation in the early years of 1990s (Stone, 2002, pp. 431-433). However certain measures soon started to be adopted to avoid these kinds of ill effects on the environment on international, national and regional platforms (European Union for Coastal Conservation [EUCC], 2000a, 2000b, 2000c, 2000d, 2000e). The environmental legislation of each littoral state grew rich, regional cooperation enhanced due to environmental cooperation with an adopted regional convention and international conventions on environmental protection began to bear signatures of the states surrounding the Caspian Sea. However most of these documents and efforts are relatively new and amelioration in environmental protection or the restoration of the ecological balance is yet to be seen due to this novelty. Furthermore, it may be misleading to associate the changes in the environmental situation directly with these measures since there are many factors causing change in environmental circumstances other than the constants cited in these measures, as elucidated in the section on literature review. The effectiveness of these measures need to be analyzed with different parameters to evaluate the impacts of these international, national and regional endeavors.

The aim of this study, is to analyze the effectiveness of these measures with the adoption of certain parameters to understand their nature. For any measure to be effective there are certain necessities. Firstly, deadlines and timely measures which answer the urgent needs of environment require serious consideration. Secondly, rather than merely normative, ambigous statements to protect the environment, action-oriented strategies laying down step by step programmes need to be applied. Finally, international, natinal and regional levels of authority should be integrated to form a holistic framework which will be instrumental in solving environmental problems in a cooperative atmosphere. The merging of these three levels of authority would be useful in overcoming environmental problems which are not subject to political boundaries. The parameters of time, holism and action-

orientedness are applied to the efforts made in these three levels of authority in order to evaluate their efficiency.

1.2. Significance of the Study

The existence of oil in the Caspian region has brought both advantages and disadvantages to the peoples of the region. It has been a blessing in terms of economy. Its existence rendered this geography and the benefits brought by controlling it an object of desire in the pre-Soviet, Soviet and post-Soviet times alike. The fledgling states of former Soviet Union, in the wake of 1990s, embraced the advantages brought by the hydrocarbon resources as a means of building an economic basis in their quest of, first, survival, later development. The presence of hydrocarbon resources brought Foreign Direct Investment (FDI) to these economies, as they were undergoing transitions from state-centered economies to Capitalism and introduced the much needed capital.

History shows that what is advantageous in terms of economy has not always been so in other aspects. Extreme exploitation of natural resources has in some way or other caused results which cannot be deemed preferable in terms of environment, human health and biological resources. Ample example from around the world is present. The Amazon Basin of Ecuador, for instance, is blessed with an increase in per capita income and an annual economic growth of 7% due to oil exploitation since 1970, while the rainforests suffer from the pipelines, roads and untreated wastes (Sebastian & Hurtig, 2005). The oil exploitation activity in South Sudan is a similar example, for the hydrocarbon activity is the engine of the economy, while toxic waste and crude oil cause environmental problems in the White Nile (Dugak, 2007). The environmental problems caused by hydrocarbon development can also be found in Xinjiang region of China, which is already fragile in terms of environment due to being located in one of the most arid parts of Asia (Sun, Peng & Chen, 2003). The oil shale industry of Estonia, too, has become a threat to the environment, especially in the 1980s, since the used limestone form gigantic heaps

of waste and often cause hazards by self ignition (Raukas & Punning, 2009). Nigeria on the other hand, experienced a disaster caused by an oil spill and fire in the oil producing Niger Delta in 2004 (Concannon, 2004, p. 125).

A relevant example from the region where economic gain is prioritized over environmental protection would be the state of the Aral Sea, which has been sacrificed for economic profits brought by the cotton monoculture in the region if not oil production. The vast plantations have necessitated the diversion of rivers feeding the Aral Sea and the agricultural chemicals used to boost harvests have cumulated in the exposed seabed, carried by the winds to nearby residential sites, increasing serious respiratory diseases including lung and larynx cancers. In addition to these negative impacts on human health, the environment in and around the sea has drastically deteriorated. The water volume of the sea has shrunk to 1/4 of what it once was and the ecosystems around it have been heavily affected by the toxic salt coat covering the exposed seabed and the sea (Dukhovny & Sokolov, 2003, p. 6).

The Caspian Sea, today, surely does not face the same conditions and the same threats facing the Aral Sea. However, the Aral Sea example is significant since it indicates that when genuine precautions are overlooked for the sake of economic development, environmental catastrophes may become inevitable. With the enthusiasm of oil production and its savior role in terms of economy, negative implications on environment are likely to be overlooked by the decision-making mechanisms of these states. On the other hand, the Aral catastrophe may have been a lesson for everyone, but especially for those who have closely observed and suffered from it.

This study aims to find out what kind of risks this economically valuable resource poses for the Caspian nature and analyze the effectiveness of the measures taken for the protection of nature. Both the environmental protection and hydrocarbon development are too significant for the region to make it possible to dismiss one and opt for the other. This study is important in that without such a balance, the littoral states would not be able to get away with activities carried out for

maximum profit alone, or activities carried out for environmental protection alone in a very conservative fashion, without being harmed, either economically or sociologically. The way to create this balance is through rational measures to ensure that oil development activities are carried out with minimum damage to the environment. This could be possible via new purification technologies, environmental impact assessments (EIA), social impact assessments, monitoring activities and commitments on the part of the governments of the littoral states to take environmental protection seriously in hydrocarbon development activities.

Establishing the facts about oil induced environmental threats and assessing the effectiveness of possible solutions of legal, socio-political, economic, technical and technological nature brought to this problem by international, regional and national policy makers is the introductory step in acquiring this much needed balance. This study is instrumental in that it constitutes an overall analysis of this pair of scales of environmental protection and hydrocarbon profits and tries to bring them to a pan of balance. It is intended to form an initiatory reading for those who wish to know more about the queasy balance in the Caspian region between oil and environment and the ways in which it can be eased.

Within the scope of this study, lies a general familiarization of the reader with the region via the introduction of its near history and geography. The facts about oil and its share on the pollution of water air and land are established. Its impacts on the socio-economies of littoral states are touched upon to constitute a basis for the search for genuine solutions via national, international and regional mechanisms. The purpose is to evaluate the effectiveness of these mechanisms which claim to find a common ground between environmental protection and economic gains brought by hydrocarbon development. With this analysis the extent to which these international, national and regional measures are viable in ensuring the merging of environmental protection with hydrocarbon development is evaluated.

1.3. Overview of the Study

In the first chapter the statement of the problem, as the effectiveness analysis of the national and supra-national measures intended to cope with the ill effects of the hydrocarbon development to the Caspian environment, is presented. A brief introductory summary underlining the importance of balancing economic requirements with environmental protection is provided. The rationale, scope and significance of the study are emphasized and a skeletal overview of the study is presented. A literature discussion is also presented including discussions of several scholars in the issue of effectiveness of environmental measures and possible parameters for the analysis are laid down.

Historical and geographical information concerning the Caspian region, which can be qualified as background information is to be provided in the second chapter. This overview includes a brief presentation of the Caspian geography with reference to characteristics affecting environmental protection, such as surface level fluctuations, bottom topography, bathymetry and introductory knowledge of Caspian hydrology which lies in the scope of the current study. It also includes a brief Caspian history focused on the element of oil, starting with the coming of Nobel Brothers to Baku in the late 19th century, causing the first oil boom in the region, moving on to the change of hands of the precious resources all through history from Imperial Russia to the USSR and finally to today's configuration of independent littoral states.

The question if there is genuine pollution caused by oil production in the Caspian region is evaluated in the third chapter. The impact of oil as a polluting agent is considered with reflections on water, air and land resources. Negative impacts such as possible spills from the pipelines, effects of off-shore oil fields in the Caspian Sea, impacts on biological resources and evidence from actual incidents on contamination of marine environment are referred to in the section on water, soil and land pollution. The effects of carbon emissions, escaping hydrocarbons,

flaring of natural gas and their impact on the Caspian ecosystem are referred to in the section on air pollution (Shonbayev, 2003, p. 14). The byproducts, such as radioactivity, due to extended use of oil exploitation equipment are referred to. The transboundary character of pollution is underlined, necessitating an integrated, joint, holistic way of decision making. Additionally, the social and economic impacts of oil induced pollution are explained. The most significant of these, the health risks, diminishing stocks and role of commercial fisheries causing shrinkages in the caviar industry are touched upon.

In the fourth chapter the analysis of the national measures taken to cope with negative effects of hydrocarbon development in the Caspian region is analyzed. The national legal systems, development of environmental legislations, viability of environmental legal frameworks concerning the preservation and restoration of biodiversity, ecology and environment from the ill effects of hydrocarbon development, performance of implementation mechanisms and involvement of civil society in environmental decision making mechanisms are examined. The applicability of the three parameters of time, holism and action-oriented strategy building, set in the section on literature review, is sought. The effectiveness of the national measures is discussed with the data acquired from this analysis.

The fifth chapter is a similar analysis of effectiveness on supra-national level. The regional measures taken to cope with Caspian environmental problems induced by activities concerning fossil fuels are analyzed in the first sub section of the chapter. The issue of the lack of a legal regime governing the Caspian Sea is referred to, for the sake of highlighting the problems concerning delineation, thus jurisdictions, in the Caspian Sea. The sui generis legal situation of the vast inland body of water is explained with reference to the history of Caspian delineation, international conventions, such as United Nations Convention on the Law of the Sea, which may be applied, and bilateral treaties governing the Caspian Sea today are explained. In connection with this information the Framework Convention for the Protection of the Marine Environment of the Caspian Sea is analyzed in detail in terms of its effectiveness as the first and only legally binding regional convention ratified by all the littoral states. The effectiveness parameters adopted in the

discussion on literature in the first chapter are applied to the measures taken in the framework of this convention. The second sub-section of the fifth chapter is an analysis of the effectiveness of measures borne out of international endeavors concerning the Caspian environmental protection with implications on oil production. The most significant conventions setting up international environmental legal framework are referred to and their ratification status for each Caspian littoral is stated. Their action plans and timetables are highlighted by the implementation of the three parameters of effectiveness analysis. Additionally, efforts by international organizations in the form of projects to rehabilitate and protect the Caspian environment are referred to as part of the analysis on effectiveness of supra-national efforts.

In the sixth chapter, a general discussion of the study is carried out and an overall analysis of the measures taken on national, regional and international levels are evaluated in terms of their effectiveness in protecting, restoring and preserving Caspian environment in the face of the negative effects of hydrocarbon activities. The conclusions drawn from the study is introduced along with recommendations on further research.

1.4. Rationale of the Study

Despite the fact that the environmental problems posed by the oil production has been researched by prominent scholars and an extensive literature is available in this issue in each individual field, a comprehensive analysis of measures taken by all levels of political authority in Caspian environment protection has not been carried out. The effectiveness analyses are often made for international measures only and not for the impacts of a particular source of pollution (Kütting, 2002).

This study is unique in bringing together different levels of political decision making and evaluating the effectiveness of the measures taken by each level for coping with the particular pollution source of fossil fuels. Although the three

parameters set for carrying out this analysis are a compilation of the most viable and applicable parameters put forth by prestigious scholars in the field, it is different from the plethora of literature on environmental protection, in that it is pertinent in analysis parameters and comprehensive on levels of analysis. The study also presents the reader necessary background information concerning geography of the region, historical data on hydrocarbon development and environmental protection as well as the impacts of pollution on the Caspian environment, to make the analysis more lucid in the eyes of the reader.

1.5. Literature Review

This literature review elucidates the main parameters to make an effectiveness analysis of actions taken by the littoral states of the Caspian Sea, international organizations and regional cooperative structures to protect the Caspian environment. This section also includes insights supporting these parameters which are also made use of while making this analysis.

Environmental effectiveness is a concept used in evaluating the success of any measure taken concerning environmental protection on any level of political decision making. The orthodox way suggests that quantitative data acquired by monitoring activities be taken into consideration, to evaluate the effectiveness of a measure. However, to do this a certain period of time, usually designated by that measure has to elapse. The strength of such a study would be that the analysis would be based on statistical data and be scientific in that its objectivity is ensured. However it has its shortcomings as well. It is quite problematic to establish a causality chain and prove that a particular result is caused by the measure taken (Retief, 2007, p. 447). Retief emphasized that "… the quantitative data related to changes in environmental quality would be very difficult to obtain and even more difficult to relate or prove causality…" (p. 448). VanDeveer (2002) similarly, argues that there are "tremendous methodological and empirical difficulties

associated with actually tracing the influence of a particular international agreement to its effect [on] environmental quality" (p. 115).

This study does not focus predominantly on statistical data and quantitative analysis for one other simple reason: acquiring statistical data on most of the measures taken to protect the environment of the Caspian Sea is impossible since it is either too early for most of such measures to bear discernible change or they are still being negotiated. This slides the focus of this study to an approach more concerned with the process rather than the result. Inspired by scholars studying in the field of environmental effectiveness, when there is insufficient data on environmental impact due to the novelty of the activities, the next best thing is to focus on "observable political effects" in the process (Keohane, Haas & Levy, 1993, p. 7). Although supporting a study with statistical data on environmental impact would have been a good way of testing the success of the analysis conducted in this study, being deprived of it might also be regarded as a strong point, for the study is rid of bleakness in the causality chain.

The literature on environmental effectiveness started to build after 1960s when international attention began to be paid to transboundary and commons environmental problems. The 1972 United Nations Conference on the Human Environment (UNCHE) is a genuine milestone in establishing environment as a concern in politics and academia (Keohane et al., 1993, p. 6). In these early days, Ross (1970) defined step by step "fundamental maneuvers" for effective management of an environmental problem as "assessment of the problem", "invoke[ing] a certain degree of control as indicated" (p. 5), "keep[ing] the problem under surveillance and assessment" (p. 5) and "invoke[ing] a higher degree of control when necessary to maintain a useful quality of the environment" (p. 5).

Writing three decades later, Keohane et al. (1993, p. 8) found remedy in international institutions to make or catalyze these maneuver. They identify three preconditions for any environmental measure on transboundary level to be effective. First one is concern on the part of the government so high as to make it

willing to devote its scarce resources to the solution of an environmental problem. The second one is the existence of a contractual environment among the states suffering from environmental problems in the form of credibility of commitments and possibility to monitor each other to ensure reciprocity. The last one is "political and administrative capacity" on the part of the states to ensure the implementation of the measures taken on international level which they characterize by the making and enforcement of laws and regulations as well as ability of public via civil society to play a role in this process (Keohane et al., 1993, pp. 19-20). The role assigned to international organizations is enhancing the situation in these three ways. They argue that firstly, governmental concern would be increased by collection and dissemination of scientific knowledge and magnification of domestic pressure. Secondly, contractual environment would be enhanced by providing less costly platforms for the concerned states to negotiate and increasing accountability of the process by ensuring monitoring mechanisms. Finally, national capacity would be built via transfer of technical and management expertise and financial assistance which in turn increases "bureaucratic power of domestic allies" (Keohane et al., 1993, p. 406).

Keohane et al. (1993) considered environmental effectiveness as a concept within the framework of institutional effectiveness; however scholars, like Gabriela Kütting (2000, p. 38), differentiated environmental effectiveness and institutional effectiveness setting parameters for environmental effectiveness analysis, independent from the preconditions in the literature on institutional effectiveness. According to her the four pillars the effectiveness of any environmental measure stands on are science, time, regulatory structures and economic structures (Kütting, 2000, p. 38). The instrumentality of the first pillar, science, is that it provides for what MacDonald (1972, pp. 15-21) put as ample and reliable data for the concerned states to be able to make relevant and pertinent policies. Regulatory structures somewhat overlap with the definition of Keohane et al. (1993, p. 20) concerning administrative and political capacity ensuring that pertinent policies are made and implemented. Economic structures stand for the possibility of diverting scarce resources to the solution of an environmental problem. Time, on the other hand, refers to setting up of time frames for agreements ensuring that they answer

the urgency and irreversibility of the environmental problem at hand (Kütting, 2000, pp. 41-42). The effectiveness of those without a schedule for implementation is predicted to decrease considerably (Kütting, 2000, pp. 41-42).

Keohane et al. (1993) emphasized the time factor as well, by stating that "the pace of an action is important" (p. 13) for quickness in taking action matters when a pollutant, such as an oil spill is threatening the environment. However, sometimes although a time limit is set, the pace of negotiations may decline due to bureaucratic lagging. As Sand (1990, p. 5) rightly noted, parliamentary ratification procedures are generally time-consuming, delaying, or even omitting in cases of emergencies, the effectiveness of the agreement. Another problem connected with bureaucracies is what is referred to as the case of "slowest boat on the convoy" (Sand, 1990, p. 5), which stands for those parties which lag behind others in the ratification process, causing the agreements' entry into force to be postponed for the sake of reciprocity.

The Caspian Sea is threatened by a number of sources of pollution threatening the environment, none of which are as significant as hydrocarbon resources which may lead the way to an environmental emergency like an oil spill as mentioned earlier. Seeing that time limits and the pace of action is extremely important for such environmental emergencies, it is only convenient to identify pace as the first parameter used in the environmental effectiveness analysis carried out in this study.

The second parameter which constitutes the backbone of this analysis is holism. Janssen (1992) noted that "due to the increase in scale of environmental pollution, environmental effects occur not only at the local level but have expanded to the regional, national and even global levels" (p. 43). Speth (1990, p. v), who served as the President of World Resources Institute in early 1990s, supported this view by stating that environmental problems have expanded so much that handling them necessitates international cooperation. According to him, the approach to the solution of environmental problems should vary from international to regional, national and local levels. He gave the example of nitrogen oxide emissions which

need local regulations for decreasing ground level ozone formation, regional regulations due to the problem of acid rain they cause and global regulations since the ground-level ozone gases add up to the greenhouse gases with its heat-trapping nature. Similarly Ross (1970) referred to the effect of air pollution, which for the case of the Caspian is predominantly a byproduct of oil extraction activities. He put rightly that "the winds are no respectors of municipal boundaries" (Ross, 1970, p. 6). Nye (1993) supported this view by stating that "transnational problems cannot be managed by one country acting alone", calling for environmental policy change by "cooperation across borders" (p. ix). The transboundary nature of environmental problems means that measures not only on local and national levels but also on regional and international levels are needed.

In the early days of the literature on environmental effectiveness, Ross (1970) found the effectiveness and efficiency of any environmental action in positive correlation with the "participation of various persons, corporations, or agencies" (p. 5). In line with his argument, MacDonald (1972, p. 21) put forth that the actors to take part in the solution of any environmental problem are policy and decision makers, general public, scientists and engineers. What can be deduced from these arguments is that the coming together of different levels of authority in itself may not suffice for the public through civil society organizations, economic stakeholders and scientists should also be included in the environmental actions where necessary. Since environmental degradation is usually either followed by a "deterioration of the social and economic functions of environment" (Janssen 1992, p.1), such as the problems related to the fisheries in the Caspian Sea, or caused by an economic function of the environment, such as oil seeps, one may rightly argue that the contribution of these non-state actors are necessary.

Scholars of International Relations favoring liberal institutionalism, agree that the consequences of environmental problems as well as the positive effects of the implementation of solutions in one country affect another. Keohane et al. (1993) argued that merging the non-state actors with states, local with regional, national with inter-national has many advantages. The existence of international measures were said to help "overcome national reluctance to act" (Keohane et al., 1993, p.

16). They argued that although states are considerably strong when compared to institutions, when they are willing to cooperate – for reasons like concern as mentioned above – institutions create the optimal platform for all the stakeholders, be it states or non-state actors, to negotiate. Furthermore, with the existence of international institutions, external demand by international institutions is coupled with internal demand by NGOs resulting in pressure on the government, the traditional enforcement mechanism. This may be a way of overcoming obstacles standing in the way of ratification processes or loopholes in implementation and enforcement. Additionally, the existence of an international institution was found positive for it usually "helps weak governments in the form of technical assistance or outright aid" (Keohane et al., 1993, p. 405). They supported that state sovereignty is compatible with international institutions when it comes to the solution of environmental problems. The effectiveness of an environmental action will increase significantly when "networks over, around, and within states" are created (Keohane et al., 1993, p. 24).

All these establish holistic-approach as a viable parameter in environmental effectiveness analysis, in agenda-setting, policy formulation and national policy development, sometimes enhancing other parameters, such as pace of the negotiations, by the pressure it generates internationally and domestically. Furthermore it is applicable to the analysis of the environmental effectiveness of the Caspian Sea since one such institution, the Tehran Convention, governs the marine environment of the Caspian Sea.

The process of enforcement is a key concept for environmental effectiveness. Especially for lawyers, the way to evaluate the effectiveness of any international agreement judicial enforcement is the utmost factor. The way to use this as a parameter is by intergovernmental liability suits. However, taking a state to an international court such as the International Court of Justice (ICJ) is found to be a "less promising way of enforcing multilateral environmental agreements" (Sand 1990, p. 30). There are two reasons for that. Firstly, the scale of environmental problems is expanse in that the effects of a change may be either long-rage or long-term which makes it difficult to deduce. Secondly, the intergovernmental

liability suits are often lengthy – one such example, the Trail-Smelter case between Canada and the United States lasted from 1926 to 1941 – which makes them costly as well (Sand, 1990, p. 30). Furthermore, the lengthy process also causes a serious delay in the enforcement of agreed rules or regulations. Additionally most international courts like ICJ necessitate the approval of both parties before taking up the case, which renders them ineffective in most situations.

As an alternative for eluding judicial enforcement as an effectiveness analysis parameter without giving up on the significance of enforcement, Sand (1990, p. 31) suggested the establishment of an international institution without judicial jurisdiction, to be applied to in case of an infringement to environmental agreements by one party. However either way the control becomes corrective, meaning that the measure is to be taken after the infringement occurred. Considering the high amounts of harm that can be done to the environment within mere hours in the case of, for instance, an accident involving a tanker carrying fossil fuels, corrective action would be rendered meaningless. The necessary form of action is preventive, rather than corrective; however review mechanisms, either judicial or not, lack this form of action (Sand, 1990, p. 34).

Unfortunately, the environment in itself gives a delayed response to many pollutants, necessitating corrective action. Even recognizing the effects of a pollutant on environment takes a long time. Janssen (1992, p. 21-22) has given the example of the Big Moose Lake in New York, which has been affected by acid emissions. It took 70 years for the effects of the pollutant to be recognized so the response was delayed and the results of implementation of measures to reverse the pollution is likely to take centuries (Janssen, 1992, p. 21-22).

Even though the response to some environmental problems may be delayed and corrective in nature, the enforcement mechanism should be based on preventive action. Monitoring provides for an invaluable source of auditing constituting the basis for preventive action. Keohane et al. (1993) put forth that “monitoring makes state commitments more credible, thereby increasing the value of such

commitments" (p. 23). Often in multi-national agreements, parties are distressed by the possibility of free-riding by others, which cause reluctance on the part of the parties in enforcement procedures. The enforcement of agreed upon rules usually need allocation of already scarce resources or necessitate sacrificing an economic income. Not knowing if the others are also suffering from such adverse effects causes the parties to suspect the reciprocity of the enforcement process. "Uncertainty regarding others' future actions can restrain otherwise willing countries from accepting mutual constraints" (Keohane et al., 1993, p. 402). The fear of being cheated by others, in other words the free rider problem, not only creates an obstacle in enforcement procedure but also undermines what Keohane et al. (1993, p. 23) referred to as contractual environment, as mentioned earlier. The feasibility of governments to commit in making of agreements and remaining loyal to the commitments of an international nature relies on a contractual environment ensured by the possibility of monitoring. Via monitoring services, "aspects of environmental quality" can be measured, "potential sources of pollution" can be observed and most importantly, national policies of the contracting parties can be monitored (Keohane et al., 1993, p. 402).

However the data collected by monitoring and the contractual atmosphere provided by the elimination of the fear of free-riders, although are goods in itself, serve for a greater good. Despite the suggestion on a corrective non-judiciary international institution to be applied to in the case of an infringement by a contracting party, as mentioned earlier, the international institutions are typically weak and Keohane et al. (1993) found it "unrealistic to hope that governments will grant them such [enforcement] powers" (p. 24). The enforcement powers are possessed predominantly by the contracting parties, in other words, states. International institutions do not need these powers as long as the contracting parties are willing to cooperate and use their capability of enforcement in line with rules and regulations agreed in multi-national negotiations. This brings the form of the action the states are to pursue with their capabilities to the fore.

The form of action overseen in international policies developed for environmental protection is very significant. For a measure to be effective it should not be a mere

normative statement. Baugh (1970) stated that it is too "easy to make sweeping statements, such as 'This must be stopped'" (p. 150). Of course environmental measures all take their roots from a normative understanding; however if they are all about it, there is not much left to analyze in terms of effectiveness. Setting "specific regulatory standards" is fine, and indeed necessary, only if they are part of an actual plan to be implemented (Keohane et al., 1993, p. 13). Reasonable ways of dealing with the problem are needed, such as a strategic action plan to achieve a goal set in a certain time limit. Keohane et al. (1993, p. 13) referred to some instrumental actions as positive examples contributing to the effectiveness of the normative statements the conference, agreement, law or regulation adopts. These instrumental actions may be in the form of development of monitoring programs, sponsoring scientific research activities or helping build up of national administrative capacity to enhance enforcement in domestic level (Keohane et al., 1993, p. 13). Devising such strategies to control the problem and ameliorate the situation is a result-oriented, action-oriented approach, which is not only very instrumental, but also a necessity in the solution of an environmental problem.

Any solution including the active involvement of the states has a good probability to be carried out with an action-oriented approach, since the state is the utmost enforcement mechanism; most of the time perfectly able to implement strategies to cope with an environmental problem. As mentioned earlier, as long as they are willing to cooperate for the solution of the problem, the states are capable of enforcing strategies decided not only in domestic sphere, but on regional and international levels also. Even international institutions have the opportunity to be effective via state power of implementation of an action-oriented strategy. The extent to which this action-oriented strategy is pursued is a factor designating the effectiveness of the environmental measure. This makes action-oriented approach the third parameter in the effectiveness analysis of the measures taken to protect and preserve the Caspian Region environment.

In conclusion, the main parameters used in this environmental effectiveness analysis are pace, form and inclusiveness of the measures taken to protect the Caspian environment. It is argued that when a measure devises actual strategic

action plans with a well-set agenda, includes national, regional and international levels consisting of states and non-state actors such as economic stakeholders, civil society or scientists, and sets a certain time limit to be met for a reasonable and convenient target to solve, ameliorate or control the problem, it is an environmentally effective measure.

Supporting the main parameters, the preconditions and hints in evaluating the effectiveness of a political action mentioned before are also taken into consideration when relevant. The existence of government concern, contractual environment overcoming the fear of free-riders, the role of institutions, importance of monitoring, enhancing the pace by elimination of slowest boat in the convoy rule, audit mechanisms to ensure preventive action rather than corrective action in environmental problems are touched upon where necessary.

Indeed these three main parameters are not the utmost universal parameters for making environmental effectiveness analysis, but are the most convenient ones for the Caspian Region. Due to the relative youth of most of its littorals and the novelty – and incomplete state, in some cases – of national, regional and international measures taken to manage its environmental problems, a process rather than a result oriented approach is adopted in this study. These parameters are efficient for speculating on the political process underway, yet simple enough to be traced in most of the actions concerning the region.

CHAPTER 2

A GEOGRAPHIC AND HISTORICAL OVERVIEW OF THE CASPIAN OIL AND ENVIRONMENT

A brief presentation of Caspian geography and history focusing on the element of hydrocarbons is presented in this chapter to constitute background information in assessing social, political and environmental problems concerning hydrocarbon development in the Caspian region. The geographical information includes fluctuating behavior of Caspian Sea surface; bathymetry and introductory information on hydrology to better evaluate the peculiar characteristics of the sea in analyzing the relationship of oil and environment. The information on history not only focuses on the development of the region's hydrocarbons but also gives examples of the earliest measures taken to protect the environment of the region, which helps one to track down the evolution of these efforts.

2.1. Geography of the Caspian Basin

Caspian Sea is the largest inland body of water on earth stretching over an area of 371.000 square kilometers. It has no outflows and no tides. Its waters, however, are not freshwater but rather brackish. Approximately 130 rivers feed the Caspian, out of which Volga River provides for 80% of the total inflow. In addition to these rivers, Caspian Sea is fed by groundwater resources as well. After notable fluctuations in the water level through 20th century, the latest data is that the basin, being a depression, is located some 26 meters below sea level. Several islands like Bulla and Pirallahı, Nargın near Azerbaijan and Asuradeh near Iran are situated in the Caspian Basin.

The water level of the Caspian Sea depicts serious instability throughout history, characterized by imponderable recessions and expansions. In the prehistoric era glaciation cycles had a major impact on these fluctuations. Once, 2 – 3 million years ago, establishing contacts with the Aral Sea and the Black Sea, the Caspian Sea reached a surface area three times the present. (Dumont, 1998, p. 44) However the bottom had not yet sunk to its current level, so that the water volume is predicted to be considerably less than the volume it holds today. Moreover the lake area was not a depression as it is today, but its surface was situated at some 50 meters above sea level. The following million years have witnessed a series of transgressions helping both the surface and the bottom levels sink. This trend continued until as late as 500 B.C. (Dumont, 1998, pp. 44-45).

The transgressions and fluctuations continued in a greatly limited fashion from then on. The water level in late 19th and early 20th centuries had remained at -26 meters. However between 1930 and 1977, a phase of recession caused a shrinkage which resulted in a sharp drop of approximately 3 meters (Dumont, 1998, p. 45; Akiner, 2004b, p. 346). The surface level of the Aral Sea had also been dropping simultaneously, which led the scholars of the field to mistake these contractions for an alarming desertification in Central Asia and that both inland bodies of water will continue to shrink. However, the water level started to rise rapidly in 1978 with an average of 13-14cm/year (Dahl and Kuralbayeva, 2001, p. 436), reaching its previous surface level, accounting for about 3 meters of rise in total, between 1978 and 1998.

Explanations to shed light on this phenomenon vary extensively. These include measures taken to meet irrigation needs, hydraulic mission conducted on Volga via dams and hydroelectric stations and climate change. Bater notes that hydraulic mission has had great impact on the surface level falls of Caspian Sea, blames rapid industrialization policies of the USSR and refers to the data that five year plan of 1950, when Caspian surface level was on the fall, stipulated the “most rapid rate of dam construction” (as cited in Hollis, 1978, p. 65). On the other hand, some other scholars try to draw a negative correlation between the levels of the

Aral Sea and the Caspian Sea while others note that none of these explanations have become a widely acknowledged scientific explanation (Akiner, 2004b, p. 346).

These fluctuations are important for the scope of this study in that the ones that took place in the previous century have posed great environmental hazards for the Caspian ecology. As the water level decreased during the 1930-1977 interval, previously submerged areas became the new shores of the Caspian Sea. Akiner (2004b, p. 347) notes that a major demographic change took place after 1920s in the form of heavy migration towards coastal areas because of the fertility of the soil and the developing oil industry. The areas which were previously deemed to be vulnerable started to be inhabited and all kinds of establishments, including oil wells and rigs have been built on this exposed seabed which then was regarded to be the new seashore. When after 1977 the water level rose again to maintain its previous state these buildings have been flooded and abandoned. Apart from the economic loss caused by these series of floods, the oil wells have been inundated too and the oil has seeped to the rising sea. Great health risks ensued as not only the sea but also the groundwater levels increased, causing the fertilizers and other toxic chemicals to spread. Water supplies were contaminated and soon plague and cholera cropped up. The coastal population throughout the region had to be resettled in each littoral state (Akiner, 2004b, pp. 347-348). There exists a possibility that this surface level rise may have been deteriorated due to the seeping oil which forms oil films in the surface of the Caspian Sea, hindering evaporation.

Resettlement policies were not the only way these states tried to cope with the rise and fall of the Caspian. The Gulf of Garabogaz situated in the east central part of the region in Turkmenistan which creates a smaller basin within the Caspian, holding a significant amount of the Caspian water, was part of the policy these states adopted to control the water level to some extent. This gulf normally is separated from the Caspian Sea by a sandbank. However, a narrow strait on it can be opened and closed in accordance with the irregular rising and falling behavior of the Caspian Sea, at least in theory, since in implementation the plan has its own

side effects (Akiner, 2004b, p. 344). When in a four year period 1933-1941 a rapid fall of 1.7 meters was noted, plans of building a dam to close the strait in Garabogaz Gulf emerged. However as in 1980, when these plans were implemented, the water level had already started to rise again. Furthermore, although it has been predicted to ameliorate the surface level fluctuations the scheme posed an unprecedented environmental problem. Without circulation the gulf was desiccated and the sodium sulphate, which is a salt deposit the gulf is famous for holding large amounts of, was exposed. These salts, similar to the Aral Sea case, were carried by winds through an extensive area causing considerable damage to local industries and harming families forcing them to migration. In the face of events local authorities decided to open the dam, at first partially in 1984, then completely in 1992. The opening up of the straits was in synchronization with the rising of the Caspian Sea and some amount of water could be diverted to this gulf (Akiner, 2004b, p. 346).

These rising and falling behavior of the Caspian Sea and series of transgressions throughout history have resulted in a bottom topography which is rather interesting. The sea is divided into three sectors in terms of the depth and characteristics of the water. Dumont (1998) noted that these zones created by the diversities of salinity, climate and depth makes these three sections "more different from each other than many individual lakes" (p. 51). The north section, stretching along the coastline of Russia and Kazakhstan, is the shallowest section. Although the figures vary from researcher to researcher, the average depth is around 20-25 meters. (Akiner, 2004b, p. 345; Dumont,1998, p. 45) However it is not uncommon to measure water depth less than 5 meters. The middle section is the part surrounded by this north section, Azerbaijan and Northern Turkmenistan. It is deeper than the north part with an average water depth of 100 meters. This part resembles a doughnut shape with shallower coasts and a deep center which is measured to be 788 meters in its lowest point. The southern section, which lies along the coastline of Iran and Southern Turkmenistan, on the other hand, is a lot deeper, reaching 1025 meters in its lowest point (Dumont, 1998, p. 45).

Although the areas these three parts cover are similar, the water volumes they hold are extremely different because of the highly different bathymetric structures. Dumont (1998, p. 45) noted that the Northern section, for instance, holds only 0.5% of total water volume of the Caspian Sea. This fact combined with the component of Volga accounting for 80% of the total inflows and feeding the Caspian Sea from the shallowest northern section, determines the water quality, salinity, currents, cyclonic flows, oxygenation and in turn the biota of the Caspian Sea.

The north section, receives fresh water from the Volga River from the West. Considering the shallowness and the little volume this section holds, this freshwater coming from Volga causes the northern section of the Caspian Sea to have the least salinity. Freshwater brought by Volga enters the Caspian Sea from a northwestern point and flows along the western coastline towards the South. Although the salinity of the middle and southern sections change little, in connection with their more voluminous waters, this gives the western coastline the chance to avoid desertification caused by salt and mineral deposits, which the eastern coastline suffers. The land in the western coastline is more fertile than the eastern coastline, owing to the fact that the cyclonic flow of water brings freshwater from the north to the south along the western coast and saline and deposited water from the southern section to the north along the eastern coast (Dumont, 1998, pp. 45-48).

This north-south diversity is appreciable in terms of water temperatures as well. Where the shallow north section is easily heated in the summer and frozen in the winter, the water temperatures in the southern sections are more stable due to warmer climate and excessive water volume. Furthermore, the factors of salinity and climate result in vertical currents which causes oxygen to reach depths making it possible for the Caspian Sea to be home to special fauna and flora including five special sturgeon species such that endemism reaches 80% (Dumont, 1998, p. 49). In addition to these factors the low salinity level in the Caspian Sea makes it possible for freshwater species and marine species tolerant to low salinity to coexist.

In addition to its natural wealth in terms of biota, the Caspian basin is famous for another natural endowment: the valuable hydrocarbon deposits it holds. Although in the northern part of the Caspian Sea in Kazakh coast vast oil deposits exist, the majority of the most productive hydrocarbon resources are located in the southern and deepest part of the Caspian Sea. The band stretching from the Apsheron peninsula all the way to Turkmenistan's Peri-Balkhan region accounts for the most promising resources (Mehdiyoun, 2000, p. 179).

Major fields in the northeastern part consist of Kashagan, Aktote, Kairan, Kalamkas, Tengiz, Dounga and Karazhanbash. The southern band is composed of offshore stations to the southeast of Apsheron peninsula and the southeast of Turkmenbashi. Major refineries in Aktau and Turkmenbashi, as well as Baku and Novorossiisk are connected via Russian built pipelines whereas Baku-Tblisi-Ceyhan pipeline also connects Baku with Georgia and Turkish port of Ceyhan and Iranian pipelines connect Tehran's refineries with Turkmenbashi and Baku with refineries in Tabriz.

2.2. Historical Background of the Caspian Oil

Caspian oil has a long history going back to times when Zoroastrians, believing that the fires purified the soul, are known to travel to Baku to worship the fires in the temple of Surakhani, which were fueled by natural gas. Both the beginning and the end of the tradition vary greatly from one author to another. Firouzeh Mostashari (2000, p. 89) affirmed that the Zoroastrian tradition of worshipping oil-induced flames in Baku goes back as early as 600 B.C., while Steve LeVine (2007, p. 5) claimed that the coming of Zoroastrians to Baku was only after the crusades when their temples were ransacked by the Christian invaders and Arab mojahids in the seventh century A.D.. In a similar sense, as Mostashari (2000, p. 89) claimed that this is a trend which continued until as late as 12th century A.D., LeVine (2007, p. 5) asserted that it only ended when in 1860s the iron curtain was closed

on them for good. However, what is certain is that, as a commodity, crude oil is known to be traded from 10th century onwards. Wright noted that Marco Polo during his travel to the Caucasus in the 13th century witnessed "fountains of oil" having such a great quantity of discharge that it could well be exported (as cited in Mostashari, 2000, p. 89).

Up until the conquest by the Russian Imperial Units in 1723, the Khanate of Baku and other parts of eastern Caucasia were under the control of the Persian Empire. The drive behind this conquest was to exploit and export the oil, a resource the region was well furnished with, to Imperial Russia. However as the visionary tsar Peter the Great died two years after the conquest of Baku oil fields, Persian Empire made a successful move to recapture the oil-abundant Southern Caucasia in 1725 and exploitation of oil was once again on the hold (Mostashari, 2000, pp. 89-90). This lasted until 1796 when the Russian army occupied Baku and succeeded in legally governing it in the end of 1804-1812 Russo-Iranian war (Granmayeh, 2004, p. 17). In 1813, as a result of the Gulistan Treaty, the Baku Khanate once again became a legal Russian possession. With this conquest, The Russian Empire was successful in the seizure of the Baku oil monopoly, which proved to be a turning point in the history of Baku oil (Mostashari, 2000, p. 90).

During the second half of the 19th century, different systems of management have been adopted for the exploitation of the hydrocarbon resources of the region varying from a system of leasing the oil pits to private contractors for 4-year periods, government monopoly and finally, the distribution of the oil pits by auction for 24 years which resulted in the formation of a structure resembling a cartel (Mostashari, 2000, pp. 91-92), while the American oil started supersede Baku oil in world market due to its superior quality (LeVine, 2007, p. 6). LeVine (2007, p. 6) noted that in 1870, even Russia had been exporting oil from the United States in extensive amounts like 250,000 gallons. To make the matters worse, the excise taxes the government initiated increased with the elaboration of the refinement process, thus to keep the prices down refinement of Baku oil was carried out in an unelaborated way, which proved to be a negative effect on the development and improvement of the Baku oil industry. Importing kerosene from

America, a distance of 8000 miles, was apparently less costly than importing it from Baku, a distance of only 341 miles (Yergin, 1992, p. 60).

The oil fountains were the next big thing in 1870s and 1880s. They produced astonishing amounts of oil such as Droozba which produced forty three thousand barrels per day for five months solid. However losses were huge since overflowing, out flowing and evaporation were extremely common, because of the fact that technological improvements were insufficient in controlling the abundant resources (Yergin, 1992, p. 61). Although in early 1880 certain safety measures were taken in the form of safety caps, storage tanks or sliding valves, the eruption of gushers tearing those to shreds with the strength of their flow was quite common (LeVine 2007, p. 10). However, the petit-investors did not have the funds or the incentive to introduce any structural improvements anyway. Moreover, to do that, state confirmation was necessary. Similarly, for a foreign investor to enter the Caucasian oil market, state sanctions were needed, which limited the investors predominantly to locals. Since the supply was so huge and demand was for the better quality American oil, the prices fell dramatically from 45 kopecks to 2-3 kopecks/pud in a matter of few years in mid 1870s, which brought up a crisis situation in the Baku oil industry causing the small investors to struggle not to go to bankruptcy (Mostashari, 2000, p. 93).

These were happening at a time when the Baku oil industry was on the threshold of thriving. The first foreign oil company to enter the Baku oil industry, Nobel Corporation, would invigorate the industry by improving methods of exportation and transportation of the oil, not only by the technical innovations which the industry had been suffering from the lack of, but also by the establishment of the transportation network which resembled a monopoly. The efficiency they achieved owed to the fact that the carts, barrels and leather sacks used for the transportation of the oil was changed for less costly and a lot more efficient pipelines and tankers. The oil abundant Balakhani region was linked to the Baku by a short pipeline in 1877, which rendered the cart drivers' work irrelevant (Mostashari, 2000, p. 94). The next year saw the introduction of an oil tanker to be used for

exportation, which they called the *Zoroaster* (Yergin, 1992, p. 59). This was followed by other vessels used for the same purpose both by the Nobel Corporation and other producers like Zeynalabdin Tagiyev (LeVine, 2007, p. 9). Although these innovations were just what the Baku oil industry needed, to be able to stand the challenge posed by American oil, the petit-producers could not stand a chance before the powerful Nobel monopoly. This was partly due to the new refining methods Robert Nobel adopted (LeVine, 2007, p. 17). However with the Transcaucasian Railroad built in 1883, the monopoly of transportation changed hands and lay within government capacity (Mostashari, 2000, p. 95). With the building of a Transcaucasian Pipeline in 1907 transportation costs were further minimized (Mostashari, 2000, p. 96).

With the initiation of these developments by the Nobels, Rotschilds and local producers like Zeynalabdin Tagiyev together with the Russian state mechanisms, towards the end of 1880s, Baku oil was being exported to a number of countries including Turkey, London, Austria-Hungary and even as far as the Far East (Mostashari, 2000, p. 98). However the Russian government lacked the necessary funds to invest in the oil industry. This led to a domination of the oil industry by foreigners until the international oil crisis of the early 20th century (Yergin, 1992, p. 117).

With this crisis demand for Baku oil declined and excess oil had to be kept as surplus and refineries started to either close down or stop operating. The price of oil was cut to almost half during 1900 (Mostashari, 2000, p. 98). Oil worker strikes and demonstrations concentrated as the crisis caused many to be rendered unemployed (LeVine, 2007, p. 26). Even in some factories regular police intervention was needed throughout 1903. To make the matters worse the Czar, Nicholas II was a disqualified ruler and the Caucasus was one of the places which were being ruled with great insufficiency characterized by unfavorable living and working conditions for the oil workers for whom working for an average of 14 hours a day was not an exception. It was no wonder that revolutionary ideas rooting from a secretly circulated publication, Lenin's newspaper *Iskra*, found a fertile ground to blossom in Baku (Yergin, 1992, p. 129). Close to the middle of

the unrest stood the man, an oil worker, who would later be known as Joseph Stalin.

The strikes continued all through 1905 as they also changed character adopting an ethnic expression. This finally led to an all-out ethnic conflict and bloodshed between Azerbaijanis and Armenians in Baku in February 1905, when both sides started killing each other indiscriminately. The unrest later spread to the oil fields around Baku in the form of fires, which caused huge economic damage to the industry. Mostashari (2000), citing from the Russian State Historical Archives St. Petersburg, affirmed that "the damage to the oil industry as a result of fires amounted to 19,500,000 rubles [while] enterprises suffered a loss of over 20 million rubles and many remained inoperative for over months" (p. 99). Two thirds of oil wells keeping the Russian industry alive were destroyed during the events (Yergin, 1992, p. 131). On the other hand, for as much as he tried to shun the demands of the crowds, Nicholas II could not resist any longer and in 1905, he had to introduce a constitutional government including a parliament, the Duma, to which Bolshevik deputies would be elected from Baku. Yet the unrest was not overcome and strikes continued all through the years which led to the Bolshevik Revolution (Yergin, 1992, pp. 130-131).

Although a year after this uprising a serious project, namely the Baku-Batumi pipeline project had been realized, Baku oil fields would suffer the damage done during the 1905 fires for decades to come. Additionally this instability was a source of unrest for international players like Nobels or Royal Dutch/Shell's Henri Deterding leading them to shun making further investments in an uncertain political environment. In connection with rising tariffs combined with growing xenophobia, especially anti-Semitism, some big players, like the Jewish Rothschild family opted for leaving the area (Yergin, 1992, p. 132). Then came the 1917 Bolshevik Revolution and brought with it intolerance for the oil barons. Many had to leave Baku, for if they stayed they were sure to be treated harshly for being "capitalist bloodsuckers and their parasites" as Baku's new revolutionary council called them (LeVine, 2007, p. 35).

Revolution did not bring new opportunities for the oil industry with it. The oil production had recessed to one third of what was produced before the war (LeVine, 2007, p. 42). To make the matters worse famine struck and in 1921 Lenin decided that a New Economic Policy would be presented in order to attract Western companies to do business in USSR. Oil fields were part of the industrial plants where a kind of privatization was envisaged to be made to allow ownership rights to foreigners. It took some time to overcome the hesitations and animosity going on in the West (LeVine, 2007, p. 44). The bad fate of the Bolsheviks changed its course when Barnsdall International, an American oil company set foot on Baku to make repairs and advancements in the oil lands under a fifteen year agreement (LeVine, 2007, p. 46). This was to be followed by other Westerners. Drilling, refining and transportation had been greatly modernized. However with Lenin's sudden death in 1924 Stalin canceled all deals, ownership rights and gave no compensation which caused huge losses on the part of Western investors who abruptly left the region (LeVine, 2007, p. 48). With the help of western experts who were hired by the Soviet authorities this time, Stalin tried and made the best of the oil fields to be able to support his five year plans.

As oil wealth transformed Baku during the years leading to WW II, Hitler's attention was attracted. This was not the first time that Germany, in a world war, aimed at capturing Baku. The same prize was pursued after WW I, yet Germany failed to get a foothold in the region (Yergin, 1992, p. 182). This time, in the course of WW II, when Germany attacked the USSR, Baku's output is said to be a great support behind Soviet defense. As it was understood that Hitler's main aim was the conquest of Baku (Yergin, 1992, p. 13), Stalin ordered plugging of wells with concrete in case the city were to fall. However these concrete plugs significantly damaged Baku's oil wells.

When in 1947 Oily Rocks (*Neft Daşları*) was found in shallow waters of the Caspian Sea near Baku, the first offshore station was installed. A city was built on stilts to be home to 2500 workers. The crude produced in Oily Rocks in 1955 was an average of 14 million barrels a year (LeVine, 2007, p. 51) to be spent on huge

military expenditures of 1970s and 1980s as part of the Cold War (Yergin, 1992, p. 14).

As intelligence like these fed US curiosity, Caspian oil became the dream of many Western oil men throughout the Cold War. With the coming of détente their appetite grew to a maximum. Soviet oil was seen as the way to get out of OPEC's grip and a chance to curtail the ability of OPEC members to manipulate oil prices (Yergin, 1992, p. 643).With the help of middlemen who had contacts both in the United States and USSR they did penetrate the Soviet oil industry. American oil company Armco, for instance, took offshore drilling to a whole new level by negotiating a deal to install a deeper offshore platform near Oily Rocks in 1976.

LeVine (2007, p. 73) suggested that trade was Brezhnev's Achilles heel causing Soviet economy to deteriorate. His successor Gorbachev rose to power with a belief that Lenin's economic policy was more profitable for the Soviet Union than that of Stalin's. Ownership rights were once again granted but the same fate hunted him down. Westerners were enthusiastic but just a few companies did actually dare to go for investing in the USSR (LeVine, 2007, p. 105). Additionally conversion of the currency of the profits, ruble, to dollars was problematic. Gorbachev, as a concession had to allow for an American Trade Consortium to penetrate the iron curtain to overcome all these problems (LeVine, 2007, p. 87).

Yergin (1991, p. 780) noted the reasons for the downturn of Soviet oil industry as organizational problems, inefficiency, low productivity and, probably most important of all, technological backwardness. Modernization was acutely needed in the oil fields since the technology used was one belonging to 1960s (LeVine, 2007, p. 92). As the Americans were promised various fields like Korolev, which was estimated at 1-2 billion barrels by the Soviets and 750 million barrels by the Americans, in today's Kazakhstan; another Kazakh field, a greater field, Tengiz, with a promise of 10 billion barrels, was what they really were after (LeVine, 2007, p. 93). As Nazarbaev is narrated to tell a middleman that Tengiz's possessions were about 14 billion barrels (LeVine, 2007, p. 107), CIA estimates for the field was 18 billion barrels, which easily accounted for the source of the

attraction (LeVine, 2007, p. 95). As Chevron negotiated with Gorbachev on the Kazakh oil lands, local populations' sensitivities surfaced. Kazakh economy relied largely on sturgeon and caviar produced from it. The oil fields were close to their spawning area which accounted for the worries (LeVine, 2007, p. 119). In addition to this semi-economical, semi-ecological concern, environmental concerns' tone was harsh too, due to Kazakhstan's previous infamous experience with the nuclear tests carried out in Semipalatinsk (Weinthal & Luong, 2002, p. 155). However in the early 1990s Tengiz-Chevroil partnership was established (Akiner, 2004a, p. 9).

As the Soviet Union dissolved in 1991, it gave way to the formation of newly independent states located over valuable hydrocarbon resources. An enthusiasm on the part of Westerners was being ignited as predictions about Caspian oil were exaggerated. Akiner (2004a) noted that the Caspian hydrocarbon resources were often compared to those of the Middle East and it was commonplace to refer to Turkmenistan as a "second Kuwait" (p. 10). A second oil boom for Caspian resources was flourishing in a time when the fledgling newly independent post-Soviet states needed financial resources the most.

In Kazakhstan, apart from Tengiz, production sharing agreements (PSA) for other major fields were being discussed in early 1990s. These discussions later in 1997 yielded to a PSA with British Gas and Eni, of Italy, for the Karachaganak field (Akiner, 2004a, p. 9). A huge field, named Kashagan, was discovered in 2000, which is today managed by a consortium of foreign firms, namely Total of France, ExxonMobil, Anglo-Dutch Shell, ConocoPhillips and Inpex of Japan, led by Eni in partnership with Kazmunaigas.

Azerbaijan, on the other hand, initiated a bold move by letting foreign oil companies to the market with a major agreement. The deal sealed in 1994 between European, Russian, Turkish, US, Japanese, Saudi Arabian partners and State Oil Company of the Azerbaijan Republic (SOCAR), together with Azerbaijan International Operating Company (AIOC), was mainly an agreement concerning the offshore resources located in Azeri, Guneshli and Chirag fields (Akiner, 2004a,

p. 9). Another offshore field, namely the Shah Deniz was agreed to be developed by SOCAR, LUKoil, Turkish State Petroleum Company, BP, Naftiran Intertrade Company of Iran and Statoil in 1996 (Akiner, 2004a, p. 9).

Turkmenistan, which was compared to Kuwait, was not as active as the rest of the newly independent states due to her problematic geography, and the existence of particularly natural gas, rather than oil (Akiner, 2004a, p. 10). Yet still, deals were being made. Agreements included the exploration concession for a gas field to Bridas of Argentine in 1993, PSA with Lamarg Energy Group for the Cheleken offshore fields, with Petronas for Barinov, Livonov and Shafag fields, and with Mobil and Monument Oil and Gas for the Garashsyzlyk area (Akiner, 2004a, p. 10).

While Iran still has not started a drilling activity, she has made several exploration activities and is in the stage of initiating the development of a Caspian offshore field. Russia on the other hand saw her benefit to be on the transportation part of oil operations concerning the Caspian Sea and struggling to get a hold of the transport routes via her pipelines, against those alternatives like Baku-Tblisi-Ceyhan pipeline, which Western consumers, led by the United States, favor for the sake of not depending entirely on Russia.

As this oil boom neared end the reality about the hydrocarbon resources of the Caspian Sea presented itself, characterized by difficulties, such as depth of reservoirs, pressure, remoteness of fields and harsh climatic conditions, boosting production costs, considerably decreasing profits. Additionally, as elucidated in the section on oil pollution, the infrastructure was ancient and in bad shape. Political problems accompanied these physical constraints, in the form of the lack of a legal regime governing the Caspian Sea which makes it contradictory to decide on the ownership rights to the hydrocarbon resources, which is further explained in the section on the legal status of the Caspian Sea. The ethnic conflicts, such as the one erupting in Karabakh, added up to these problems by creating instability in the region (Akiner, 2004a, p. 11-12). While the difficulties the foreign investors faced were these, the newly independent post-Soviet states

holding Caspian hydrocarbon resources also struggled to raise the necessary funds via the development of oil in the face of hyperinflation, unemployment and transition to market economy (Akiner, 2004a, p. 13). It is this very intersection that environmental protection ran a risk of being turned a deaf ear. The simile, 'between the devil and the deep sea', has never before been as appropriate and ironic as in the case of the environmental conservation in the Caspian region, once the exploration and production activities took the plunge.

2.3. Environmental History of the Caspian Basin

Abuse of environmental resources in the Soviet Union had at times been found curious for some scholars, who, somewhat sarcastically, are surprised by the similarity of the environmental problems between US and USSR. Goldman (1970, p. 37), for instance, questioned how a socialist or communist country can internalize abuse of the environment, which was believed to be contradictory with the socialist ideology. Yet a firm explanation, that the Marxist belief of air, water, land and resources being free goods led the majority of the society to undervalue them, can be provided (French, 1973, p. 523).

In fact there had been laws protecting the environment even before the foundation of the Soviet Union. In the eleventh century, the Kievan Rus state had laws about the protection of bee-trees, for they produced export goods like wax and honey. In a similar fashion, Imperial Russia did take similar precautions for forest protection during the era of Peter the Great. Both examples however did not have an environmentalist character for the first one considered economic concerns and the second one was done in order to meet the future needs of admiralty. With the beginning of the socialist era one would believe that state ownership and control would ensure the protection of environment. On paper it did: the first All-Russian Congress on conservation met in 1929. In addition to this many laws concerning environmental protection have been passed (French, 1973, p. 521).

Yet again some scholars put forth that these measures had not been effective for two major reasons. Firstly, the fines for polluting the environment for industrial plants were too small when compared to the sum needed to install cleaning mechanisms, which led the managers of such plants to simply opt for paying the fines while continuing to dump their wastes most of the time to a nearby body of water (Goldman, 1970, p. 38-39). For instance, Goldman tells about the case of Paper and Pulp Mills built near Lake Baikal. When the purity and ecology of the lake was negatively affected a plan to build an 67-kilometer sewage conduit was suggested. Instead of pursuing this plan which would cost approximately $40 million, the managers chose to pay the $55 fine for polluting Lake Baikal (Goldman, 1970, pp. 38-39). In addition to such minor amounts of fines, the industrialists would easily cover such costs with the bonus they would receive for over-plan production.

Secondly, law enforcement mechanisms were not always objective. An editor of *Soviet Life* asks in late 1960s "why in a socialist country, whose constitution explicitly says the public interest may not be ignored with impunity, are industry executives immune to break the laws protecting the nature?" (as cited in Goldman, 1970, p. 37). That may be the reason why R. A. French (1973, p. 524) referred to the fact that many laws concerning the environment have been repeatedly passed in the USSR, which suggests that they were not effective the first time and leads one to question their effectiveness in the second or the third times.

Pryde (1972, p. 117) put forth that the first fifty years of USSR proves that central planning of the economy is no guarantee when it comes to environmental protection. Yet in 1983 his negative tone was changed as he wrote that "new laws have passed, pollution control funding was increased, and natural resources conservation was heavily stressed" (Pryde, 1983, p. 275). What changed the USSR's and his own mind about environmental issues stemmed from three particular concerns. Firstly, the rate of industrial expansion could not follow its usual accelerating trend first time in three decades in the second half of 1970s decreasing from 8% to 4,5% annually. Secondly, the 1973 and 1979 energy crises took place, to which the Soviet Union was not immune. The final factor was both a

cause and a result: 1970s was the "decade of environment" for the United States. Drawing from this trend and considering the new rising awareness that Soviet natural resources are not inexhaustible contrary to what Soviet authorities came to believe for five decades, taking genuine measures concerning the protection of environment and efficient use of resources entered the Soviet agenda (Pryde, 1983, p. 274). Resolutions concerning recycling, air quality and efficient use of resources were passed one by one which was followed by treatment plants found near large cities for avoiding further pollution of water bodies. Yet still, pollution of the Caspian in spite of measures such as treatment facilities along Volga basin and prohibition of direct discharges from the ships could not be overcome due to drilling activities, heavy metals and pesticide residues (Pryde, 1983, p. 276).

Although a kind of environmental awakening happened during 1970s and 1980s, the whole socialist experience in itself is proof against the belief that:

> the socialist system is far superior to its capitalist counterpart in controlling and minimizing the adverse consequences of industrialization… because it is a monolithic entity that pursues the true interest of society and thereby can formulate public policy that ensures environmental quality. (Kramer, 1974, p. 887)

Despite the measures taken in the last two decades of the Soviet Union, the tension between industrialization and environmental protection did not come to an end and a compromise could not be reached during the Cold War years. Rapid industrialization, Marxist belief of inexhaustible free public goods, Stalinist way of planning the economy through production targets, punishments for not meeting them or bonuses granted for overproduction damaged water, air , soil and resources in the USSR just as the same rapid industrialization and Cold War race damaged them in the West.

After the dissolution of the Soviet Union, the newly established states in the post-Soviet geography, which were in dire need of financial resources to advance on the road to complete state and nation-building processes while on the other hand convert from a state planned economy to a capitalist structure, are not expected to

take environmental woes very seriously. Although some like Kazakhs have suffered great costs due to nuclear testing in Semipalatinsk, environmental worries are mostly parallel to economic worries like conservation of sturgeons' spawning areas due to the valuable export good, caviar. In 2001, in an international conference, the Advisor to the Prime Minister of Kazakhstan on Energy Issues, Nurlan Kapparov expressed Kazakhstan's concern for environment, yet referred to environmental protection as a constraint on the oil extraction process (as cited in McCran, 2001). During the same conference when he was asked about the percentage of oil money in Kazakh national budget, he answered that the current estimated figure was about 40% whereas it was predicted to be 80-90% by 2020 (McCran, 2001). This data may lead one to question the attention a country may give to environmental conservation when a great percentage of its national economy relies on practices which without a particular solution, has great potential to pollute it. Trying to preserve the environment merely to export caviar, which remind one of the motives behind precautions taken by Peter the Great to protect the environment, is dangerous, since without a genuine environmental awareness, any decrease of the share of caviar or increase of oil in the national budget would result in pollution. Apart from the Kazakh example, other republics used to have no similar worries keeping their drills or industrial plants under strict control for genuine treatment facilities until recently. The environmental sensitivities and legal measures taken by each Caspian littoral are explained in detail in the following chapters.

CHAPTER 3

OIL POLLUTION IN THE CASPIAN BASIN

In this chapter the impact of oil exploitation activities on environment is evaluated. The question if oil acts as a polluting agent in the region is analyzed focusing on its implications on water, air and land resources separately. The need to take effective measures is arrived at due to ill effects of uncontrolled development of hydrocarbons on environment. Additionally, the significance of an integrated, holistic decision making mechanism is solidified with the finding that oil induced pollution is of transboundary nature.

3.1. Oil as a Pollutant in the Caspian Basin

The Caspian Sea with its huge oil and gas deposits has attracted the attention of many international actors especially after the demise of the Soviet Union. Its hydrocarbon potential with proven reserves is said to be 16-32 billion barrels (Effimoff, 2000), which makes the region similar to the North Sea in terms of hydrocarbon resources. Moreover a considerable amount of these resources are situated offshore. Most of Azerbaijan's resources and 30-40% of Kazakhstan's and Turkmenistan's resources are offshore. Wastes and byproducts of both offshore and land-based production carried over via Volga River are responsible for a considerable amount of the pollution in the Caspian Sea. The rest of the pollution is mainly caused by the rise of the Caspian Sea in the last couple of decades flooding oil wells, agricultural fields and toxic waste sites. All in all the toxic wastes, leakages and oil spills caused by onshore and offshore fields, tankers and

Trans-Caspian pipelines have resulted in the existent pollution in the Caspian basin in general and Caspian Sea in particular (Tolosa et al., 2004, p. 44).

A brief study would suffice to claim that the old equipment used for oil exploration and extraction processes has an undeniable share in polluting the Caspian environment. This goes for all branches of industrial production around the Caspian Sea, but especially for the oil industry. The installations of Soviet era need to be repaired. Barannik, Borysova and Stolberg (2004) underlined this fact by stating that the major cause of environmental degradation in the Caspian region is the "pollution caused by old technology and infrastructure, primarily for the extraction and transportation of oil" (p. 45). Although new investments have been made the old facilities are still being made use of. Azerbaijan's Apsheron peninsula for instance, is so polluted by agricultural and industrial – particularly oil – wastes to be referred to by some as the "world's most polluted area" ("CIS: Caspian Environment," 1998, pp. 2-3). Furthermore, the rise of the Caspian was very close to give way to a major disaster if it had continued, probably resulting in Caspian Sea flooding major coastal refineries here. Yet the exploitation activities have been increasing causing oil films over the sea, more and more gas flares to affect the quality of the air negatively and continuing adoption of the old techniques like creation of artificial puddles of oil, literally killing the soil. These can be avoided. Western investment has reached the region on a great extent; however the Western technology still has not.

Having said that in some facilities Soviet installations are still used affecting the environment negatively one should also refer to the Soviet legacy in terms of environment. To give an example from one of the littoral states, Dahl and Kuralbayeva (2001) advocated that many serious problems concerning the environment are the heritage of the USSR left to Kazakhstan. These problems include "air and water pollution, radioactive contamination, soil contamination and erosion, salinisation, and desertification" all caused by the previous Soviet system (Dahl & Kuralbayeva, 2001, p. 433). However they underlined that the energy sector via exploitation of the hydrocarbon resources is the major economic activity in Kazakhstan and that after 1991 the situation deteriorated leading to further

pollution of air, water and soil (Dahl & Kuralbayeva, 2001, pp. 432–433). Similarly the old installations used in oil industry in Azerbaijan were found to be a major reason for the damage to landscapes along the southern coast of Baku and the Apsheron Peninsula (Barannik et al., 2004, p. 48).

The reason why the Soviet command system had such a great negative impact on the region's environment is that the industrial facilities, just like the agricultural sector, worked in accordance with planned targets. Fulfilling these targets was extremely important for the managers of these facilities. Over-fulfillment used to bring bonuses whereas not meeting the targets led the way to sanctions and punishments too harsh at times. Preserving the environment was most of the time a romantic idea getting in the way of hard work necessary to meet the target. Furthermore the fines for polluting the environment by not investing in the installation of treatment facilities for wastes were quite minor when compared to the bonuses granted by the state in case of over-fulfillment of the target. Consequently, the managers did not have a motive to care for the preservation of the environment. The aforementioned sum of 55 $ as fine for causing environmental degradation, in 1960s was nothing when compared to thousands, even millions of dollars which would be spent to install the necessary equipment (Goldman, 1970, p. 39).

Increasing production capacities rather than spending money on installing purification equipment had surprisingly negative results. Kramer (1974) noted that "60 to 75 percent of industrial sewage was not treated at all in 1967" and in 1968, 60 percent of the facilities that contributed to air pollution in some way had no purification equipment whatsoever (p. 891). In addition to this inertia there was a belief that the two ideas conflicted with each other. A Soviet industrialist told *Pravda* in 1970 that there is nothing to be done about the dilemma, since the plants cannot be ordered to stop. He put forth that "One has to choose between civilization and one's love of nature" (as cited in Kramer, 1974, p. 890).

There were environmental laws in the Soviet system but they are said to be complicated and they were not enforced all the time due to either this complexity

or economic worries. Meeting production quotas at any cost resulted in environmental pollution not only in Kazakhstan or Azerbaijan but also in any part of the Soviet Union where either industrial or agricultural production was carried out (Shelton, 2003, p. 302).

In addition to the already existing hazards to the Caspian environment there are clear and present dangers which have the potential to cause wide-scale catastrophes anytime. One such danger is the geology of the Caspian basin itself. The seismic activities in the basin are so fearsome that they constituted the official reason for one littoral state in moving their capital to less active ground. In case of a major earthquake, offshore and coastal facilities would be affected and spills, leakages or combined catastrophes may happen.

The most significant environmental issues concerning the Caspian basin and the exploitation activities in the region are studied in this chapter under the titles of air pollution, water pollution and soil contamination and the socio-economic effects of pollution of these types caused by the oil industry.

3.1.1. Oil as a Water Pollutant in the Caspian Basin

The major factors responsible for the water pollution in the Caspian basin can be summarized as industrial production including oil exploitation activities, thermal power plants and coal mines and agricultural activities which cause herbicides and pesticides to be released. Of these major factors, the oil exploitation is a significant one. To assess the impact of oil exploitation on the environment, the shortcomings of the Soviet era and post-Soviet era are evaluated. Several research projects are made use of to illustrate the extent of pollution by analyzing the location and width of oil films, their movements in accordance with currents and wind conditions, and the concentrations of accumulated particles of hydrocarbons in Caspian Sea sediments. The share of the Volga River in the pollution of the Caspian Sea is elucidated. Moreover the impacts of the fluctuations in the surface level are

touched upon with particular emphasis to petroleum release. In conclusion the predictions concerning the future of oil and water for the Central Asian populations are cited.

The main cause of water pollution in the Caspian basin is industrial activities taking place in the region for decades. Together with coal mines and thermal power plants, oil and gas enterprises are responsible for a significant amount of the pollution of surface and ground water pollution. For example, the Index of Water Pollution (IWP) of Kazakhstan's Karaganda River indicates that it is polluted majorly by hydrocarbons and their concentrations once exceeded Maximum Permissible Concentrations (MPC) eighteen times (Dahl & Kuralbayeva, 2001, p. 435).

The water pollution caused by oil and discussion on the issue is not new for the Caspian basin. According to an article in Soviet Life, the major polluter in the Caspian basin is oil (as cited in Simonov, 1970, p. 59). The reason for this statement is clarified as follows:

> Until recently all of the off-shore oil installations, which use great quantities of water, dumped the contaminated water into the sea. Hundreds of tankers were cleaned en route, and the waste water emptied into the sea. (Simonov, 1970, p. 59)

However this was not the only reason for the pollution caused by oils, phenols, acids and alkalis found in the Caspian Sea (Abelson, 1970, p. 199). Aforementioned complementary reasons are the lack of technical equipment necessary for installing purification and waste treatment systems and the reluctance of managers to invest in such technology. Not only factories but also oil wells, mines and all kinds of ships were said to "freely dump their waste and ballast to the nearest body of water" (Goldman, 1970, p.38). Many rivers were carrying industrial wastes including petroleum products. A writer for *Izvestia* quipped, in 1968, that in the banks of the Oka River, a restaurant serving delicious dishes could cook "perch cooked in benzene, breme in kerosene, or turbot in first class lubricating oil" (as cited in Kramer, 1974, pp. 888-889). Although awareness

about environmental concerns and endeavors to move towards a more environmentally sensitive stance started with the beginning of 1970s in the Soviet Union along with the rest of the world, the damage done in decades could not simply be undone overnight.

Several studies are made use of to shed light on the extent and nature of oil pollution in the Caspian Sea. One such study by Osadchy, Shifrin and Gurevich (1999, p. 51) aimed to identify the oil film thickness in the Caspian Sea surface optically by using CO_2 laser. The researchers' field work on the Caspian Sea consisted predominantly of areas near Baku. From an average of 200 m. altitude the researchers state that "there were many cases with vast oil slicks providing record durations of tens of seconds and even longer" to fly over (Osadchy, Shifrin & Gurevich, 1999, p.55). Additionally, the fact that they could be identified by their method, which needs the oil film to be of a certain interval of thickness, points out to the outcome that these oil films were not thin slicks (Osadchy, Shifrin & Gurevich, 1999, pp. 51-55).

Another significant study carried under the auspices of the Caspian Environment Programme, aims to evaluate the level of contamination caused by hydrocarbons resulting from oil exploitation in different parts of the Caspian Sea. The researchers collected 103 sediment samples from different parts of the Caspian Sea between October 2000 and September 2001 and looked for hydrocarbons which do not dissolve in them due to their hydrophobic nature. The findings were that the northern part of the sea is the cleanest part of the Caspian and the area just south of Baku Bay is the most contaminated part. While the northern part showed resemblance to non-polluted areas, easternmost locations near Tengiz field of Kazakhstan showed higher concentrations of hydrocarbons in sample sediments. As for the south of Baku Bay, the concentration levels were so high that the numbers were higher than a chronically contaminated city like Hong Kong and a little less than other such regions like New York and the Gulf (Tolosa et al., 2004, pp. 45-47).

The bottom line of this research is that none of the exploration activities, natural seeps or the wastes brought by the Volga River damage the environment causing accumulation of hydrocarbons in the Caspian Sea sediments as much as offshore drilling which caused the south of the Baku Bay, where such activities are heavily practiced, to be the most polluted area of the Caspian Sea. However there are points open to discussion in this study. The only littoral state pursuing offshore oil production techniques is not Azerbaijan and although the concentrations increase closer to Kazakhstan's Tengiz field they are not comparable to that of Azerbaijan's. Although there are plausible explanations, like the contribution of the wastes of the Sumgait chemical plant and the inadequate sewage systems of both Sumgait and Baku (Kramer, 2003, p. 304), finding of highly increased concentrations of pre-determined hydrocarbon particles is not completely elucidated with this explanation.

One reason for these findings can be the difference between the bathymetry of these two sectors. As mentioned in the second chapter, the northern part of the Caspian Sea is significantly shallower than its south. This causes the winds to easily circulate the waters of this shallow part and export the hydrocarbons to the south causing the concentrations to intensify there. In addition to this, another factor affecting the health of the findings may be that the samples taken from the northern part are mostly sandy sediments which are coarse; meaning that hydrocarbons are accumulated less than the smaller particle sized deep-sea sediments of the southern parts of the Caspian Sea (Law & Andrulewicz, 1983). These blur the share of responsibility of these major reasons behind hydrocarbon contamination but not the fact that the Caspian Sea is being polluted by hydrocarbon resources.

Although the sample sediments in this research advocates that the waters of the North Caspian Sea has hydrocarbon concentrations resembling those of typically non-polluted areas, the same cannot be said for the surface waters of this area. Such samples have concentrations varying from 2-15 times the MPC in periods of low waves and 25-32 times the MPC in periods of high waves, which brings Caspian to a near critical situation. With "myopic" and "non-sensible"

development of the oil industry, some scholars conclude that the situation is expected to deteriorate (Dahl & Kuralbayeva, 2001, p. 436).

The hydrocarbon pollution brought by Volga River is a serious threat to the Caspian Sea. Volga River alone accounts for 80% of the pollutants entering the Caspian Sea (Shelton, 2003, p. 304). An observer stated in early 1970s that many rivers are "so polluted as to kill fish" (French, 1973, p.522). Rivers like Iset and Volga were said to be "so charged with oil effluent that they have caught fire" (French, 1973, p. 523). To illustrate what such a continuous oil release from Volga River means for the Caspian Sea a model for the movement of oil slick and the possibility of contamination of the coastline in different wind conditions is studied by some scholars. The total oil pollution discharged to the Caspian Sea annually amounts to a total of 122,350 tons out of which rivers are responsible for 75,000 tons (Korotenko, Mamedov, Kontar & Korotenko, 2003, p. 161). Volga River accounts for 95% of the total hydrocarbons by river input to the Caspian Sea which means a flow of 8.13 tons/h (Korotenko et al., 2003, p. 168). By taking winds, currents, waves, turbulence, salinity, temperature and solar insulation into account the movement of oil slicks have been calculated for a thirty day period (Korotenko et al., 2003). The result is that for a minimal eastern wind it would take 15 days to carry the oil slick to the coast of Kazakhstan and a southward wind will cause it to affect a wider area in the Russian sector somewhat penetrating the Kazakh sector. Evaporation causes a 40% loss in the mass of oil which means that the model has implications not only for cross-boundary water pollution but also for air pollution in the region (Korotenko et al., 2003, p. 169).

The possibility of accidental spills and blowouts resulting in cross-boundary environmental catastrophes are always looming in the background of discussions concerning the Caspian environment. To illustrate the implications of such a risk, models, similar to that of the Volga release, calculating the transport and dispersal of hydrocarbon particles are created during the development of oil fields. Such a study has been carried out for the case of a continuous release from the infamous offshore fields located 140 km south of Baku. The model comprised of a hypothetical blowout scenario lasting for ten days of which the effects are

calculated for a thirty day period for different winds of both summer and winter conditions. For the summer southward wind, it took the first droplet of the oil slick to reach the Iranian coast five days. It is calculated that a regular northward winter wind would cause contamination of the Apsheron Peninsula whereas such a southeastward wind would result in the contamination of the coast of Turkmenistan and Iran in thirty days. With an initial westward wind, the Azerbaijani coast is predicted to be extensively polluted (Korotenko, Mamedov & Mooers, 2000, pp. 10-11).

Such scenarios are fearsome, yet it should be noted that there already are continuous regular minor leakages intoxicating the basin. In addition to the leakages and spills caused by oil exploitation activities, there are natural hydrocarbon seeps in the region which contribute to the water and air pollution in the Caspian Basin (Stone 2002, p. 431).

There are unpleasant surprises the Caspian geology holds even worse than these seeps. North Caspian, for instance, has oil deposits which are under high pressure and mixed with hydrogen sulfide gas. These elements combined cause many technical problems in the extraction process. The oil in the Kashagan field of Kazakhstan is of this nature. The poisonous hydrogen sulfide could be released in huge amounts to the Caspian waters in case of an accident. Such an accident would be an "ecological nightmare [which] could overshadow" all the spills and leakages happened to this day (Stone, 2002, p.431). To make the matters worse, British Petroleum's Caspian external affairs chief, geophysicist Mike Bilbo emphasizes that the western work practices in terms of environmental controls are not existent in this region (as cited in Stone, 2002, p. 431).

Sea level fluctuations have been a major source for the water pollution in the Caspian Sea. Although the fall of the sea level has concerned many before 1978, the rise proved to be a worse scenario causing flooding of oil and gas wells deteriorating the environment. As mentioned earlier, Caspian Sea had been rising since 1978 with an annual average of 13-14 cm (Dahl & Kuralbayeva, 2001, p. 436). In the early 1980s, before the stabilization of the level, discussions to reduce

the surface level by projects like creating reservoirs, like the aforementioned Garabogaz project and irrigation projects were being made (Pryde, 1983, p. 276). For a decade it is stabilizing and the current surface level exceeds that of the historical average by some 2 meters. Dahl and Kuralbayeva (2001, p. 436) advocated that the exploitation of hydrocarbon resources is the reason of nearly all pollution problems since all known oil and gas fields are located in these flooded areas. Hydrocarbons are hydrophobic particles and cannot be dissolved in the Caspian ecosystem causing accumulation. Together with herbicides and pesticides washed away with these floods, they result in pollution affecting the ecological cycle and marine and wetland habitats.

Other negative impacts of the sea level rise are that the soil has been salinized and organisms whose habitats were the shallow waters and wetlands in the north to be displaced causing a decline in biodiversity. However, it is expected that these organisms will reestablish their habitats along the new coasts (Barannik et al., 2004, p. 46). However the bio-accumulative toxic compounds which mainly are the wastes and byproducts of the oil industry pose a great danger for these marine and wetland habitats if they are ever going to be reestablished. This is true especially for the habitats in Azerbaijan, Kazakhstan and Russia due to minor but persistent leakages from both oil wells and pipelines (Barannik et al., 2004, p. 48).

Water resources in the Caspian basin and the Sea itself are negatively affected by the oil exploitation activities as explained above. In other words, preservation of water resources comes after the primary goal of exploitation of hydrocarbon resources in this part of the world as in many other places gifted with such resources. However, it is also predicted by some that water will become more valuable than petrodollars for Central Asia in the near future due to the huge problem of desiccation in Central Asia. The existing water resources are far from satisfying the needs of the growing Central Asian population and the politics of these countries are predicted by some scholars to be shaped around this water deficit. Lipovsky (1995, p.1118), for example, believes that this shortage could only be overcome by water coming from Russia which he predicts to give a bargaining chip to Russian hands so precious that it overrules all other factors

shaping the politics in the region including nationalism, religion, culture and even hydrocarbon resources.

3.1.2. Oil as an Air Pollutant in the Caspian Basin

In evaluating the air pollution caused by hydrocarbon resources in the Caspian basin, the extent of the atmospheric pollution in the Soviet era is studied. The changing reasons of the air pollution in the basin from 1960s to today are noted. The current reasons of air pollution such as flaring of natural gas, usage of dilapidated equipment, evaporation from spills and artificial oil lakes and their impact on the climatic change and desiccation in the region are touched upon. Statistical data about several littoral states' emissions of harmful gases are provided for illustration purposes.

In the Soviet era, especially during the late 1960s, early 1970s, the issue of air pollution was perceived in a different manner than it is today. The energy industry is not referred to as the major source of atmospheric pollution in assessments made during late 1960s, 1970s and early 1980s. Throughout the 1970s, for instance, the cars in the Soviet Union were regarded as the main reason for hydrocarbon emissions even though their numbers were quite small. This was not only because they released gases four times as charged with pollutants as American cars (Pryde, 1983, p. 277). The main reason for this perception was that the main polluter was not the energy sector but other branches of the industry like steel, aluminum and chemical plants. These facilities were responsible for the lead, sulphur and fluoride gases emitted to the atmosphere, most of the time without being subject to any treatment mechanisms (Kramer, 1974, p. 889). According to reports dating back to early 1970s, only 14% of factories releasing harmful gases have fully equipped air cleaning waste treatment devices (Goldman, 1970, p. 39). In early 1980s, although an awareness to reduce the emissions from fossil fuel plants arose, it resulted in giving primacy to commercial nuclear power plants which in turn produced radioactive wastes (Pryde, 1983, p. 277). All in all, low capital investment for

treatment and purification equipment, old equipment usage and increasing number of motor vehicles came to be accepted as major reasons for atmospheric pollution caused by hydrocarbon resources to this day (Shelton, 2003, p. 303).

Traditionally the emissions caused by the extraction of coal, lignite oil and gas were the major sources of the air pollution in the Caspian Basin, prior to the demise of the Soviet Union. However, for a decade industrial sectors other than oil are in decline and hydrocarbon industry proved itself to be the major reason for air pollution in the basin. Flaring of natural gas in oil fields in itself is damaging for it produces harmful substances contaminating the air. To make the matters worse, equipment older than half a century are still being used, which also causes radioactive contamination (Dahl & Kuralbayeva, 2001, p. 437). The equipment used in Prorva oil field in Kazakhstan's Atyrau oblast was installed in 1965. Through its life of 43 years until 1998 the amount of natural gas flared is 6 billion m^3. Out-of-date equipment can be found not only in oil fields but also in gas plants. Zhanazhol gas plant of Kazakhstan releases high concentrations of untreated hydrogen sulfide because of its outlived equipment. Similarly Kazakhstan's Karaganda oblast has air rich in phenol, lead, nitric oxide, nitric dioxide, ammonia and carbon monoxide, all exceeding MPC (Dahl & Kuralbayeva, 2001, p. 434).

The issue of air pollution is important for the region for it faces serious problems of desiccation and climatic change. To give an example from but one littoral state, the average temperature increase in Kazakhstan over the past 100 years doubles the average global temperature increase (Dahl & Kuralbayeva, 2001, p. 434). Once emitted, the harmful gaseous particles mentioned above, especially high levels of carbon dioxide become part of greenhouse gases contributing to global warming and regional climate change.

It should be noted however that the amount of carbon dioxide released to the atmosphere have decreased significantly during the 1990s. 76.08 million metric tons of carbon dioxide emission from the Kazakh energy industry in 1990 could be decreased to 37.09 metric tons in 1998, even though the industry had been rapidly

developing all through 1990s (Dahl & Kuralbayeva, 2001, p. 434). A similar reduction in air and water pollution in Azerbaijan on the other hand is read by some scholars as a positive byproduct of the loss of investment and market due to the collapse of the Soviet Union throughout 1990s. Similar statistical data suggests a decrease from 2.1 million tons of pollutant emissions in 1990 to 574,700 tons in 1999 (Shelton, 2003, p. 303).

In addition to burning and flaring, the leakages from pipelines and oil spills, along with artificial oil lakes and puddles deteriorate the quality of air via evaporation. Similarly, aforementioned natural hydrocarbon seeps are predicted to not only cause water but also air pollution (Stone, 2002, p. 432). As mentioned above, oil, especially light oil, is easily evaporated; 40% of the mass of light crude oil evaporates within 30 days of an oil spill (Korotenko et al., 2004, p. 169). In total it can lead to 60% mass loss of light crude oil evaporating to pollute air (Korotenko et al., 2001, p. 327).

In conclusion, the major reason for air pollution in the Caspian basin today is the existence and exploitation of hydrocarbon resources. Either through evaporation of natural seeps or more often by human hand via practices of energy production mentioned above, harmful gases like sulphur, lead, nitric oxides, ammonia and most important of all carbon dioxide are released to the atmosphere, resulting in serious contribution to greenhouse gases responsible for global warming and climatic change.

3.1.3. Oil as a Land Pollutant in the Caspian Basin

In this part, the pollution of the land in the Caspian basin because of the exploitation of the hydrocarbon resources are assessed with emphasis given to the surface level rise of the Caspian Sea and its implications for the Caspian coasts. The understanding of land pollution during the Soviet era is touched upon and the way the soil is still being polluted by the oil industry is elucidated. The dangers

posed by the polluted soil are summarized after the extent of soil degradation by petroleum products is illustrated.

Water and soil pollution in the Caspian basin is somewhat intertwined due to the surface level rise. The flooding of oil wells, agricultural fields and toxic waste sites not only contaminated the Caspian Sea but also its shores. Salinization and water erosion became real and acute threats for the littoral states. The residues of the agricultural chemicals, especially fertilizers used heavily during the Soviet era mixed with the rising waters of the Caspian Sea.

However before the rising level of the sea surface caused such pollution, land contamination was already existent in the Caspian basin. Kramer (1974) underlined that Soviet industrialists misused it by opting for dumping their industrial wastes to a nearby land instead of purifying them. With the rains these wastes would be absorbed by the soil making it a "dead zone" (Kramer, 1974, p. 895).

Apart from other industries, oil production and pipeline construction in many parts of the Caspian basin have caused serious soil pollution for many decades (Dahl & Kuralbayeva, 2001, p. 429). The existence of artificial oil lakes and leakages from the pipelines are the major reasons for this. Artificial oil lakes are puddles most of the time created by a major oil spill in onshore oil fields used for storage purposes. However trying to store oil in such puddles causes the soil to absorb the crude oil to depths like 10 meters. This not only causes the soil to be severely contaminated, but also gives way to great masses of valuable hydrocarbon resources to be wasted by feeding the soil. 185,166 m^3 of artificial oil lakes existed in Kazakhstan's Atyrau oblast in 2001 (Dahl & Kuralbayeva, 2001, p. 435). 2000 ha of the Apsheron Peninsula of Azerbaijan is occupied by such artificial oil lakes (Barannik et al., 2004, p. 48). Oil production in the Apsheron Peninsular area, which is a century old, caused more than 10,000 ha of land to be heavily contaminated. Similarly the cities of Sumgait and Baku, due to the existence of industrial complexes and petrochemical plants, are suffering from pollution (Tolosa et al., 2004, p. 44). All in all, Shelton (2003, p. 304) estimated that the soil

degradation due to industrial activity, especially oil production in Azerbaijan only is more than 60,000 ha.

The oil is absorbed by the soil not only in the surrounding areas of artificial lakes but also in old oil fields. The particles with high concentrations, in these situations, are ecologically harmful ones like nickel, boron, zinc, fluorine and phosphorus. For instance around the Tengiz field of Kazakhstan such concentrations exceed the MPC 5 to 20 times (Dahl & Kuralbayeva, 2001, p. 435). Furthermore much of the wastes created during the extraction of oil are radioactive wastes reaching to high levels of radiation like 100 to 8000 mR/h as in the wastes dumped to Kazakhstan's Lake Koshkar-Ata (Dahl & Kuralbayeva, 2001, p. 436).

All in all the wastes, leakages and the very method in accordance with which oil exploitation activities are pursued creates a major source of land pollution for this region which already is troubled by wind and water erosion and desiccation. Similar to the air and water pollution, soil in the basin suffers costs of major shortcomings in oil exploration and extraction methods.

3.2. Socio-Economic Impacts of Water, Air and Land Pollution by Oil in the Caspian Basin

The harmful byproducts of the oil exploitation and their impact on water, air and land resources of the Caspian basin is explained in detail above. In this part, the way this pollution affects the socio-economic sphere in the region is analyzed. The health problems caused by such pollution are touched upon with illustrations of a research carried out in the region finding out the economic implications of health problems for the region as well. The impact of pollution on the ecology of the region is referred to with special emphasis to the sturgeon and its valuable ore, caviar.

Pollution of water, air and land not only endangers the well being of the fauna and flora of the region but also the quality of the lives of peoples living in it. A medico-hygienic research that has been carried out in Kazakhstan reveals that high concentrations of carbon monoxide, sulphur dioxide, nitrogen oxides and hydrocarbons, all byproducts of the energy industry, are responsible for 20% of mortality and 80% of morbidity rates (Netalieva, Wesseler & Heijman, 2005).

The reports that the rate of respiratory diseases is seen 5-6 times the average in regions located near oil production areas of the Caspian Sea gave way to a research project (Netalieva et al., 2005, p. 1171). During the summer of 2001, researchers selected about 250 residents from both Astana and Atyrau. Astana and Atyrau have similar meteorological conditions with the difference that Atyrau, located in the Caspian shore, has a high level of atmospheric pollution because of oil production in its vicinity. The effect of air pollution in the form of illness is defined as headache, fever, cough, runny nose and irritated eyes (Netalieva et al., 2005, p. 1171). The result was that residents of Atyrau suffered those symptoms 2 to 5 times longer than the residents of Astana. Apart from the obvious implications of this on the life qualities of the residents of these two cities, economic implications should also be read. The longer the duration of an illness, the more loss of production and income is. In addition to this, the average health costs for Atyrau are calculated as $35, a figure more than twice as high than averages of Astana. Welfare costs caused by oil induced air pollution in Atyrau only, are calculated as at least 5 million $/year. All in all the study finds that the cost of abatement technologies is almost five times lower than this sum (Netalieva et al., 2005, pp. 1171-1176).

As for the economic impact of oil pollution of the Caspian Sea fisheries, one should touch upon the issue of sturgeon, a fish economically important for the littoral states for its prized caviar. There are four major endemic varieties, namely stellate sturgeon (*Acipenser stellatus*), Russian sturgeon (*A. guldenstadti*), Persian sturgeon (*A. persicus*) and most valuable of all beluga sturgeon (*huso huso*) (Moghim, Vajhi, Veshkini & Masoudifard, 2002). According to Stone (2002, p. 430) Caspian Sea provides 90% of the total caviar worldwide and legal and illegal

trade of caviar accounts for about $100 million for Russia alone, annually. Some other scholars estimate Caspian's share of the world sturgeon population at 85% at its peak during the mid 1980s (Barannik et al., 2004, p. 46). Yet still discussions of falling output of caviar had already begun in late 1960s. In the early 1970s, rumors of experiments to create artificial caviar have started to support this major export good (Goldman, 1970, p. 38).

Some say that as long as the oil extraction is done properly, it poses no major hazard for the sturgeon population. According to this group, only a major spill would become life threatening for sturgeon. On the other hand poaching of sturgeon is a serious threat to the species showing its negative effects since the late 1970s (Pryde, 1983, p. 278). The estimates are that within two decades beluga numbers fell by 90% (Stone, 2002, p. 431). Harvesting the fish in huge amounts was feared to lead to extinction when in 2001 Azerbaijan, Kazakhstan and Russia agreed a 6-month ban on fishing of sturgeon.

However a second group believes that the pollution of Caspian waters "has led to the attenuation of the fisheries" including the sturgeon (Abelson, 1970, p. 199). Abelson (1970, p. 199) refers to a Novosti Press Agency release which points to the expanding off-shore drilling operations, oil extracting plants and industrial sewage as the major reasons for the falling numbers of sturgeon in the 1970s. Similarly, the decreases in sturgeon catch from 30,000 tons in 1985 to 13,300 tons in 1990 and finally to 2100 tons in 1994 are associated with the contamination of the Caspian Sea by oil products, phenols and other wastes (Tolosa et al., 2004, p. 45). The high pollution concentrations in the surface waters of the northern part of the sea, – 2-32 times the MPC as mentioned earlier – which is one of the main spawning areas of sturgeon, is a major cause of problems for the ecosystem, "particularly affecting fisheries" (Dahl & Kuralbayeva, 2001, p. 436).

Apart from the impact on the sturgeon catch, the ecological imbalance caused by the pollution of the Caspian basin has led to serious impediments in the ecological system. It has been noted that in late 1960s, the disappearance of a fish named *belyi amur* from its habitat in Turkmenistan, which fed on mosquitoes, caused the

mosquito population in the region to grow rapidly and transmit malaria (Goldman, 1970, p. 38). A more up to date example is the Caspian seals dying in large numbers. It has been reported that in 2003 as many as 30 dead seals washed to a one kilometer long space of the Caspian coast (Shelton, 2003, p. 304). The reason for seal deaths are suspected to be toxic wastes in their food chains which brings one to the pollution of the Caspian Sea.

In conclusion, as soon as literature started to grow about negative environmental impacts of oil exploitation activities, Caspian basin became one of the focal points of the environmentalists and scholars writing in this subject, although not much information was available during the Cold War. Above is the summary of the damages done to the Caspian air, water and soil by the oil exploitation activities and their socio-economic and ecological impacts from 1960s to this day.

CHAPTER 4

NATIONAL MEASURES

4.1. Introduction

In analyzing the effectiveness of the measures taken for the environmental protection of the Caspian Sea from the ill effects of hydrocarbon development in the region, one of the three levels of authority, the domestic realm and the nature of the measures taken within this realm is explained in this section.

The analysis of the national measures is particularly significant in that the main implementation power lies in the governments and the international and regional endeavors need state capacity to be realized. VanDeveer (2000) referred to the significance of the abilities of the states in implementing the commitments undertaken as a result of these endeavors. In this section, this capacity of implementation, along with the performance in complying with international and regional commitments, and creating an atmosphere supporting them via national action plans, laws and policies is analyzed on an individual basis. The analysis starts with the performance of the Russian Federation, which stands first in polluting the Caspian Sea with discharges, and follows this pattern of pollution discharge ranking with Azerbaijan, Kazakhstan, Turkmenistan and finally Iran (Diba, 2003, ¶. 1).

4.2. Russian Federation

The environmental legal framework of the Russian Federation which can be related to the protection of the Caspian Sea is composed of laws such as Environmental Protection Act (1992), Water Code (1995), Law on State Environment Expert Commission (1995), Law on Ecological Impact Assessment, along with regulations like Sanitary Rules and Norms in the Protection of the Coastal Marine Areas from Pollution in the Area of Water Use by Population and presidential decrees such as the Decree on the Concept of the Transition of the Russian Federation Towards Sustainable Development (1996) (EUCC, 2000d).

The implementation of environmental policy was previously in the responsibility area of Ministry of Environmental Protection and Natural Resources. The decision making mechanism was divided among the Ministry of Melioration and Water Management, Ministry of Fisheries and Ministry of Health while the Department of Natural Resource Use and Environmental Protection of the Central Administration used to coordinate this process. Along with these organs the Committee on Ecology and Committee on Natural Resources and Nature Use work had the autonomy to determine local decisions on environmental protection (EUCC, 2000d).

All these point to a complex and complicated enforcement and enactment mechanism, almost as much as the Soviet environmental legal system, creating layers and layers of bureaucracy, with possible jurisdictional problems due to overlaps both horizontally among the ministries and vertically among ministries, committees and local branches of Ministry of Environmental Protection and Natural Resources. Some interpret this mechanism as a viable one “securing horizontal and vertical integration of planning” (EUCC, 2000d, Environmental Policy section, ¶. 1). However, It is often emphasized that the small bureaucracies of United Nations (UN) organs, such as United Nations Environment Programme (UNEP), becomes an advantage in that it constitutes an opportunity for more rapid decision making and room for maneuver without losing much time in paperwork

(Keohane et al., 1993). The same cannot be said for the administrative mechanism of the Russian Federation in terms of environmental matters though. Although, since 2000 this bureaucratic crowd has been somewhat simplified, with the omission of the Ministry of Fisheries, reorganization of the Ministry of Environmental Protection and Natural Resources as the Ministry of Natural Resources, these actions seem to overcome the bureaucratic obstacles but do not guarantee effective environmental protection.

As of 2009, after a lot of juggling, the relevant ministry is organized as the Ministry of Natural Resources and Environment. The Federal Service for Supervision of Natural Resources under the auspices of this ministry co-ordinates the environmental issues including the management of *zapovedniks* (strict nature preserves) and national parks, and evaluate the state environmental reviews. The administration of the environmental law is the responsibility of Federal Agencies for Subsoil and Water Resources of the Ministry of Natural Resources and Environment and the Federal Agency for Forestry of the Ministry of Agriculture (Global Legal Group [GLG], 2009, p. 369).

The process of change in the environmental legislation is not necessarily positive in the Russian Federation example. In this bureaucratic simplification process some instrumental organs such as the State Committee on the Environment, which is cited as an environmental watchdog by Ostergren and Jacques (2002), was abolished in 2000. The *zapovedniks* and national parks were placed under the responsibility of one state organ, the Ministry of Natural Resources and the first years of 2000s witnessed arguments concerning the environment between the Deputy Director of the Department of Protection of the Environment and Ecological Security and the Ministry of Finance which resulted in an increase in environmental budget and the decision to establish 12 new national parks and 8 new *Zapovednik*s, almost doubling the previous area, scheduled with a timetable of ten years (Ostergren & Jacques, 2002, pp.118-119). These nature preserves are crucial in addition to the obvious purpose of protecting natural areas. They also are scientific research areas which participate to EIA and ecological monitoring. Additionally environmental education and ecotourism activities carried out within

these establishments help environmental awareness rising, contributing to public interest in the environment and more viable solutions reached with the public involved (Ostergren & Jacques, 2002, p. 111).

*Zapovednik*s and national parks are emphasized to be strictly preserved natural zones; however oil operations more often than not may undermine this strict preservation policy. The pipeline from Siberia to China, initiated by Yukos passes through Tunkinskii National Park near Lake Baikal, including valuable boreal forests (Haynor, 2003). This jeopardizes the relevant legal arrangements in 1997 Forest Code of the Russian Federation and calls the legal implementation mechanism into question, despite the positive improvements in 2000-2001 concerning nature preserves.

Although the 2000-2001 environmental chaos in the State Duma led to a positive result, some other changes in the environmental legislation hinder public involvement in the making of environmental decisions. The 1995 Law on State Environment Expert Commission and the Law on Ecological Impact Assessment have previously been found to be instrumental in environmental protection especially in terms of the implementation of large projects concerning hydro-carbon development. These two legal arrangements called for public participation ensuring NGO contribution via impact studies and mandatory public hearings (Innset, 2007/2007). The changes of 2006-2007 of Russian environmental legislation took away the mandatory nature of these hearings, and the legislators decide whether to take them into consideration in the decision-making process or not. This not only damages the holistic approach in the domestic environmental legislation by excluding the public opinion from the environmental decision making process, but also ensures that some companies can be exempt from environmental scrutiny in relation with their "coziness with Russian government structures" (Innset, 2007/2007, ¶. 2) causing arbitrariness in implementation. The licensing of Mayak Nuclear Plant, which continues dumping of radioactive wastes to the region's lakes, for another five years in 2003, "in defiance of Russian environmental law" ("Licensed to Kill," 2003, p. 10) is an appropriate example of the arbitrary implementation processes.

In a similar fashion the 1995 Law on Specially Protected Natural Areas, in its Section 5 calls for assistance of citizens and civil society organizations and states that state agencies shall take these contributions into account while making decisions on the "protection and use of specially protected natural areas" (Ostergren & Jacques, 2002, p.109). Although the law appears to incorporate public participation, the contribution by the public is not mandatory in nature but is to be merely 'taken into consideration'. The right to appeal decisions on environmental protection granted to the citizens with the 1991 Law on Environmental Protection, which could be compensatory is further strained with the amendments to the 1995 Law on State Environment Expert Commission rendering public hearings arbitrary (Ostergren & Jacques, 2002, p. 109). In 1998 the Russian Supreme Court heard a complaint against the government in terms of non-compliance with the Forest Code by citizens and local civil society organizations and decided in favor of the plaintiffs (Mischenko & Rosenthal, 1998, p. 421). With the recent amendment, the public participation via such appeals is prevented for good.

State plans and their implementation is also of significance in that they give the opportunity to analyze the implementation mechanism. One such project is the Complex of Urgent Measures for the Prevention of Flooding of Towns, Human Settlements, Productive and Non-productive Facilities, Agricultural Lands and other Valuable Lands in the Coastal Zone of the Caspian Sea. The activities included in this complex were developed to overcome and/or prevent the problems borne out of the rising surface level of the Caspian Sea. Although the development of a detailed action plan, namely the Plan of Priority Measures on Protection of Population and Prevention of Flooding of Economic and other Facilities in the Caspian Coastal Zone in 1996-1997, with a timetable was adopted it could not be fully realized due to shortage of funds (EUCC, 2000d).

Although enforcement of legal measures can be arbitrary and the implementation of action plans can sacrifice some activities due to problems related to funding, The National Environmental Action Plan (NEAP) of the Russian Federation may

be cited as a positive mechanism in terms of boosting the effectiveness of the environmental measures in several ways. The Caspian region and the Volga Delta is paid particular attention in NEAP, and it is stated that the area is "in urgent need of environmental rehabilitation measures" (EUCC, 2000d, Environmental Policy section, ¶. 1). Additionally, target programmes are developed in line with NEAP which can be interpreted as an action-oriented approach to solve the environmental problems related to the Caspian in a timely manner. It should be noted that the Concept of Transition of the Russian Federation to Sustainable Development adopted in 1996 sets the environment of the Caspian Sea region as a priority area open to international cooperation (EUCC, 2000d). The action and target plans, their timetables and mentioning of international cooperation all stand for increased effectiveness of the measures taken in this field. However the arbitrary legal enforcement mechanism and weak implementation due to problems such as shortage of funding, when coupled with the obstacles in public involvement point out that the Russian domestic environmental framework remains to be discretionary and arbitral.

Currently the Ministry of Natural Resources and Environment and the Ministry for Economic Development and Trade is preparing a draft of a new Environmental Code. This is planned to replace the existing Law on Protection of the Environment. However many question this replacement and emphasize that the main problem concerning the environmental legal framework of the Russian Federation is in control and enforcement mechanisms (GLG, 2009, p. 374).

It is stated in the EUCC analysis (2000d) that:

> The Russian Federation supports in every way the idea of treating the Caspian Sea as a geographically and environmentally integrated system, advocates co-ordinate activities of the Caspian states in the sphere of environmental co-operation serving paramount national interests and the objective of their sustainable development. (Russia (Caspian Sea), National Achievements in the Field of ICZM section, ¶. 11)

This statement indicates that the Russian Federation is open to cooperation in Caspian environmental protection on the international and regional level. However

in an analysis concerning the national level its record is rather shady. As long as the arbitrary implementation and enforcement problems, along with the problem of exclusion of public from environmental decision making and judicial process are not solved, the target plans and timetables on the paper do not bear much meaning.

4.3. Republic of Azerbaijan

The evidence of a proper legal framework for environmental protection in the Republic of Azerbaijan is found in a study conducted by the EUCC International Secretariat, as early as 2000. According to this study, Azerbaijani coast of the Caspian Sea is protected with the Criminal Code and a number of laws, such as the Law on Environmental Protection and Nature Utilization (1992) (EUCC, 2000a), Law on Ecological Safety (1999), Law on Population Health (1997), Law on Utilization of Energy Resources (1996) (Development Alternatives Inc., n.d., p. 1-4) as well as several regulations and decrees. Decree No. 122: Payments for the Use of Natural Resources, Norms of Payments for Environmental Contamination (1992), Regulations on the State Committee for the Environment (1992), Regulation on the Evaluation of Environmental Impact (1996), regulations on Instruction on the Order of Transfer of Sea Environment Information, Rules of Surface Sea Waters Protection, Temporary Recommendations on Control Stations Establishment in the Area of Sewage Flow in the Coastal Sea Zone are some examples (EUCC, 2000a). Among these some like the Instruction on the Order of Transfer of Sea Environment Information are in line with accessibility to information principle, one of the three main principles of Tehran Convention. In addition to these, parliamentary resolutions ranging from hydrometeorology to natural environment monitoring supports the legal scheme (Development Alternatives Inc., n.d.).

The Criminal Code in Article 158-1 is worthy of special consideration, since it constitutes the backbone of enforcement by creating a deterrent punishment mechanism. It stipulates “penalty ... for non-compliance with the relevant

protection measures" (EUCC, 2000a). These measures are further highlighted in the Criminal Code. According to Article 60-2, toxic chemical agents which harm the environment and the population are forbidden and it is stated in Article 160-1 that pollution caused by such substances giving harm to the population or marine ecosystems are subject to penalties (EUCC, 2000a). Nevertheless the mere existence of such legal arrangements does not guarantee the effectiveness of the measures. The nature and objective implementation of these penalties are of crucial significance. In connection with this, the same study states that Azerbaijan was found to have "weak enforcement capabilities and mechanisms" (EUCC, 2000a, Problems and Constraints for the Development of ICZM section, ¶. 1), despite the fact that there has been genuine effort on the part of the government and the president for the implementation of especially important laws. However this effort is on an individual basis, like the Water Code (1997) which has been supported by a Presidential Decree to ensure implementation of the law (Decree of the President of Azerbaijan Republic On the Implementation of the Water Code of the Azerbaijan Republic Approved by the Law of the Azerbaijan Republic, 1997). Nevertheless, it is clear that Criminal Code alone or individual cases of presidential efforts are far from being sufficient as the only legal mechanism arranging environmental protection.

During the years following EUCC's (2000a) study this legal vacuum concerning environmental protection has been filled to a certain extent in Azerbaijan. Law on Environmental Protection (1999), Law on Water Industry (2001), Law on Protection of Atmospheric Air (2001), Law on Public Data on Environment (2002), and Law on Public Awareness on Ecological Issues (2003) have been issued, creating a domestic legal framework helping ease the implementation measures decided on regional and international levels. These are complemented with several amendments to previous laws, such as the Law on Population Health (enacted in 1997, amended in 2002), Law on Utilization of Energy Resources (enacted in 1996, amended in 2001) or Law on Ecological Safety (enacted in 1999 amended in 2002) (Development Alternatives Inc., n.d.). Additionally, in a general sense, it should be noted that the environmental laws in Azerbaijan have been

undergoing a revision process from the relevant Soviet laws (Shelton, 2003, p. 302). This brings along some legacies, both positive and negative. The existence of 14 *zapovedniks*, similar to the Russian Federation is an example of a positive legacy whereas the complex and complicated environmental laws and weak enforcement mechanism is a negative one (Shelton, 2003, p.302-304).

Although a seemingly viable legal mechanism is present, the EUCC (2000a) asserted that Azerbaijan suffers from "an extremely unsatisfactory level of ecological education" (Problems and Constraints for the Development of ICZM section, ¶. 3). Despite the fact that laws like Law on Public Data on Environment (2002) and Law on Public Awareness on Ecological Issues (2003) have been issued after their study was concluded, the importance of awareness raising activities come to the fore as a specifically important element for the case of Azerbaijan. These two laws are further supported with the Law of the Republic of Azerbaijan on Tourism (1999) with its implications on ecotourism (Law of the Republic of Azerbaijan on Tourism, 1999). Several projects concerning cleaning up of beaches by UN volunteers, upgrading of zoos, and restoration of historical monuments are examples of activities coordinated by the NGOs in line with these legal arrangements (Ecotourism in Azerbaijan, n.d.). With the inclusion of 52 bird areas to national tourism action plan in 2006 by the government, Azerbaijan is pointed out to be a success in ecotourism (BirdLife International, 2006). Although these endeavors are a drop in the ocean when compared to greater sources of pollution like hydrocarbon exploitation activities, they contribute to public awareness rising, which has previously been found to be lagging. Even more importantly for the scope of this study, they also contribute to a holistic understanding in the protection of Caspian environment in that in some projects like the cleaning up of beaches UN agencies, the Ministry of Youth and Sport and local NGOs worked together, constituting a perfect merging of local, domestic and international spheres (Ecotourism in Azerbaijan, n.d.).

For the sake of highlighting the NGO activity in Azerbaijan, it should be noted that active individuals, consisting of biologists, chemists, school teachers, geographers, hydrologists and meteorologists, contribute to environmental NGOs out of which

10-15 are particularly active (Shelton, 2003, p. 305). The scope of their projects generally is awareness rising activities as mentioned earlier, while a small number of them conduct research activities which will be instrumental in advising parliament on making of environmental laws (Shelton, 2003, p. 305). With the particular information that they are mostly funded by oil companies, skeptical mind, like Shelton's, who states that NGOs need to be self-supporting (Shelton, 2003, p.305), wanders on the possibilities of shelving more sensitive projects which do not suit the interests of these companies or the government's. However it also denotes that stakeholders, public and governmental organs work together in the solution of environmental problems, enhancing the effectiveness of the measures taken, if an objective, truly result-oriented manner is adopted, that is.

The NEAP adopted in Azerbaijan along with other countries in the region is another example of the holism criterion. NEAP has first been developed with assistance from the World Bank from 1995 to 1998 (Embassy of Azerbaijan Republic in Vienna, n.d.). According to this "problems requiring urgent action" included "pollution caused by industries", "threats to protected areas leading to losses in biodiversity" and "damage to Caspian Coastal zone caused by flooding from a rise in sea level and pollution" (Period of Structural Changes section, ¶. 1). Among these, Caspian Sea protection and "prevention of secondary pollution of the sea from oil-related activities" is emphasized to be a priority (Kudat, Ozbilgin & Musayev, 1998, p. 2). According to a social assessment on NEAP conducted by the World Bank in 1998, NEAP has a participatory approach creating possibilities for the expression of population's needs, increasing public awareness due to media coverage, boosting capacity of environmental institutions, all of which imply enhancements in terms of holistic approach. Furthermore, the follow- up action stipulated by the NEAP means that activities are conducted in accordance with a timetable in an action-oriented way (Kudat et al., 1998, p. 2). In addition to NEAP; a National Programme on Environmentally Sustainable Socio-Economic Development has been initiated by the Ministry of Ecology and Natural Resources in 2003. Accessibility to information principle of the Tehran Convention is further strengthened by the five regular bulletins published by the Ministry of Ecology

and Natural Resources, four of them published daily with the monitoring results on Caspian Sea pollution as well (Kudat et al., 1998, p.2).

In conclusion, Azerbaijan has improved the cooperative environment for the solution of environmental problems. The laws enacted, amended and revised from the Soviet period, with the advice taken from environmental NGOs, although limited, are positive implications in terms of increasing their effectiveness in a holistic understanding. Presidential decrees on the implementation of the laws and NEAP, with their timetables and actual enforcement stipulations point to an action-oriented approach and a timely manner. However although the viable legal framework exists and is in a process of constant improvement, the implementation mechanisms have been found to be weak and the environment is not as high a priority in the eyes of the government as it should be (Shelton, 2003, p. 302). Additionally, civil society organizations have been subject to arbitrary registration processes and a significant number have been denied registration, hindering the development of civil society, not to mention the deprivation of its benefits (Organization for Security and Cooperation in Europe [OSCE] & The International Center for Not-for-Profit Law [ICNL], 2002, pp. 1-4).

4.4. Republic of Kazakhstan

The environmental legal framework of the Republic of Kazakhstan concerning Caspian environmental protection includes laws, such as Water Code (1993), Law on Emergency Actions of Natural and Technogenic Nature (1996), Law on Ecological Expertise (1997), Ecological Code (2007) and provisions and regulations such as Regulations of the Order to Carry Out Marine Researches Connected with Offshore and Land-based Activities (1996), Provisions of the Order and Conditions to Issue Permission for Construction and Exploitation of Man-made Islands, Dams, Facilities and Plants to Undertake Oil Activities in the Republic of Kazakhstan (1996), Regulations of the Order to Conduct Offshore and Land-based Oil Activities (1997), Special Ecological Conditions to Carry Out

Geophysical Study in the Kazakhstan Caspian Sector (1995), Safety Regulations and Environmental Protection in the Construction and Exploitation of Underwater Pipelines and Cables Connected with Oil Activities (1996), Regulations of the Order to Conduct Offshore and Land-based Oil Activities (1997) (EUCC, 2000c). In addition to these, Law on Petroleum consists of a sub-component of Bowels and Environmental Protection in the Exploration of Oil and Gas Fields and Environmental Protection, Human and Personnel Safety in its Articles 46-49 (EUCC, 2000c). The responsibility of the hydro-carbon developers to prevent damage to the environment and compensate if otherwise has also been incorporated to the Oil Act and Subsurface Acts (Balken, 2008, p. 6)

The Kazakhstan sector of the Caspian Sea is seriously polluted by oil products (Dahl & Kuralbayeva, 2001, p. 429). Macy and Osadcha (2002, p. 3) noted that this part of the Caspian Sea is covered by an oil film and the oil industry seriously damages the air and contaminates the land. As mentioned in Chapter 2, the northern part of the Caspian Sea is the shallowest section of the entire water body holding the least amount of water volume. The oil effluents discharged to the Caspian Sea constitute a greater percentage in this section and cause intensified pollution. The annual growth of the Republic of Kazakhstan is approximately 10% per year which constitutes a threat for the environment since the oil sector is the engine of Kazakh economy which also accounts for pollution of the Caspian Sea (Balken, 2008, p. 1). However the 1997 Ecological Code, Caspian Sea Environment Preservation exists as a sub-component. According to this arrangement, drilling of oil wells, industrial construction and navigation are prohibited during seasons of fish spawning and bird and seal nesting (Balken, 2008, p. 6). Additionally, the Principle of Zero Discharge for the Caspian Sea recently entered into force, which is expected to have a great positive impact if properly implemented (Braliyev, 2007/2007, pp. 1-2.).

Writing in 2001, Dahl and Kuralbayeva (2001) stated that the enforcement mechanism of environmental laws in the Republic of Kazakhstan is weak due to "interdepartmental rivalry, many governmental reorganisations, lack of resources, and corruption" (p. 438) Additionally the formation of an independent judiciary

has been found to be incomplete (Dahl & Kuralbayeva, 2001, p. 438). Today, however ecological cases are found to be handled better due to an evolved judicial policy (Balken, 2008, p. 9).

Since the 1997 Law on Ecological Expertise, EIA is being carried out for the hydrocarbon development projects. However the nature of these impact assessments was called into question when Galina Chernova, an environmental activits then working in a local NGO named Caspian Nature, challenged the Tengiz-chevroil pipeline project connecting Kazakhstan's Tengiz oil field to Black Sea, in 2000 (Macy & Osadcha, 2002, p. 1) She put forth that the EIA made for the project was not qualified since the samples taken were not adequate, however ended up being sued by the company which carried out the assessment. Both the first court and the higher court applied for appeal rejected reviewing the case, proving that Kazakh citizens had the right to get involved in environmental decision making via judicial mechanisms (Macy & Osadcha, 2002, p. 3) This case is not only significant in that public opinion is not totally left out in the environmental decision making process in Kazakhstan but also implies that the fact that EIA has been carried out for major industrial projects is not very meaningful by itself as long as the assessment is not properly done. It is stated by Braliyev, Vice-Minister of Environmental Protection of the Republic of Kazakhstan (2007) that "compliance by mineral extraction companies with environmental protection requirement remains to be a serious problem" (p. 3). However there are efforts to overcome the problem of monitoring and compliance. The United Nations Economic Comission for Europe (UNECE) Working Group on Environmental Monitoring, for instance, was held in Almaty in May 2003 and workshops on air pollution monitoring were organized. As a result, suggestions for the solution of problems related to air pollution monitoring were made (UNECE Working Group on Environmental Monitoring & KAZHYDROMET, 2003).

The case of Galina Chernova has further implications on public involvement in environmental decision making. This case shows that the environmental NGOs in Kazakhstan have a certain power and are part of the decision making process to a certain extent. Weinthal and Luong (2002) put forth that Kazakhstan's Civil Code

constitutes a constraint for the NGO sector to actively take part in politics by limiting them to "purely social and philanthropic activities (pp. 163-164). However, since the 1996 Law on Public Organizations and 1997 Law on Protection of the Environment, civil society organizations and scientific organizations are free to make public expertises and make suggestions on this ground to the Ministry of Environmental Protection, although as in the Russian Federation it is not mandatory for the ministry to act upon these suggestions, while it shall take these into consideration (Dahl & Kuralbayeva. 2001, p. 437). For instance, in the making of the Ecological Code the suggestions of the NGOs, concerning environmental education and respect for principle of access to information have been reported to be taken into consideration and realized (Balken, 2008, pp. 8-9). In addition to this, the State Interdepartmental Committe involves representatives of NGOs, academy, scientific organizations, departments, parliament members and stakeholders in the environmental audit procedure that is currently being developed (Braliyev, 2007, p. 3). These all are indicators that the public, government and stakeholders are in a closer cooperation than before, when it comes to environmental protection which adds up to the effectiveness of the decisions.

The most recent legal arrangement in the issue, the Ecological Code of 2007 was made in accordance with an approximate number of 30 instructions from the European Union and 19 convention provisions (Balken, 2008, p. 3). These were taken into consideration so that the domestic legal system is ensured to be perfectly compatible with international obligations of Kazakhstan to ensure holism. For instance, "informing of a threat of emergency situation with a transboundary effect" (Balken, 2008, p. 4) or providing aid in such a case if demanded, along with dedication to joint environmental monitoring are compatible with the access to information principle of the Tehran Convention and stand for a holistic manner on the part of the government.

Other principles such as the polluter pays principle is also included in the Kazakh environmental legal system, envisaging payments in case of pollution of the environment. However, for a long time the payments have been too small so that

the oil companies chose to pay these fees instead of adopting environmentally sound technologies (Dahl & Kuralbayeva, 2001, pp. 437-438). This is a legacy of the Soviet environmental laws, as mentioned earlier in Chapter 3. The outdated equipment which not only fail to comply with the protection of the environment from oil effluents but also create radioactive pollution due to overuse were not replaced and purifying systems have been far from being effective. However, with the recent environmental move of Kazakhstan which started with the adoption of 2007 Ecological Code, these old technologies started to be replaced with newer environmental-friendly technologies, so that the Principle of Zero Discharge for the Caspian Sea could be realized. With this move Kazakhstan's ranking of 75 in World Environmental Stability Index rose to 70 (Braliyev, 2007, p. 1). Work on this field is continuing in an integrated fashion via a memorandum signed between Ministry of Environmental Protection of the Republic of Kazakhstan and the Ministry of Environmental Protection and Nuclear Safety of Germany for cooperation on the issues of "modern waste treatment facilities and alternative energy resources" (Braliyev, 2007, p. 4).

It must be noted that the efforts are bearing fruit in a general sense, although slowly, and that the harmful emmissions released to the atmosphere have decreased by 37% from 1990 to 2007 (Balken, 2008, p. 3), and a decrease of 3% have been recorded in two years between 2005-2007 (Braliyev, 2007, p. 1). However in the same two year period discharges to water have increased by 2% (Braliyev, 2007, p. 1).

Similar to the other states in the region, Kazakhstan also made a national environmental action plan. Ecologically sustainable development is the main priority in this plan, named National Environment Action Plan for the Sustainable Development of Kazakhstan (NEAPSD), issued in 1997. In the first phase until 2000, implementation of the plans have been hindered by "a lack of priorities and objective criteria and methodologies for establishing them" (Tyrtyshnyy, 1998, ¶. 6). Dahl and Kuralbayeva (2001, p. 439) emphasized that timetables like this one are either too strict or too ambiguous so that enforcement is problematic due to continuous postponement of deadlines. In addition to NEAPSD, The Concept of

Ecological Safety of Kazakhstan for 2004-2015 and Conception of Transition of Kazakhstan to Sustainable Development for 2007-2024 are plans to keep environmental protection as a priority area for the government and help improve ecological legislation (Balken, 2008, p. 2). Although these are positive developments on paper, as long as the previous mistakes of overlooking the timetables and failing to meet the deadlines are replaced with a more enthusiastic action-oriented approach, they don't stand for a real change in terms of environmental protection in Kazakhstan.

Being exposed to many environmental challenges like the nuclear problems caused by Semipalatinsk nuclear site, drying up of the Aral Lake and pollution in the Caspian Sea, environmental issues came to the fore earlier and in a more acute fashion than the other countries in the region. As a result the environmental laws in Kazakhstan seems to have evolved more than the rest of the states in the region. Even the previous environmental law of 1997 is found to be very comprehensive (Dahl & Kuralbayeva, 2001, p. 438). With the new 2007 Ecological Code, the merging of local, national and international has been successful due to the involvement of NGOs together with members of the parliament in the making of the law. Additionally with this law, public and stakeholder opinions are integrated to the decision making mechanism on a more solidified basis, although it is limited to suggestions only. The inclusion of international obligations to this law, together with these positive trends indicate a significant improvement of Kazakh legal system's dedication to an integrated environment protection and a holistic manner in restoration and preservation of Caspian environment. However EIAs may tend to be fallacious and compliance with environmental legal arrangements on the part of the oil companies get problematic in certain instances. Furthermore the problem of postponing deadlines and failing to meet the timetables not only prevent Kazakhstan from fulfilling the time parameter but also account for the unfulfilled action plans which hinder the satisfaction of the parameter of action-oriented approach in environmental measures.

All in all, it cannot be denied that Kazakshtan has made significant progress in terms of environmental protection. Cooperation on domestic level with local

NGOs, academicians and stakeholders and on international level with ministries of environment of developed countries to overcome environmentally problematic areas all account for a serious progress in satisfaction of holism criteria. Yet the activities of the local environmental NGOs may remain to focus on education and awareness rising activities on global cases like biodiversity which are less threatening to the government than those more effective ones responding to the urgent problems threatening the Caspian Sea (Weinthal & Luong, 2002, p. 164). On the other hand the positive legal arrangements carried out by decision makers need to be implemented to be effective. Resolutions, such as the Principle of Zero Discharge for the Caspian Sea is far from being effective when they remain solely on paper. In view of the circumstances, the enforcement of action-plans in a timely manner would fulfill the parameters of time and action-orientedness, increasing the effectiveness of the domestic measures taken by the Republic of Kazakhstan.

4.5. Republic of Turkmenistan

The environmental legal legislation of Turkmenistan started to be developed soon after the break-up of the Soviet Union and declaration of independence. 1991 Law on Nature Conservation was among the first of the laws enacted in the early days of independence, constituting the basis of the legal documents in the field of environment (UNEP, n.d.). The most significant of the other laws completing the environmental legal framework are Land Code of Turkmenistan (1990), Law on Protection and Rational Use of Flora (1993), Law on Rational Use of Fauna (1997), Law on Air Protection (1996), Law on Ecological Examination (1995), Law on Reinforcement of Responsibility for Ecological Infringement of the Law (1991), Criminal Code (1997), Civil Code (1999) (EUCC, 2000e; UNEP, n.d.). The Water Code of Turkmenistan is an amended version of previous Soviet Water Code of 1972 (EUCC, 2000e). In addition to these laws, regulations and resolutions, specifically on the protection of the Caspian Sea exist. Rules of Exploitation of Hydrocarbon Deposits of Turkmenistan and Decisions about

Measures for Radical Improvement of Ecological Conditions in the Region of the Caspian Sea are examples (EUCC, 2000e).

The administrative structure consists of the Ministry of the Use of Natural Resources and Environmental Protection, Ministry of Human Health and Medical Industry on the national level. The Ministry of the Use of Natural Resources and Environmental Protection executes relevant laws by carrying out inspection, research and monitoring activities (EUCC, 2000e). Regional and local authorities help coordinate these activities on local and regional levels (Berdiev, n.d.). This mechanism is far from being chaotic as in Russia, and merges the local and national structures in an efficient, well organized way.

Turkmenistan, just like the other post-Soviet republics has the *zapovednik* and nature parks system. Management of Protected Areas is a sub-component of National Environmental Programme of Turkmenistan (EUCC, 2000e). The existence of protected nature preserves is one of the positive legacies of the environmental legislation taken over from the Soviet environmental management system.

The state of Turkmenistan as one of the least polluting states among the littorals to the Caspian Sea despite her hydrocarbon potential may be explained with the complex licensing process she has been applying to foreign oil companies. Although the Turkmen Law On Mineral Resources states that both Turkmen legal and natural persons and foreign legal persons can use mineral resources, on the condition that they guarantee the security of both the resources and the environment without causing any harmful impact to neither air, land, water resources nor forests (UNEP, n.d), foreign interest in development of Turkmen natural resources is not so high when compared to other countries in the region, which are also endowed with hydrocarbon resources, like Azerbaijan or Kazakshtan. The main reason for this is explained with the fact that the government controls are “very tight” and “an over-complex authorization procedure causing business negotiations to drag on unresolved” (Hines & Marchenko, 2006, p. 497). Investment moves, especially concerning hydrocarbon

resources were expected to show an upward trend and the contribution of Turkmenistan to the Caspian marine pollution, which had been relatively smaller when compared to other littoral states, was predicted to increase once the Turkmen State Agency for Foreign Investment was established and the new petroleum law was enacted ("Turkmenistan Shedding Complex Licensing Process," 1998). The law was enacted in 1996 and 13 years on, Turkmenistan still is not much favored by foreign oil companies and she still follows Russia, Azerbaijan and Kazakhstan in her contribution to Caspian Sea pollution.

The climate of Turkmenistan is described as subtropical desert (Food and Agriculture Organization of the United Nations [FAO], 1997). The main environmental problem in the country is the expansion of the desert, making the management of water, which is limited, high priority. According to the Strategy of Socio-economic Transformation in Turkmenistan until 2010, "combination of industrial development with environmental protection; prevention of Aral Sea catastrophe", "pollution control in agriculture; combating land salinization and erosion" together with "emission reduction" are defined as the main ecological priorities (Berdiev, n.d., Political Aspects section, ¶. 1). Water scarcity is an acute problem in Turkmenistan, causing high concentrations of salt and pesticides to accumulate in desert lands (FAO, 1997). High levels of water logging and salinization accompanied by water losses indicate that this problem is way higher on the government's agenda than the protection of the Caspian environment when it comes to environmental protection (Berdiev, n.d.). However, environmental protection for the Caspian Coast of Turkmenistan is not totally overlooked. The Strategy of Socio-economic Transformation in Turkmenistan until 2010 establishes a coastal policy to be carried out by regional and local authorities in cooperation with the Ministry of the Use of Natural Resources and Environmental Protection, which also regulates the development of hydrocarbon and mineral resources (EUCC, 2000e). Additionally, the National Environment Programme of Turkmenistan comprises of a regulation on Land Use Planning and Management Process envisaging a pilot project of coastal zone management (EUCC, 2000e).

Turkmenistan is in need of a viable and healthy coastal zone management system. According to an analysis carried out by EUCC (2000e) the coastal zone is protected from pollution sources which are close to the coasts only. The example of an oil waste storage near Cheleken is particularly staggering, where the storage is surrounded with an earth dam. As mentioned in Chapter 3, the earth, due to its granular structure, is capable of absorbing oil up to depths reaching 10 meters, which renders it useless when used to build dams to keep oil from polluting nearby sources of water (Kramer, 1974, p. 895).

The National Plan of Actions on Environmental Protection is possibly the most significant of the action plans in Turkmenistan, concerning environmental protection. This action plan is similar to the other post-Soviet republics, however its effectiveness is further increased with National Plan of Actions on Hygiene of Environment (NEGAP) in the example of Turkmenistan. In addition to these two action-plans, the National Environment Programme of Turkmenistan is pursued by the Ministry of Environment, which aims to increase effectiveness of the environmental legislation and strengthen the process of EIA (EUCC, 2000e). All these plans and programmes clue one in the action-oriented approach of the government in terms of environmental protection. Furthermore, some of these plans have clear deadlines and timetables, such as the Strategy of Socio-economic Transformation in Turkmenistan until 2010, which also means that they satisfy the time parameter.

Berdiev (n.d., Scientific and staff provision section, ¶. 5) emphasizes that lately environmental education has gathered pace, however the programs are still not perfected. Other activities to increase public awareness such as ecotourism are not very feasible due to insufficient facilities for tourism. While the natural complex of Turkmenistan is found to be “unique” (EUCC, 2000e), because of the insufficiency in touristic facilities, the room for activities of ecotourism is rather small. Although the environmental NGOs are the strongest of local NGOs in Turkmenistan, the NGO sector of Turkmenistan is the weakest among the post-Soviet states. Similar to the Russian NGOs, registration is one of the major

problems for Turkmen NGOs. The main problem for this is states as the "government's broad suspicion of the NGO sector" (United States Agency for International Development [USAID], 2000, p. 160). The government has attempted to bring the NGO sector to a standstill in several events. In May 2000, internet access of environmental NGOs, previously funded by Initiative for Social Action and Renewal in Eurasia (ISAR), a USAID subcontractor, was cut due to the monopolization of the internet service. This not only meant the end of free internet access for environmental NGOs, but also the new service is said to be curtailed and slow (Hogan, 2009). Although the media is censored carefully by the government (USAID, 2008d, p. 236), some coverage which can find its way to the public over the recent years has led to amelioration of the public image of the NGOs, this suspicion continues (USAID, 2006, p.227).

On governmental level, positive improvements in the field of environmental protection has been taking place in Turkmenistan. In 2008 12th meeting of the EU Water Initiative Working Group on Eastern Europe, Caucasus and Central Asia (EECCA) was held in Ashgabat and organized by the Government of Turkmenistan. Efficient water use has become one of the main priority areas under the president, Gurbanguly Berdimuhamedov and international and regional cooperation in this field has been successfully carried out by the government. However, as long as the public opinion is left out and awareness rising is not paid enough attention, the parameter of holism cannot be met.

All in all, Turkmenistan is successful in making a viable environmental legislation mechanism and setting and meeting deadlines in many environment related action plans and programmes, which account for the fulfillment of time and action-orientedness parameters. Additionally the government is involved in regional environmental cooperation activities, such as the Tehran Convention and EECCA. However, as long as the public sector is not included in the solutions concerning the environmental protection, the chances of any rehabilitation and protection effort to be effective would remain low.

4.6. Islamic Republic of Iran

Being the oldest of the nations surrounding the Caspian Sea, the environmental legal framework of the Islamic Republic of Iran has a history longer than the other littoral states. The earliest examples of environmental law, namely Environmental Protection and Enhancement Act and Law on Endangered Species of Wild Fauna and Flora, following the rising of environmental awareness worldwide in 1970s, were enacted in 1974. These were followed by the Law of Protection of the Sea and Internal Water Bodies against the Oil and Oil-products Pollution (1975), Law of Protection of the Natural Parks, Protected Areas and Sensitive Areas (1975), Law of Environmental Protection against Water Pollution (1984), Law of Environmental Protection and Development (1991) and Law of Protection against Natural Environmental Damages (1991) (EUCC, 2000b). Additionally the Constitution of the Islamic Republic of Iran indicates, in Article 50, that protecting the environment is a public obligation and forbids irrepearable damage caused by any kind of activity including economic (The Constitution of Islamic Republic of Iran, 1979).

The state organ supervising the use of environment in compliance with these legal arrangements is the Department of Environment. This responsibility is shared by The Supreme Council for Environment and the National Committee on Sustainable Development. The latter organ is also the main organization dealing with EIA (EUCC, 2000b). Although environmental protection is secured by laws and the constitution, the environmental legislation of Iran still needs to be worked on. Several steps to increase the effectiveness of these measures have been taken. For instance, United Nations Development Programme has started helping strengthening EIA on an institutional level in 1997.

In 1997, a project to support the strengthening of EIA and its institutions was signed with the United Nations Development Programme (UNDP) (EUCC, 2000b). This is significant in that it involves cooperation of UNDP with the Plan

and Budget Organization of the Islamic Republic of Iran (EUCC, 2000b). It had been decided in 1994 that for the Caspian coastal area, EIA is compulsory for all kinds of operation (EUCC, 2000b).

The main environmental problem in Iran is the severe air pollution, mainly in the big cities. It is so intense that in cities like Tehran, the schools are closed down during air inversions and reach dangerous extents for the children and the elderly (Brooks, 2002). High levels of population growth for more than the last two decades and abundance of hydrocarbon resources resulted in increased usage of automobiles (Energy Information Administration, 2002) and no incentive to develop alternative energy resources. The last two decades have witnessed the tripling of Iran's carbon emissions (EUCC, 2000b).

However, fortunately for the Caspian coast line, Iran's development activities of hydrocarbon resources mostly take place in the Persian Gulf. Although exploration wells have been drilled in the Caspian, oil is either not found (EUCC, 2000b) or recovering it has not been found economically feasible up until this year when news of Iranian intentions to develop its Caspian hydrocarbon resources surfaced (Daly, 2009).

Till this day, despite the fact that hydrocarbon reserves has been found in the Iranian coast of the Caspian Sea, the only activity concerning hydrocarbon resources remained to be the export and import of oil in line with a swap arrangement with Kazakhstan and the oil Iran was exporting came from the Persian Gulf ("An Analysis of Impact of Socio - Economic Development on Caspian Environment, in Iran: TDA Revisit," n.d.). For a very long time Azerbaijan and Kazakhstan have been developing their hydrocarbon deposits in the Caspian Sea. However according to a report of the Fars News Agency, Gholamhossein Nozari, the Oil Minister of the Islamic Republic of Iran, declared that President Mahmoud Ahmedinejad is preparing for the inauguration of a drilling rig in the Caspian Sea (as cited in Daly, 2009). This is may be a bothersome piece of news since the environmental legal arrangements in Iran are lagging behind the rest of the Caspian littorals, whose environmental protection

records are not so bright despite being better organized. Additionally, the fact that industrial development and economical goals supercede environmental worries does not bode well for the future of the Iranian coast of the Caspian Sea ("An Analysis of Impact of Socio - Economic Development on Caspian Environment, in Iran: TDA Revisit," n.d.).

However environmental legislation has been rehabilitated in the recent years. The Tehran Convention has initiated positive change in Iran, along with the rest of the littoral states. During the first meeting leading to the establishment of the Tehran Convention Iran's Special Envoy for Caspian Sea Affairs Mehdi Safari stated that "The Islamic Republic is very sensitive in regards to the Caspian Sea environment and took several measures to reduce the environmental pollution of the sea" ("Convention for Protection of Caspian Environment signed in Iran," 2003, Caspian Cooperation Will Ease Coop Among Caspian States: Safari section, ¶. 4)

Similar to the *zapovednik* system of the post-Soviet states, Iran has a system of nature preserves for biodiversity protection which are the responsibility of the Department of Environment. This is the outcome of the conservation policies adopted since 1970. The system is composed of national monuments, parks, and wildlife refuges (Energy Information Administration, 2002). However they were found to be insufficient ("National CDB Reports I.R. Iran," 2005). The number of the wildlife refuges on the Caspian coast is three and only one natural monument and one protected area exists on the coastline (EUCC, 2000b). However the main problem with these areas and the coastal zones in general has been that these were managed without a proper environmental protection and coastal zone management plan (EUCC, 2000b). On a brighter note, an Integrated Coastal Zone Management Plan for Iranian coasts, including the Caspian coastline has been developed from 2003 to 2005 ("DHI Coastal Zone Management – ICZM Iran," n.d.). Although much work needs to be done in the field, the fact that a strategy has been identified is promising.

In fact action plans and strategies took a start in 1993 when the National Strategy for Environmental Sustainable Development was initiated, including a National

Strategy for Environment and Sustainable Development. The efforts were predominantly concentrated on increasing public awareness in environmental conservation, rather than rehabilitation and restoration (EUCC, 2000b).

Stronger action plans, aiming to grant environmental protection a priority status began to be developed later in the recent years. 2005-2009 Development Plan, for instance, envisages reaching international environmental standards in biodiversity indicators, aims to develop a coast management plan especially for the Caspian Sea, establish waste management plans for the three provinces of Golestan, Guilan and Mazandaran on the Caspian coast and reduce air pollution. Environmental education has also been planned to be enhanced ("An Analysis of Impact of Socio - Economic Development on Caspian Environment, in Iran: TDA Revisit," n.d.). If viable, with this action plan Iran will gain experience on dealing with environmental problems which will come in handy after her first drilling rig starts working in the Caspian Sea. Furthermore, the envisaged environmental education will be instrumental in boosting public awareness and hopefully a healthier civil society system.

Environmental movement in the Iranian civil society sector is relatively new. The first NGO in this field was founded in 1992 by Victoria Jamali and Mahlagh Mallah. Bern Johnson, executive director of the Environmental Law Alliance Worldwide states that before this organization "no citizen environmental movement exist[ed]" (as cited in Brooks, 2002, ¶. 4). As the Iranian Society became more and more open, the number of the members of this NGO reached more than 2500 within 10 years, paving the way for about 250 environmental NGOs in this period (Brooks, 2002). However, the realization of the natural reason of existence of these NGOs, as being the tool for the expression of public opinion and having a political effect on the decision making process, has been late. Even the leading environmental NGOs started to consider having an impact on environmental legislation process as a function lately (Brooks, 2002).

However the opening of the society has been sharply cut recently with the growing instability over the recent elections. The latest problems have a profound impact

on NGOs in that they bode ill for any case of an environmental NGO challenging the government. The room for maneuver in civil society is already quite limited in Iran when compared to the rest of the littoral states. Even though the civil society organizations in the post-Soviet states bordering the Caspian Sea have a long way to go when compared to western civil society organizations, the legal arrangements made for their involvement via suggestions in the making of environmental decisions, although not mandatory to be acted upon, are taken into consideration, while this kind of action started as a dream for the leading environmental civil society organization in Iran (Brooks, 2002). This alone points to the fact that NGO activity in Iran has been very far from fulfilling the major need of an integrated decision making system which could account for the satisfaction of the holism parameter. After the 2009 elections, the pressure on the population increased and the controls got tighter, causing the already limited movements of environmental civil society to further shrink.

On the other hand, the weak legislation concerning environmental protection, especially concerning the Caspian Sea has been somewhat ameliorated in the recent years in parallel with the efforts on Tehran Convention. The action plans and strategies are new, so that their outcomes are not clear yet. However they mostly are scheduled on a timetable, and although they have been initiated after the other littoral states, so have the oil operations of Iran on the Caspian coast. Yet there is no data available to comment on the success of these action plans and meeting of deadlines.

As a final word, the main reason for Iran to be the least polluting country among the Caspian littoral states in terms of effluents from development of the hydrocarbon resources seems to be the fact that she has not been carrying out such operations up until this day in the region. The Caspian coast of Iran has been developed in terms of agriculture and domestic tourism (EUCC, 2000b) and pollution caused by these sectors remains out of the scope of this study. However, in accordance with the effectiveness parameters employed in this study, Iran fails to meet holism criteria on domestic level by its weak civil society sector and no clear data on the success of her action plans and timetables can be reached, most of

the time due to the novelty of these strategies. At any rate, the efficiency of the measures Iran adopts in her coming oil operations in the Caspian Sea, depends on the fulfillment of these action plans and meeting of deadlines in these strategies, together with the strengthening of the local NGOs and their inclusion in the environmental decision making mechanism, although any improvement concerning civil society sector does not look promising for now.

4.7. Conclusion

There is no denying that the environmental worries have found a place in domestic politics in the littoral states of the Caspian Sea. The environmental legal arrangements have been enriched and environmental legislative frameworks have been enhanced since the dissolution of the Soviet Union. However the question of sufficiency is relevant concerning the importance attributed to these environmental problems and the nature of the environmental decision making process. Although civil society organizations have found an enriched ground on which to survive, their overall effect on environmental decision making process is not yet perfected. While there are relatively more positive examples, such as the case of Kazakhstan, where environmental activists can actually call into question the problems in implementation of these measures without being prevented by national judicial systems, there are also cases like Iran, where having an effect on political decision making as an environmental NGO may be a fascinating but less possible option for an environmental activist. Thus, no uniform argument other than the necessity of further incorporation of public and stakeholders to the creation and implementation of domestic environmental measures may be put forth. What the northern littorals share is an increasing number of environmental NGOs with decreasing numbers of members, thus support bases. Although the close cooperation of global NGOs with local NGOs in the four littorals, except for Islamic Republic of Iran, is an example of holism, it may not always mean that effective activities are carried out. With the encouragement and funding coming from Western NGOs, which shun challenging the regional governments, local

NGOs are increasingly disengaging themselves from local environmental problems and focusing on activities concerning global issues (Weinthal & Luong, 2002, p. 164). Raising environmental awareness and outreach activities are fine, yet not as effective as to the point projects having a deeper impact on national, thus regional, political decision makers.

Overlooking of timetables have been referred to in individual cases, however the increasing international commitments may be expected to overcome this trend. This also is the main factor contributing to the creation of action oriented strategies; however other than those pursued ardently by the supra-national bodies, domestic action plans support the commitments.

Nevertheless, what significantly hampers the effectiveness of the domestic measures is a profound negative factor. The weak enforcement mechanism and problems in domestic implementation, along with Soviet legacies of favoritism and Caucasus and Central Asian trends of clan relations gives hints on problems in objective implementation of the measures, which look neat on paper. The extent of these is unclear, by nature; however criticisms of some cases are referred to above. The wait for the stability in economy to be reached with the conclusion of the transition of post-Soviet states may thus be in vain, as long as these characteristics continue to plague enforcement mechanisms. Yet still, international and regional endeavors may be effective in correcting mistakes overlooked by domestic authorities, determined by monitoring activities. However the viability of civil society and the ability of NGOs to supervise the enforcement and implementation of these activities vary from mediocre to low for the time being.

CHAPTER 5

SUPRA-NATIONAL MEASURES

Measures taken on regional and international levels are evaluated in this chapter with two respective sub-sections for analysis.

In the first sub-section, the issue of the delineation of the Caspian Sea and the lack of a legal regime are highlighted as problems facing the regional cooperation efforts. These efforts, of which the most significant one is the Framework Convention for the Protection of the Marine Environment of the Caspian Sea, are also evaluated in terms of their effectiveness with the application of the three parameters of time, holism and action-oriented approach.

A similar effectiveness analysis is carried out for the international measures which have implications on environmental protection of the region as well, in the second sub-section. The most significant international conventions, efforts of international organizations and other similar efforts are firstly evaluated to find out the participation of each littoral state, and then analyzed with the application of the above mentioned criteria to find out the extent of their efficiency in preserving the environment of the Caspian Sea from the ill effects of hydrocarbon development.

5.1. Regional Measures and Their Effectiveness

5.1.1. Introduction

As it has previously been argued in Chapter 2, the effectiveness of environmental measures taken to protect the Caspian region from the negativities hydrocarbon production relies on a holistic approach incorporating regional, international and national policies. Any analysis of the regional level of authority would prove to be of significant importance not only because of this fact, but also because of the peculiarities of the Caspian Sea. The legal regime governing this largest inland body of water and its subsurface has not been agreed upon completely yet and it relies on bilateral conventions for the time being, predominantly between the northern littorals. The application of international legal norms to this body of water is problematic since the Caspian Sea is vast for an inland body of water which leads to several different arguments in deciding the status of it as a sea, a lake or a unique inland body of water. Thus sliding the focus to the regional rather than the international level about the legal regime governing the Caspian Sea is inevitable both setting the scene and making the effectiveness analysis of the environmental measures concerning the Caspian Sea.

In this section, the legal regime governing the Caspian Sea today is explained, with references to the evolution of the current status and a brief history of how Caspian Sea ended up with the lack of it. After that the treaties of bilateral and multilateral nature concerning the delineation and environmental protection of the Caspian Sea, particularly the Tehran Convention, are discussed in accordance with meeting the three effectiveness parameters set in Chapter 2.

5.1.2. The Legal Regime Governing the Caspian Sea Today

The solution of legal issues and existence of a legal regime to govern the Caspian Sea are of significant importance in maintaining ecological balance. As previously discussed in Chapter 1, for the sake of the effectiveness of any measure taken in the region, the ecology of the same body of water, its marine environment and coastal regions must be dealt with in a holistic approach (Ross, 1970, p. 6).

The first attempt to make a legal clarification to the status of the Caspian Sea was in early 19th century when the Russo-Iranian Wars were concluded with the Peace Treaty of *Gulistan*, signed in 12 October 1813.With this treaty freedom of navigation for the merchant vessels in the Caspian was granted to both of the states while Russian navy alone gained the right to keep warships in the Caspian Sea. This Russian privilege of being the only power to sail war ships under its own flag was reaffirmed with the Peace Treaty of *Turkmenchai*, signed in 22 February 1828. This unequal situation was to be changed only after the Soviet regime was founded and the two littorals were to be granted "equal rights of free navigation on the sea, under their own flags" (Granmayeh, 2004, p. 18) in 26 February 1921 with the signing of Treaty of Friendship between Persia and Russia. However, the treaty which established the Caspian Sea as a Soviet-Iranian Sea is the Agreement on Trade and Navigation between Iran and the USSR, signed in 25 March 1940 (Rabinowitz, Yusifov, Arnoldi & Hakim, 2004, p. 31). This agreement presented new details to the legal regime governing the Caspian Sea like the adoption of an exclusion zone of 10 miles in the coastal waters of each littoral which seems very much connected to fishing rights in this zone. What makes this agreement even more interesting is that the vessels to be found over the Caspian Sea were restricted only to those which belonged "to the citizens and commercial and transport organizations of either of the contracting parties" with Article 13 of the Agreement (as cited in Granmayeh, 2004, p. 19). Other than that the vessels belonging to USSR or Iran had the right to sail under their own flags over the

entire Caspian Sea. With this last treaty to be signed between the Soviet Union and Iran, the regime governing the Caspian Sea resembled a condominium (Granmayeh, 2004, pp. 17-19). However none of these treaties touched upon the issue of delineation of the seabed of the Caspian Sea (Nadim, Bagtzoglou & Iranmahboob, 2006, p.159; Kvitsinskaya, 2007, p. 495). Russian petroleum operations after these treaties were signed had been carried on without asking for the permission of Iran, violating the common ownership regime they have adopted with these treaties (Joyner & Walters, 2006, p. 183).

After the collapse of the Soviet Union, the number of the littorals to the Caspian Sea has increased due to the formation of four successor states. Azerbaijan, Kazakhstan and Turkmenistan declared independence in the former lands of their respective Soviet Socialist Republics, while the Russian Federation inherited the land of Russian Soviet Federated Republic from the Soviet Union. The legal status of the Caspian Sea had to be revisited, since the international treaties concerning the issue was argued to be rendered obsolete for one of the signatories, the USSR, did not exist any longer.

The stance of the Russian Federation and Iran was that the 1921 and 1940 treaties served well for constituting the basis of a legal regime for the Caspian Sea. The other three littoral states agreed to observe the international treaties signed by the Soviet Union, including these two, in the Alma-Ata Declaration of 21 December 1991, shortly after the collapse of the USSR. This was in line with the Vienna Convention of 1978, which states that "states that are newly formed should abide and respect previous treaties between predecessor states unless all states (newly formed and existing from the past) draft a new agreement" (as cited in Nadim et al., 2006, pp. 159-160). In accordance with this declaration Iran proposed the formation of a regional organization to supervise the joint utilization system including hydrocarbon exploration activities, transport, fisheries and environmental protection in the Caspian Sea. While on one hand this was being discussed from 1992 to 1994 at various meetings, on the other hand unilateral claims of national sectors and bilateral talks over the delineation of the seabed started. In spite of the Alma-Ata Declaration some of the littoral states started to

challenge the 1921 and 1940 treaties. The argument adopted by the Northern littorals – Russian Federation, Kazakhstan and Azerbaijan – was that the national sectors of each were already decided in 1970s by a Soviet document overseeing an allocation of economic zones in the Caspian Sea to each SSR. These economic zones were to be accepted as national sectors (Granmayeh, 2004, p. 20).

Still in the early 1990s, Turkmenistan and Kazakhstan adopted laws claiming national sectors and exclusive economic zones based on equidistance formula and the United Nations Conference on the Law of the Sea (1982) (Rabinowitz et al., 2004, p. 31). Azerbaijan on the other hand, officially denounced the rules laid down in the 1940 Agreement and signed a significant international agreement for the exploitation of hydrocarbons in the Caspian Sea in 1994, which is known as the Contract of the Century. With this agreement not only did Azerbaijan claim areas reaching beyond the median line, but also she did it unilaterally without asking for the consent of any other littoral state. The immediate response of some other littoral states, especially, Iran and Russia was negative. However the Russian stance softened due to economic benefits such as the prospect of Azerbaijan to export its oil through Russian pipelines, causing Iran to be isolated with her argument. In a meeting of foreign ministers of each littoral state in Ashgabat in 1996, a 45 mile-coastal zone and 20-mile fishing zone for each littoral was suggested by the Russian Foreign minister Primakov (Granmayeh, 2004, p. 22; Rabinowitz, 2004, p. 31).

The second half of the 1990s and the early 2000s witnessed bilateral treaties concerning the delineation of the Caspian Sea. The first littoral state to come up with an answer to the question if the Caspian Sea could be classified as a lake or a sea was Azerbaijan. Claiming that the body of water was a transboundary lake, the implementation of the United Nations Convention on the Law of the Sea was found applicable. In line with this argument, the solution she came up with was drawing of a median line equidistant from opposite coasts to create national sectors over which littoral states would have full sovereignty. Azerbaijan and Kazakhstan between themselves agreed to adopt this approach in 1997. Russia and Kazakhstan followed in 1998. Later in 2001 Azerbaijan and Russian agreement

also adopted this principle. As for Turkmenistan, the drawing of a median line to form national sectors was acceptable in principle; however Azerbaijan's Absheron Peninsula constituted a problem, since when it is taken into account while drawing the median line the end result is not favorable for Turkmenistan (Rabinowitz et al., 2004, p. 32). The middle part of the Caspian Sea holds valuable hydrocarbon deposits in the Kyapaz/Sardar oil fields which is the disputed area between Turkmenistan and Azerbaijan (Hines & Marchenko, 2006, p. 497). Despite this disagreement the relationship between these two countries is rid of hostility.

Although the north of the Caspian Sea seems to have solved the issue of delineation of the seabed, the same cannot be said for the south. Iran has first favored condominium. Although her stance has been modified later to dividing the Caspian seabed into five areas so that each littoral state would receive 20% of the seabed to exercise complete sovereignty on, she still opposes the median line approach. When the seabed is delineated with the median line approach Iran gets 12-13% of the seabed in the deepest part of the Caspian Sea where even if there was considerable hydrocarbon resources it would not be feasible to exploit them (Nadim et al., 2006, p. 161). The equal division formula, on the other hand, is more favorable for Iran in that some of the potential fossil fuel resources in the southern part of the Caspian Sea can only fall under her sovereignty and not Azerbaijan's with such terms (Rabinowitz et al., 2004, p. 32). However this overlap in the areas, where these two littorals claim sovereignty on, is likely to cause problems. The first military act in the Caspian Sea since the collapse of the USSR happened between Iran and Azerbaijan when in July 2001 a warning to the foreign energy firms was issued by the Iranian Oil Ministry not to carry on their works with the other littoral states in these disputed areas. Iranian ships intercepted a British Petroleum ship licensed by the Azeri government doing seismic exploration in this region the next day (Rabinowitz et al., 2004, p. 32). Azerbaijan's effort to ease the relationship by giving certain concessions to Iran, such as participation in the oil operations carried out in this region, was refuted by the U.S. companies causing further unease between these two neighbors.

Apart from what is being practiced by the littoral states, the relevant solutions to the question of the legal regime to govern the Caspian Sea may be found in international law. There are three possibilities for the status of this body of water. Firstly, it may be regulated as an open sea, which means that according to the United Nations Convention on the Law of the Sea (UNCLOS), each littoral would have the right to 12 miles of full sovereignty (UNCLOS, Agreement Relating to the Implementation of Part XI of the Convention, 1982, Part 2, Section 1, Article 3, p. 27), and 200 miles of exclusive economic zones in which they can exploit all resources but their sovereign rights would be curtailed. Secondly, it may be regulated as a closed basin according to which full sovereignty could be exercised in a 20-mile territorial water body while the exclusive economic zones would decrease to 20 miles. Lastly, the Caspian Sea may be regulated as a transboundary lake, where each littoral would be entitled to the exercise of sovereign rights in their respective national sectors defined by median lines drawn equidistantly from each opposite shore, which is the de-facto regime practiced concerning the seabed activities today (Nadim et al., 2006, p. 159).

The prospects for the categorization of the Caspian Sea as an open sea are slim. Although the definition of sea as "a part of the general body of salt water having certain land limits or washing a particular coast" in Oxford Online Dictionary seems to be suitable, the same dictionary goes on to define sea as "different parts or tracts of the ocean" (Sea, n.d.). Although the Caspian Sea is connected to the Black Sea via Volga, the channel's navigability depends on seasonal climatic conditions. Furthermore it is a national waterway under the jurisdiction of the Russian Federation, which cannot be deemed "open, international links to the world ocean" (Joyner & Walters, 2006, p. 184).

On the other hand the definition of lake seems to perfectly suit the Caspian. Oxford Online Dictionary defines lake as "a large body of water entirely surrounded by land, one sufficiently large to form a geographical feature" (Lake, n.d.). Being "the largest inland body of water on the planet" (Joyner & Walters, 2006, p. 173), entirely surrounded by five littoral states, the Caspian Sea seems to have no problem in fitting the bill. However the existence of extremely valuable

resources and the complicated legal and political history in the basin makes this great body of water unique in more than geographical terms. The final decision to establish the legal status of the Caspian will possibly be affected by political perceptions more than by geographical definitions.

When it comes to pollution control and environmental protection in the Caspian Sea, although a condominium approach would have been a more holistic way of tackling with issues within the same ecological unit, in that it would give less sovereignty to each littoral state in their own sectors and more freedom and effectiveness to any regional organization dealing with environmental issues, the de-facto status is far from that. However as long as these problems are addressed jointly by all five littoral states with utmost determination, the advantages that a condominium regime would have brought can be enjoyed. Only when the jurisdictional matters are decided can "environmental standards with strict monitoring" be set (Rabinowitz et al., 2004, p. 36).

5.1.3. Treaties Among the Littoral States Concerning Environmental Protection

The earliest effort is the negotiations of the Russian Federation and Iran held in 1995 in Tehran. Along with issues concerning the legal status of the Caspian Sea and the regime to govern it, it was agreed that "coastal states are directly responsible for preserving the unique ecosystem of the Caspian Sea, and no activity that might damage the Caspian's natural environment is permissible" (Joyner & Walters, 2006, p. 188). Although the statement was to the point it was also a normative one, lacking an action plan as to how this responsibility would be executed and what the sanctions would be if any such activity takes place. This statement expressing a purpose lacked other parameters of effectiveness connected to the purpose, such as pace and action orientedness. Without these qualities the effectiveness of this negotiation is very low. However it is significant in that it

constitutes the first step taken for establishing an environmental legal regime in the Caspian Sea, leading the way for more effective developments.

The first legally binding document which lays down "the general requirements and the institutional mechanism for environmental protection" (Tehran Convention Homepage, n.d.b, ¶. 3) signed by all of the littoral states in the Caspian region is the Framework Convention for the Protection of the Marine Environment of the Caspian Sea, otherwise known as Tehran Convention, signed in November 2003, entered into force in 12th August 2006. The convention aims to protect "the Caspian environment from all sources of pollution and protect, preserve and restore the marine environment of the Caspian Sea" (Tehran Convention Homepage, n.d.a, ¶. 2).

Based on polluter pays principle and access to information principle, the scope of the convention is EIA, environmental monitoring, research and development to use Caspian living resources in a rational and sustainable manner. The convention was signed after eight years of negotiations as part of the Caspian Environment Programme under the auspices of United Nations Environment Programme. Conservation of Biodiversity, Protection of the Caspian Sea against Pollution from Land Based Sources and Activities, Environment Impact Assessment in Transboundary Context, and most significantly for the scope of this study, Regional Preparedness, Response and Cooperation in Combating Oil Pollution Incidents are currently being negotiated each as part of individual ancillary protocols.

The First Conference of the Parties to the Tehran Convention held in Baku in 23-25 May 2007, a draft convention action plan and draft national action plans have been negotiated as well as convention implementation plans. Along with these, intentions of developing an environmental partnership with the oil industry have been considered. A project dealing with environmental safety and health was decided to be implemented between July-December 2007 envisaged to be jointly funded by the United Nations Development Programme and oil industry. Along with these, significant progress concerning the four ancillary protocols has been

made. The Statement of Ministers at the first Conference of the Parties emphasized the need to establish "a regional mechanism for effective cooperation and coordination in case of major oil spills" (COP 2, 2008b, p. 1). They also expressed that they are ready to finalize the national approval process of the Protocol Concerning Regional Preparedness, Response and Cooperation in Combating Oil Pollution Incidents, so that it would be ready to be adopted and signed by the parties before or in the second Conference of the Parties (COP) held in 10-12 November 2008 in Tehran. However, it has not been ready to enter into force in the second conference of the parties to the Tehran convention, making this task to take its part as a suggested action to be finalized until the third meeting of the Conference (COP 2, 2008b, p. 3).

Projects, such as environmental partnership with the oil industry, are quite effective ways of dealing with the problem by successfully setting a target in a pertinent way with an action-oriented approach. However the current vacuum on the issue of the legal regime governing the Caspian Sea influences the effectiveness of the Tehran Convention negatively. Although it is cited in the framework convention as well as each draft protocol that nothing in these documents shall be interpreted as to prejudice the negotiations on the issue of the legal status of the Caspian, the unclear status and the lack of a legal regime seems to be problematic (Kvitsinskaia, 2007, p. 495). The main problem caused by the lack of a legal regime in the Caspian Sea is the problem of the "scope of application" (Kvitsinskaia, 2007, p. 469). Defining the borders for the ancillary protocols has been a challenge for the experts because of this problem. In the second meeting of the COP, on the issue of the negotiations concerning the Protocol Concerning Regional Preparedness, Response and Cooperation in Combating Oil Pollution Incidents, the terminology used became problematic due to the disputed status of the Caspian Sea. A disagreement over the term "Sectors/Zones of response" (COP 2, 2008b, p. 2) arose leading the Interim Secretariat to avoid the use of the term. Although this seems to be a simple documentation problem, it not only added up to other unresolved matters which have been putting off the protocol's entry into force, but also gave hints of future problems concerning the implementation of it.

Although the Tehran Convention has already entered into force as a binding legal document, the effectiveness of the protection it provides needs to be strengthened via these ancillary protocols due to the fact that it is a framework convention envisaging that:

> The Contracting Parties shall co-operate on a multilateral and bilateral basis in the development of protocols to this Convention prescribing additional measures, procedures and standards for the implementation of this Convention. (Framework Convention for the Protection of the Marine Environment of the Caspian Sea, 2003, Art. 6)

All the draft protocols have been prepared with an understanding combining international practices on the issue of multilateral environmental conventions with the specific requirements of the Caspian region (Kvitsinskaia, 2007, p. 496). This leads one to think that once these protocols enter into force the effectiveness of the convention in protecting the marine environment of the Caspian Sea will increase significantly (Kvitsinskaia, 2007, p. 496). However without these protocols the formal implementation mechanism is severely crippled. A striking example could be the case of the Protocol on Pollution from Land Based Sources and Activities. Although this is a problem tackled in the convention, it also envisages that without an additional protocol formal implementation of the decisions taken can "be neither enforced nor controlled" (Kvitsinskaia, 2007, p. 497). On the other hand the protocols are still being negotiated and time schedules for their entry into force have been breached, which points to the lack of the parameter of time.

As mentioned earlier the Protocol Concerning Regional Preparedness, Response and Cooperation in Combating Oil Pollution is the most relevant ancillary protocol to be analyzed for the scope of this study. This protocol basically is an emergency plan supporting a previous agreement among the littoral states, namely the Caspian Sea Plan on Regional Cooperation in Combating Oil Pollution in Cases of Emergency 2003. It not only acts as a legal basis strengthening this agreement, but also supports the Tehran Convention which calls for ancillary protocols to make the implementation of measures more specific, increasing the environmental

effectiveness when it enters into force. Although the protocol has been finalized in principle during an expert meeting held in Tehran in September 2005, it is yet to enter into force. Despite the fact that when it enters into force it is expected to boost the effectiveness of the convention, Kvitsinskaia (2007) pointed out to two major problems concerning the finalization of this protocol. Both of them are connected with the disputed legal status of the Caspian Sea.

Firstly, she stated that the countries are reluctant to take responsibility for national oil pollution preparedness in the absence of clear marine boundaries (Kvitsinskaia, 2007). This is a major problem since both the protocol and the 2003 agreement relies on a combination of national oil spill preparedness and response mechanism, and a regional mechanism for coordination and cooperation among littoral states. This combination provides a holistic approach leaving no weak link in the chain of implementation by creating overlapping jurisdictions between regional and national mechanisms. However, without any will on the part of the contracting parties the effectiveness of both the protocol and the agreement will decrease significantly due to the inapplicability of this strong implementation mechanism.

Secondly, designation of national sectors/zones was found to be quite problematic due to the disputed status of the legal regime in the Caspian Sea, which may cause delays in the implementation of the protocol. Since this is an emergency protocol, delays may mean huge ineffectiveness (Kvitsinskaia, 2007).

All in all, although the protocol is a well-thought out, pertinent legal document, supporting previous agreements and strengthening the convention; the problem of the lack of a legal regime governing the Caspian Sea once again enters the picture as a significant obstacle keeping these efforts from being more effective by creating unclear zones of authority and postponing the entry into force. However, Kvitsinskaia (2007, p. 498) also noted that the international practice shows that such legal documents most of the time need a longer span of time for all the parties to negotiate and ratify the document. When compared to similar multilateral agreements, these four protocols have been developed relatively more quickly (Kvitsinskaia, 2007, p. 499). She assessed this pace as reflecting the commitment

of the littoral states to the joint creation of an environmentally secure Caspian Sea (Kvitsinskaia, 2007, p. 499). Although at the time of this assessment the protocols were expected to enter into force at the second Meeting of the Conference of the Parties in 2008, they failed to do so to this day and are expected to finalize in the third meeting to be held in Kazakhstan in 2010 (COP 2, 2008a, Art. 5). Even if Kvitsinskaia had been right in emphasizing the relative rapidness of the preparation of the ancillary protocols; as the timely manner disappears, so does the effectiveness of the draft protocols.

It should be noted that although the parties to the convention started to lag slightly behind the time schedule, certain developments concerning the implementation have been made. A comprehensive document has been prepared as a framework for the implementation of the convention and the protocols, named Strategic Convention Action Programme (SCAP) (Tehran Convention COP2, 2008, p.1). With this kind of an agenda, overseeing ten years of implementation of these legal documents the whole effort becomes even more action-oriented. In a world of normative statements lacking actual implementation mechanisms, such an agenda makes a difference in terms of environmental effectiveness. Apart from its action-oriented nature, the SCAP meets another important parameter of environmental effectiveness as well with its holistic approach. The document brings together all the contracting states, "UN specialized agencies, local, provincial and regional authorities, non-governmental organizations involved in the protection of the Caspian environment and the promotion of sustainable development and organisations representing economic activities" in its formulation and implementation (Tehran Convention COP2, 2008, p. 8). The involvement of international, regional, national and local authorities along with NGOs and representatives of economic activities together means that all actors from different levels of authority, public and stakeholders contribute to the solutions. A major advantage brought by this is that it causes a more holistic, integrated approach. However it also means that with the participation of too many actors time schedules may not be met due to lengthy negotiations.

This cooperation among national, regional and international levels of authority, stakeholders and NGOs, as well as the contracting parties within themselves constitutes one of the major strengths in the implementation of SCAP. Along with this cooperation, EIA, monitoring, research and development, and exchange of and access to information have been identified as the major procedures for the implementation of the convention and its protocols (Tehran Convention COP2, 2008, p. 20-24).

SCAP (2008) is a significant document not only because it is the major document on the issue of implementation by which the Tehran Convention assumes genuine environmental effectiveness, but also because of its comprehensive nature. The fact that it comprises of diverse issues all of which are relevant to the issue of environmental protection of the Caspian Sea also proves its pertinence. It not only seeks to explain different sources of pollution from land based sources to seabed activities and vessels, but also suggests regional strategies for pollution reduction, pollution prevention, monitoring and control measures (SCAP, 2008, p. 10).

These comprehensive measures and strategies are seemingly action-oriented and varies from research for identifying and characterizing contaminated sites to regional water quality monitoring and compliance monitoring, enforcement of pollution control and prevention (Tehran Convention COP2, 2008, p. 10), development of economic instruments to encourage reductions in polluted discharges to support the polluter pays principle and development of programmes to encourage implementation of cleaner technologies by local industries corresponding to ISO 14000 (Tehran Convention COP2, 2008, p. 27).

SCAP (2008) also consists of cases of environmental emergency “in the event of accidents and other pollution incidents originating from ships, pipelines, fixed and floating platforms, and abandoned wellheads and land-based sources of pollution” (p.15). The idea behind it is the same as the Protocol Concerning Regional Preparedness, Response and Cooperation in Combating Oil Pollution in that it seeks to harmonize national oil spill contingency plans to be finalized and approved with a Regional Centre for Preparedness, Response and Cooperation in

Combating Oil Pollution in Cases of Emergency to be established within a Caspian Sea Plan concerning Regional Cooperation in Combating Oil Pollution to be developed. Apart from these, it seeks to undertake regional risk assessments and "develop a Natural Disaster Preparedness and Mitigation Plan for the Caspian Sea" (Tehran Convention COP2, 2008, p. 15). Although these point out to a very inclusive environmental emergency plan its elements are still expected to be developed, established, finalized or approved which means that the actual effectiveness of all these measures are yet to be seen. Furthermore, the Regional Centre for Preparedness, Response and Cooperation in Combating Oil Pollution in Cases of Emergency never materialized due to the disagreements during COP2 while SCAP document was approved.

With no concrete development at hand it is hard to speculate on the effectiveness of the document, however the main analysis parameters adopted in this study might give one an idea. Firstly, the purposes of each section are well-established and clearly pointed out. Secondly, the measures to be taken do not beat around the bush but are quite to the point. Thirdly, the fact that a time limit of ten years has been envisaged for these development or establishment processes is a positive signal on environmental effectiveness. Fourthly, the approach adopted in the SCAP is holistic in terms of the actors concerned and comprehensive in terms of the issues covered which are good signs for environmental effectiveness. Finally, the SCAP seems to consist of action plans for each individual problem concerning the marine environment of the Caspian Sea. These plans are supported with a time schedule as well, showing the commitment of the parties to the convention. All in all, the SCAP in itself is quite a successful document in terms of meeting the parameters set for environmental effectiveness analysis.

5.1.4. Conclusion

To analyze the effectiveness of Tehran Convention and its ancillary protocols one cannot rely on statistical data since the convention is a framework convention which is not completely effective without its protocols, and the protocols still have not entered into force. This situation makes the parameters adopted in this study applicable.

The Tehran Convention is successful in fulfilling the parameter of holism, since it requires the repeated commitment of the states by the organization of Conferences of the Parties on a periodical basis and bring together international bodies, like UN agencies, both for technical aid in activities like monitoring and for funding.

The Convention is successful also in pointing out to the main purpose of the effort in a clear way. However its nature as a framework convention renders it insufficient when it comes to developing relevant policies and ensuring their implementation. Thus, for the development of implementation and enforcement mechanisms the protocols need to enter into force as soon as possible. The need for the protocols to support the framework convention is emphasized in the main document of Tehran Convention as well. The entry into force of these protocols will not only make the framework convention more relevant by addressing the major problems, developing policies to solve them and ensuring their implementation in a pertinent fashion, but also add up to the effectiveness with their action-oriented approach. The framework convention alone is a normative document pointing out to no particular action strategy for reaching the goals laid down. For an actual strategy it needs to be supported by ancillary protocols. These protocols had been planned to enter into force in the second Conference of the Parties, which also presents itself as a deadline which would have contributed to the fulfillment of the time parameter, but the littoral states failing to meet this deadline postponed entry into force until the third Conference which will take place in 2010.

Another significant document enhancing the framework convention in terms of action plans is the SCAP. The approval of SCAP in 2008 considerably increased the possibilities of project development and implementation which added up to the relevancy and instrumentality of the framework convention. SCAP is significant not only because it enhances the framework convention in terms of applicability but also for it sets a time schedule for certain targets to be reached. According to the document, it constitutes an action plan for the implementation of the purposes laid down in the framework convention and its ancillary protocols for a period of ten years. Although ten years seems to be a long period of time for meeting targets, when a multilateral convention concerning environmental protection is concerned the difficulty of having each littoral state to make substantial commitments should be admitted.

As mentioned earlier, SCAP in itself is a very successful document enhancing the effectiveness of the framework convention in many ways. However the delay in the entry into force of the ancillary protocols constitutes a shortcoming for the time parameter. The purpose of the protection of marine environment of the Caspian Sea is well established. Most of the policies, such as negotiations with international oil companies for enhancing green technologies in the oil industry, are to the point. Some others, such as the suggestion of I.R. Iran to declare 28th August as Caspian Day to raise awareness, are less instrumental but not completely irrelevant. Successful examples in terms of actual implementation of some policies are observed like the example of ecotourism from Azerbaijan as mentioned earlier in Chapter 4. These account for the success in the action oriented approach adopted via SCAP. Another strength of the legal body is that the policy development processes are enriched by the contributions of economic stakeholders, NGOs representing the public and representatives of authorities from local, national, regional and international levels. However this endeavour to enhance the holistic approach in finding solutions and ensuring that they are implemented by giving responsibility to authorities with overlapping jurisdictions are severely hampered with one major problem which has not been solved concerning the Caspian Sea. The lack of a legal regime of and a clear status for the Caspian Sea renders the implementation of the measures taken and their legal

enforcement difficult since the littorals still are unsure of their responsibility zones. Although both the framework convention and its ancillary protocols emphasize that nothing in these documents shall be interpreted as to prejudice the negotiations on the issue of the legal status of the Caspian Sea (Kvitsinskaia, 2007, p. 495), without settling the legal dispute on the issue of delineation, genuinely holistic and action-oriented policies are hard to implement since it still is disputed if the name of the jurisdiction area is zone or sector, let alone whose the area of jurisdiction for the implementation of a particular policy is.

5.2. International Measures

5.2.1. Introduction

Although the environmental problems related to hydrocarbon activities in and around the Caspian Sea are caused by regional sources, the solutions to these problems require regional and national, as well as international commitments for the reasons suggested in Chapter 2. The environmental problems connected to the Caspian Sea, although it is a closed basin, has international implications. Furthermore, it is linked with the Black Sea via the Volga River and as Cutler (1999) put it:

> [T]he entire metaregion from the Caspian Sea to the Black Sea and beyond, including all their littoral states from the Balkans through Central Asia, has become the focus of new sets of international and transnational networks of interdependence. (p. 255)

The environmental problems in the Caspian region necessitate the involvement of scientific communities, civil society and policy makers for adopting goals, targets, action plans and strategies jointly, since the ecology of the basin is not subject to political borders. This regional integration is the only viable way of establishing a common decision making and monitoring mechanism. However in reaching a consensus among states, which is rather difficult for it necessitates domestic legal

and political changes, help from international organizations in organizing and sometimes financing the necessary developments is highly instrumental (VanDeveer, 2000). As previously mentioned in Chapter 2, Keohane, Haas and Levy (1993) further argue that the involvement of international organizations also contribute to the commitment of the states to the solution of the problem via monitoring, "timetables for action [and] regular policy reviews"(p. 23).

Apart from these positive uses of the involvement of the international organizations to an environmental problem which at first sight may seem regional, it should be reminded that the problems caused by hydrocarbon activities in the Caspian Sea have global implications as well as regional and national. The carbon emissions released to the atmosphere with the increasing use of fossil fuels and worse still with the flaring of the gaseous byproducts in refining processes as mentioned in Chapter 1, add up to the greenhouse gases ending up in contributing to global warming (Speth, 1990). Additionally, the Caspian Sea is said to be "an object of paramount global importance", since it is a unique "recorder of moistening of the continents in the Atlantic section of the Northern Hemisphere" with the variations in its sea level (Zubakov, 2001, p. 280).

These information offer that not only do the measures taken to protect and to restore the Caspian environment need international contribution, but the measures taken to deal with global international problems also need to cope with regional sources of pollution to be effective. In this section, the international organizations and their work carried out jointly with regional organizations and governments in the Caspian Region are elucidated.

5.2.2. Conferences, Conventions and Projects

As mentioned previously in Chapter 2, environmental problems started to gain significance in the international arena in late 1960s and early 1970s. One of the

first significant efforts by the international political decision makers was the 1972 UN Conference on the Human Environment. Protection of the environment of the regional water bodies was for the first time taken into the agenda of an international conference, although the water body concerned was the Baltic Sea, not the Caspian Sea. However, this induced work in this field and led to the establishment of the United Nations Environment Programme (VanDeveer, 2000).

Another document which constitutes the basis of international endeavors for the regional seas is The United Nations Convention on the Law of the Sea of 1982. Among the littoral states of the Caspian Sea, this convention has been ratified, as of July 2009, by Russian Federation only. Although Russian Federation has ratified the convention and its implementing agreement namely Agreement relating to the implementation of Part XI of the Convention of 10 December 1982, on 12 March 1997, its applicability to the Caspian Sea remains ambiguous ("Chronological Lists of Ratifications of, Accessions and Successions to the Convention and the Related Agreement as at 04 May 2009," 2009). This inapplicability is not only because of the nonexistence of the other states' ratifications, but also of the lack of a settlement on the dispute over the legal regime governing the Caspian Sea. As previously touched upon, the measures concerning the delineation of various water bodies cannot be implemented to the Caspian Sea, since the nature of this water body has not been agreed upon and the current system is sui generis based on bilateral arrangements, predominantly concerning the northern part. However it constitutes the backbone of international law concerning water bodies and scholars, such as VanDeveer (2000) argue that "the United Nations Law of the Sea have important roles to play in protecting ecological quality in regional seas" (¶. 6).

A similar international arrangement instrumental in setting objective criteria for the required EIA activities is the 1991 Convention on Environmental Impact Assessment in Transboundary Context, which is also referred to as the Espoo (EIA) Convention. It defines the parties obligations in EIA which is a procedure typically carried out during the planning processes of industrial activities. The Convention also establishes it obligatory for parties to notify each other in case of

any transboundary effects. This convention entered into force on 10 September 1997 (United Nations Economic Commission for Europe, n.d.). Azerbaijan and Kazakhstan have gone through the accession process in 1999 and 2001 respectively, whereas the Russian Federation, in spite of being one of the signatory states in 1991 neither approved nor ratified the Convention yet. Iran and Turkmenistan on the other hand are not parties to the Convention (United Nations Treaty Collection, 2009b). This could have created reciprocity problems, especially in issues related to notification of the transboundary effects, since some states would have to comply with these rules while others do not. However, the Tehran Convention sets similar rules inspried by the Espoo (EIA) Convention reinforcing this in its access to information principle. Protocol on Environment Impact Assessment in Transboundary Context, one of the ancillary protocols of the Tehran Convention establishes similar rules, to be binding for the Caspian littorals once it enters into force.

United Nations organized a Conference on Environment and Development in 1992, which is also known as the Earth Summit. The resulting document of this summit has been the UN Convention on Biological Diversity which entered into force on 29 December 1993. The objective of this document is ensuring the conservation of biodiversity, its sustainable use and fair and equitable sharing of its benefits (United Nations Environment Programme, 1993a). This document has been ratified by Kazakhstan in 1994, the Russian Federation in 1995, Iran in 1996, while Turkmenistan's accession took place in 1996. With the approval of Azerbaijan in 2000, all of the Caspian littoral states are now parties to the Convention and the UN Convention on Biological Diversity governs the Caspian Sea as well (United Nations Environment Programme, 2009b). With the addition of the national reports and national biodiversity strategies and action plans prepared for each contracting party and the national legal arrangements in this issue, explained under national measures earlier, merging of international, national and regional is achieved in biodiversity.

The UN Convention on Biological Diversity and the ongoing conferences of the parties as a whole constitutes a comprehensive, effective, coherent structure in

light of the parameters adopted in this study. Not only is it succesful in leading the way for the integration of international, regional and domestic efforts in a holistic manner, but also is action oriented with the conducting of studies and works within strategic action plans and time targets. The current set of planned actions, for instance, is established in the name of Biodiversity Target, set for 2010 the International Year of Biodiversity. These are a set of goals which are planned to be achieved by 2010 aiming to initiate "a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth" (United Nations Environment Programme, 2009c, Background section, ¶. 1) .

The Convention on International Trade in Endangered Species (CITES) basically is an international agreement, which entered into force in 1975 establishing rules for the trade of animals and plants ensuring that their survival is not threatened by international trade activities. Four littoral states of the Caspian Sea, excluding Turkmenistan are parties to the Convention. The relevancy of the convention to the Caspian Sea is that since the sharp decline in sturgeon catch since 1970s, CITES adviced the littoral states in 2001 to stop sturgeon trade on a temporary basis and reduced annual export quotas in 2004-2005 (Joyner & Walters, 2006, pp. 195-196). As mentioned in Chapter 3, the heavy fishing and poaching activities on the one hand, oil pollution especially in the shallow waters of the Northern Caspian where the sturgeons spawn on the other, had been seriously threatening the ecological balance against these species (Dahl & Kuralbayeva, 2001, p. 436). These measures along with Kazakhstan's embracing of the Principle of Zero Discharge for the Caspian Sea, which is elucidated in the section on national measures are positive steps in restoring and preserving the ecological balance of the Caspian Sea, with an understanding integrating international with domestic.

One of the most significant of the international efforts concerning the protection of the Caspian environment is the Caspian Environment Programme (CEP), which started in 1998 with the sponsorship of World Bank, United Nations Development Programme (UNDP), UNEP and the European Union (Nadim et al., 2006, p. 162).

The Global Environment Facility (GEF) is also a provider of funds for the achievement of monitoring, prevention of pollution, protection of the environment and biodiversity via workshops and education activities (VanDeveer, 2000). Its action area includes the Caspian Sea surface and 100 kilometers inland to its coasts (Nadim et al., 2006, p.162). The main objectives of the programme are carrying out research activities conerning environmental protection of the region efficiently in a coordinated way, preventing the environmental degradation and restoration of the environment and establishing a system for the management of regional data (Panin & Mamaev, 2002, p. 256). At first it was planned to be a four year project open to be extended with additional projects to be made within these four years. In this four year period, an action plan was adopted, aiming to:

> establish a coordination bureau of the Caspian Environment Programme and a network of regional subject centers, to carry out the Transboundary Diagnostic Analysis, to work out the National Caspian Action Plan, Strategic Action Plan ...., and a framework convention on marine environmental protection. (Panin & Mamaev, 2002, p. 256)

The mentioned framework convention on marine environmental protection later materialized as the Tehran Convention, explained in detail in the section on regional measures. National Caspian Action Plans, on the other hand have been worked out periodically, the latest one for Turkmenistan adopted in 2002, for the rest of the littorals in 2003 (Caspian Environment Programme, 2005). Furthermore, in cooperation with UNEP, UNECE and European Bank for Reconstruction and Development, useful publications like the Guidelines on Environmental Impact Assessment in a Tranboundary Context in the Caspian Sea Region 2004, are being published, both constituting a basis for the concerned protocol of the Tehran Convention and boosting the effectiveness of the Espoo (EIA) Convention for its parties by creating reciprocity among the littorals which are parties to it and which are not. In addition to these, Caspian Transboundary Diagnostic Analysis is carried out under the auspices of the CEP. It basically is an environmental and economic assessment of water-borne environmental problems on national, supra-national and inter-national levels. It also pays attention to socio-economic and political implications of these problems (Caspian Environment

Programme, 2004). It adds up to the value of this regional endeavor supported by many international organizations and regional governments, in bringing different layers of decision making together to ensure an integrated assessment and solution for the environmental problems concerned. The Caspian Environment Programme is an effective effort, with its action-oriented strategies and action plans, targets and timetables, holistic mechanism and successful achievements like the Tehran Convention.

Another significant international document concerning the states around the Caspian Sea is the Kyoto Protocol, which is an addition to the United Nations Framework Convention on Climate Change (UNFCCC). Kyoto Protocol's purpose is to solidify the legally binding measures of the UNFCCC in combating global temperature increases mainly with the reduction of greenhouse gas emissions (UNFCCC, n.d.b). As mentioned earlier, the Caspian States are contributing to the greenhouse gases with the carbon emmissions which are released to the atmosphere during the oil exploitation processes via practices like flaring of natural gas. Even Iran, which does not conduct any genuine hydrocarbon exploitation activity in the region yet, is a significant contributor of carbon emmissions due to extreme air pollution as explained in the subsection on the national measures taken by Iran. This regional contribution to a global problem necessitates an integrated solution, at which the Kyoto Protocol aims.

The protocol entered into force on 16 February 2005 (UNFCCC, n.d.b). Although the ratification process has been somewhat problematic with United States' decision on not ratifying it, the treaty entered into force with the ratification of the Russian Federation in November 2004 ("Kyoto Protocol Will Take Effect in Feb.," 2004, p. 5). This move of the Russian Federation is said to be unexpected and motivated by the idea that with it she would "gain leverage in other international negotiations, and contribute to an image of itself as a good member of the club of advanced industrialized states" (Henry & McIntosh Sundstrom, 2006, p.1). For whichever motivation, with the fact that the Russian Federation has ratified the Protocol, the stalled process was revived and the Protocol entered into force. The

ratification status of the rest of the Caspian states are as follows: Turkmenistan on 11 January 1999, Azerbaijan on 28 September 2000, Iran on 22 August 2005 (UNFCCC, n.d.a). According to the official web page of UNFCCC, Kazakhstan is yet to ratify the Protocol which bears her signature of 12 March 1999 (UNFCCC, n.d.a).

The effectiveness of the Protocol may well be questioned. Although its main purpose is to boost the effectiveness of UNFCCC by solidifying its legally binding nature, the process of entry into force had been dragged for a long time (Henry & McIntosh, 2006, p. 1). This kept the Protocol from being implemented for years, during which greenhouse gases continued to be released to the atmosphere without a proper restriction. There had not been a deadline for the ratification process; however the delay does not fit in with the parameter of time. Additionally, Henry and McIntosh Sundstrom (2006), doubted that "Russia's implementation strategy will likely be directed more at maximizing profits through treaty mechanisms to modernize industrial sectors than at maximizing emissions reductions" (p. 1). Implementation of measures is a major problem in the countries surrounding the Caspian Sea. As the section on national measures points to, domestic measures can sometimes be overlooked and timetables may be brushed aside. However, as discussed earlier in Chapter 2, the very nature of international binding documents creates more solid frameworks, which "call for states to demonstrate repeatedly their commitment to solving the problem at hand" (Keohane et al., 1993, p. 23).

Apart from the Conventions, projects developed by international bodies also make efforts to answer the environmental problems of the Caspian Sea, most of which are caused by the hydrocarbon activities in the region. One such project is the project which started in 2003 with the funding by GEF and the cooperation UNDP and UNEP, aiming to ameliorate four regional environmental problems, which are "unsustainable use of biological resources; other threats to biodiversity, including invasive species; pollution; and unsustainable coastal area development" ("$6.5 Million GEF Grant for Caspian Sea Protection", 2003, ¶. 4).

To cope with the pollution which all littoral states are releasing to the Caspian Sea, European Union also developed a project in which all littorals except for Iran, which remained an observer, actively participates in, in 2007. Consultancy within Engineering Environmental Science and Economics (COWI) in cooperation with a Dutch company named DVH started working with the European Union in the research on establishing the pollution sources and creating an action plan to cope with those. The target is to cut back pollution to "acceptable levels within a generation" (Isager, 2007). These claims are far too vague. What are meant by acceptable levels and what the time span of "within a generation" is are not clear. With such an ambiguous target and unclear time period, chances are that the effectiveness of this project is very unlikely to be profound. Yet on a brighter note, the project also aims to support the Caspian littorals to establish a viable "legal, technical and administrative framework for the environmental work in the sea" (Isager, 2007, Formulating Frameworks section, ¶. 1). Not only incompetence is a loophole in domestic implementation, but also this cooperation points out to a joint work adding up to the criteria of holism.

Conferences with the purpose of answering different issue areas related to the Caspian environmental restoration and protection are being held as well. One such example to these is the latest one held in Dushanbe on 21 May 2009, organized by the Organization for Security and Cooperation in Europe, the European Commission, UNECE and the United Nations Institute for Training and Research. The main aim of the conference was increasing awareness for the signature and ratification of the PRTR. This protocol is a component of the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters otherwise known as the Aarhus Convention, which had been adopted in 1998. This Convention is significant in that it established the rights of "access to information and public participation and access to justice" for environmental political decision making procedures fundamental ("Introducing the Aarhus Convention," n.d., ¶. 7). Additionally it was claimed that "sustainable development can be achieved through the involvement of all stakeholders" ("Introducing the Aarhus Convention, n.d., ¶. 2). Aarhus Convention entered into force on 30 October 2001. Of the five states surrounding the Caspian

Sea, the accession of Turkmenistan and Azerbaijan took place in 1999 and 2000 respectively, while Kazakhstan ratified the Convention in 2001 (United Nations Treaty Collection, 2009a). None of the littoral states, on the other hand have signed, ratified or acceded to the PRTR. The Aarhus Convention, aiming to create room for public involvement in environmental politics by relating human rights with environmental protection is a very bold move, further consolidated with pertinent protocols for certain strategies. If it becomes successful in incorporating as many parties as possible both for the framework convention and for the entry into force of the PRTR, it promises to be a global success. However, these tools, which can be of significant use for the Caspian governments, plagued to a certain extent with problems concerning genuine involvement of public opinion in environmental decision making mechanisms, requires ratification by each littoral.

5.2.3. Conclusion

In conclusion, the analysis of the effectiveness of these international measures in coping with the Caspian environmental problems related to the development of the hydrocarbon resources proves to be a barter of the three effectiveness parameters. Where there is comprehensive participation, timetables are vague or action plans are ambiguous. Where there are strict legally binding conditions, genuine strategies and deadlines requiring rapid implementation, such as the Aarhus Convention and the PTRT, participation is less. Additionally, not all of the conventions cited above bear the ratification of all littoral states in the region which in some cases may lead to reciprocity problems, unless it is not secured by regional commitments, such as the Tehran Convention. However the existence of the international cooperation in the form of conventions, conferences and projects in itself is positive for two major reasons.

Firstly, as mentioned before in Chapter 2, international organizations are typically weak and needs to work with governments for the implementation of the measures. Although it seems to be limiting some of the instrumental documents from

entering into force due to insufficient number of signatures, it also is a positive characteristic, since these measures do not exist without states' cooperation in the international platform with states and non-state actors to carry out the plans made jointly. This enhances the holistic understanding in dealing with environmental problems on the one hand, increases environmental awareness on the other.

Secondly, the involvement of international bodies, as previously mentioned, increase state's commitments by necessitating regular attention. Furthermore, the international cooperation more often than not, put pressure on governments to increase public and stakeholder participation as in the extreme example of the Aarhus Convention, which has the possibility to result in expansion of the holistic framework not only on an international or regional, but also on a domestic basis. Yet still, the achievement of more effective conventions with strict action plans bearing the ratification of all the Caspian littorals would have been ideal.

CHAPTER 6

CONCLUSION

The aim of this study has been to make an assessment of the measures taken to protect and preserve the Caspian environment, ecosystem and biodiversity in the face of the negative effects of hydrocarbon development activities which have been intensifying since the dissolution of the Soviet Union. To be able to make such an assessment, three main parameters of analysis has been identified. Since most of the endeavors are relatively new and still has not bore fruit, a result oriented approach was not adopted. The analysis parameters apply to the nature of the process, by way of which ambiguities in the causality chain could be avoided. The three parameters applied to environmental measures are time, action-oriented type of commitment and holism to assess the pace, form and inclusiveness of the action. The application of these parameters has been carried out in national, regional and international spheres.

The outcome of the analysis conducted in terms of national measures taken by each Caspian littoral to protect the Caspian environment against harmful effects of oil production shows that environmental awareness in each littoral state has been finding ground to thrive in the recent years. Worries concerning the Caspian environment have been making their way into state policies regarding environmental protection as priority areas in the recent years. The environmental legal systems inherited from the USSR have been undergoing a process of enrichment, enhancement and change where necessary, since the dissolution of the Soviet Union. Although there is no uniform outcome for all littoral states concerned, there is a pattern of upward trend in terms of the importance given to environmental protection of the Caspian Sea.

One of the aspects where the practices of the littoral states show resemblance to each other in domestic realm is the nature preserves. It has been found that a system of strict nature preserves and national parks exist in all five littoral states. This element indeed is a positive implication in that it indicates a domestic commitment on the part of the littoral states to preserve and protect the environment and stands for a certain degree of environmental sensitivity on the part of the governments. However it has its own problems concerning the implementation process. While some are threatened by certain industrial projects, as in the case of the Tunkinskii National Park in Russia for the sake of a new pipeline project, some others, such as those in Iran are found to be insufficient ("National CDB Reports I.R. Iran," 2005).

One other, more significant trend concerning the effectiveness of the civil society organizations on the other hand do vary greatly in the region. While they are merely surviving deprived of their major role as means of public participation in political decision making process in Iran, they are thriving although slowly, in Kazakhstan. Yet in other examples like the Russian Federation, they are being stripped off their previous rights with recent amendments to the environmental law and their functions in terms of affecting decision making are curtailed. In Turkmenistan they have to cope with government's suspicions against their actions and have no means to deal with governmental censorship decreasing their media coverage. One periodical index study carried out by the USAID suggests that NGO sustainability in Kazakhstan (USAID, 2008b) is highest in the region among the four post-Soviet countries. Closely following it stand Russia (USAID, 2008c) and Azerbaijan (USAID, 2008a) respectively. While Turkmenistan (USAID, 2008d) is significantly lagging behind, no information on Iran is provided. However the power to influence decision making, even for Kazakh civil society is still said to be "not particularly successful" (USAID, 2008b, p. 127). Thus, one cannot make a generalization concerning the impact of NGOs in the region other than merely stating that it varies from mediocre to low. In this respect, it is found that in order for the environmental measures to be effective, the holism criteria needs to be fulfilled with the active participation of civil society organizations together with other state and non-state actors in the environmental decision making process. The

domestic checks and balances system a viable civil society sphere creates is not fully satisfied in the region which causes problems concerning the holism criteria.

Without this domestic checks and balances system it is found that there are cases where deadlines are not met. Although it is mentioned in the section on litrature review that the supra-national bodies create pressure for implementation of decisions, it has also been mentioned that the civil society organizations add up to the impetus in the domestic realm and strengthen the committments concerning environmental protection.

The lack of such a viable mechanism both leads to and is led by a major shortcoming on the part of the national administrations. The enforcement and implementation of national committments are found to be low, seriously hampering the environmental protection in the Caspian basin. The enforcement of both the national environmental legislation and abiding by supra-national commitments are found to be arbitrary rather than objective. The aforementioned case of the Mayak Nuclear Plant in Russia, which has been granted license although it did not meet the criteria set by the environmental law, is but one example to the arbitrariness in practice. It may be suggested that this is a combined result of favoritism brought by Soviet legacy and clan relations brought by the Caucasus and Central Asian culture. The problems in enforcement and implementation are threatening, since the whole system of environmental protection relies on state power and willingness in terms of environmental protection. As mentioned before, cooperation between national and supra-national levels is needed since the enforcement power lies within the jurisdiction of the states and the international bodies are capable of creating pressure to ensure that the states abide by their committments, as previously mentioned in Chapter 1. As long as states avoid objective practice of this inherent capacity the measures taken on national and supra-national levels would solely remain on paper. The insufficiency of the civil society sector in maintaining a viable checks and balances system deteriorate the situation. How wide-spread such arbitrariness in state actions is, is not clear, yet breaching of timetables, problems concerning civil

society sector and cases of favoritism leading to breaches of environmental laws are reported throughout the study.

This situation indicates that the holism criteria is not truly fulfilled, since the supervision and monitoring envisaged for the civil society organizations in each littoral state fails to be satisfied creating a major loophole in the effectiveness of the committments. The breaching of deadlines suggests that the action oriented strategies and plans may at times remain on paper and provides evidence that the time and action orientedness criteria are not fulfilled at times, as well. In spite of the fact that the evidence suggests that such arbitrariness is in individual cases only, lack of uniformity in implementation process constitutes a major deficiency in environmental effectiveness.

The analysis on the regional measures suggests that the upward trend in environmental concerns are stronger on a regional level, finally leading to a framework convention to be signed by all the littoral states for the protection of the marine environment of the Caspian Sea. The signing and ratification of the Tehran Convention in 2005 is found to be a milestone, in that for the first time all of the littoral states in the region committed to a set of rules and action plans for the amelioration of the Caspian marine environment, which has been suffering from the anthropogenic activities, most significant of all, development of hydrocarbon resources, for decades.

The Tehran Convention solidifies the environmental concerns via the organization of periodical meetings of the contracting parties, namely the Conferences of the Parties, which create strengthened commitment on the part of the littoral states. What is more is that the contribution of the UN agencies to the process helping the contracting parties in terms of both technical and financial issues creates a holistic framework in which cooperation for environmental protection takes place.

Yet the Convention is merely a framework convention, in need of its four ancillary protocols to enter into force, for the fulfillment of the rest of the criteria. Even the main document of the Tehran Convention expresses the necessity of these four

ancillary protocols in order for the framework to be viable. With these protocols the whole mechanism will be able to answer the needs of Caspian environment via precise strategies for four main areas of implementation, namely, Conservation of Biodiversity, Protection of the Caspian Sea against Pollution from Land Based Sources and Activities, Environment Impact Assessment in Transboundary Context, and most significantly for the scope of this study, Regional Preparedness, Response and Cooperation in Combating Oil Pollution Incidents.

In order for the framework convention to answer the major needs of the Caspian environmental problems in a more pertinent fashion via particular strategies these ancillary protocols are needed. However minor delays in the entry into force of these documents not only disrupt the time parameter but also have a negative impact on the action-oriented approach. A delay of two years has been envisaged for the entry into force of these documents for the time being. Yet again, another significant document within the scope of the Tehran convention compensates this deficiency in time and action orientedness parameters. SCAP came into force in 2008, boosting both of these parameters extensively. The document is an action plan envisaging a time framework of ten years for reaching targets concerning the amelioration of the Caspian marine environment. The normative arguments of the Tehran Convention are solidified with this document. The shortcomings in time and action orientation presented by the failure of the ancillary protocols' entry into force in time are made up for via certain projects of the SCAP, integrating stakeholders, such as foreign oil companies in the region, to the environmental protection process with the enhancement of green technologies to be adopted by the oil industry.

One of the positive impacts of the Tehran Convention is that some efforts of the main legal body, such as bringing economic stakeholder, NGOs, governmental organs and international agencies together in activities like the one mentioned above for enhancement of green technologies, increases the satisfaction of the holism criteria significantly while helping the NGO sector in dire need of development. In that, this regional cooperation not only increases the effectiveness of the environmental measures within its framework, but also contributes to the

national level by strengthening the NGOs by creating a platform where the public opinion can be more openly expressed.

However the lack of the legal regime in the Caspian Sea poses risks in implementation of Tehran Convention's policies. As mentioned in Chapter 5, the legal enforcement becomes difficult when the contracting parties are unsure of their responsibility zones. It has been made clear in the main body of the Convention that the document does in no way prejudice the negotiations concerning the legal status of the Caspian Sea, yet individual cases where even the terminology to be adopted in the action plans may cause delays in the process (Kvitsinskaia, 2007, p. 495). Although a sui generis legal status has been adopted via bilateral treaties in the northern section of the Caspian Sea, Iran still is opposing to the standpoints of the rest of the littoral states. The recent news of Iran's decision to develop her hydrocarbon resources in the Caspian Sea is thus disquieting news, since the cooperative environment initiated by the Tehran Convention may be endangered due to disagreements concerning the jurisdictions over certain hydrocarbon resources. In the wake of such a possibility, although Tehran Convention in general seems to be a great step forward in regional cooperation for environmental protection in the Caspian Sea Region, the lack of a legal regime in the Caspian Sea may cause the cooperative efforts to break down once an opposing contracting party initiates discussions on the issue of jurisdictions.

One may argue that, the regional efforts, mainly characterized by the Tehran Convention and its action plan SCAP, at large is a mechanism perfectly answering the needs of the three parameters of time, action orientation and holism, despite a minor delay in the entry into force of the ancillary protocols. However, as long as the delineation of the south of the Caspian Sea is not consolidated, new problems may ensue making it difficult, even impossible for the Tehran Convention to be a holistic, action-oriented framework where the littoral states cooperate for the environmental protection in the Caspian Sea. For genuine fulfillment of these parameters, the first issue to be solved in the Caspian Sea on the regional level is the problem of delineation.

As for the third level of analysis, the efforts made in the international level concerning the Caspian environment directly or indirectly are taken into consideration. As mentioned in Chapter 1, Chapter 3 and Chapter 5, the hydrocarbon activities taking place in the Caspian Region have implications not only on national and regional level, but on international level also. The flaring of natural gas, for instance, contributes to the carbon dioxide and carbon monoxide gases creating a greenhouse effect, adding up to global warming.

It has been found that the fulfillment of all three parameters of holism, time and action orientation cannot be found, concerning the international efforts in the field of environmental protection. They may be simulated as a barter, where one is existent the other is not. Where holism criteria is satisfied with the comprehensive participation of many contracting parties, ambiguous action plans or vague timetables make it difficult for the effort to be effective. When these criteria are fulfilled however, comprehensiveness in terms of participation decreases.

What is more, these international conventions are not always ratified by all of the littoral states of the Caspian Sea. This creates problems in their implementation since the parties which ratified such conventions are reluctant thinking that their actions are not reciprocated by the rest of the littoral states which are not subject to the same commitments. This is the point where overlapping commitments in national, international and regional levels become instrumental, since in some such cases similar commitments which are part of national environmental legislations or on the Tehran Convention creates reciprocity, rendering the reluctance on the part of the contracting states of an international convention due to questions of reciprocity inapplicable.

Evidence suggests that the international commitments increase the holistic way of cooperation due to their inherent weakness. As previously argued in Chapter 1, this weakness of international organizations means that they lack enforcement mechanisms, which are held by the states. This necessitates cooperation of states with international organs and consequently among themselves on the international

platform provided by the international agency concerned. Non-state actors', stakeholders' and public's opinion are integrated to the process where necessary by the international agencies, in cases where states might have chosen not to cooperate. These all suggest that the holism criterion is strengthened via international cooperation. Unfortunately, no such international platform has been initiated incorporating all five littoral states, calling for extensive cooperation with state and non-state actors. The most viable of all the international attempts, the Aarhus Convention still has not even been ratified by Iran and Russia.

However the repetition in the commitment via conferences of the contracting parties and the much needed pressure put on the governments by the international bodies for enforcement and implementation are valid for the rest of the international agreements bearing the signatures of the littoral states of the Caspian Sea. However not one international document fulfills all three of the environmental effectiveness parameters and all are confined only to contribute to one or two of these parameters.

All in all, the existence of the Tehran Convention and the progression characterized by the ongoing periodical conferences of the parties as a commitment to protecting the marine environment of the Caspian Sea, its projects bringing NGOs, stakeholders, such as international oil companies together, the international fora created by conventions such as UNFCCC and its Kyoto Protocol, Aarhus Convention or the Espoo (EIA) Convention all contribute to the fulfillment of the holism criterion. However the fledgling civil society sphere which has been mentioned as varying from mediocre to low in being incorporated to the environmental political decision making mechanism is a factor reducing the effectiveness of the measures by overlooking the holism criterion.

The NEAP and similar plans made on the governmental level, as mentioned before, are factors satisfying the action orientation criterion in the national sphere. The developing national environmental legislation, when coupled with the SCAP of the Tehran Convention and international arrangements like PTRT account for a genuine action oriented strategy rather than mere normative statements for

accomplishment of real remedies for the environmental problems of the Caspian Sea stemming from hydrocarbon resources. Yet the problems concerning the delineation of the Caspian Sea have been indirectly delaying the adoption of Tehran Convention's ancillary protocols, which decrease the effectiveness of the measures due to a delay in pertinent strategies. Furthermore, the lack of a legal status of the Caspian Sea may even be a factor further problematizing the whole legal body once Iran starts developing her hydrocarbon resources in the Caspian Sea, which is reported to be very soon.

It is argued that one of the most problematic of these three parameters is time. It has been suggested before that the efforts made in environmental protection are mostly time consuming. Yet on national levels individual cases of disregarding deadlines have been reported. The delay of the ancillary protocols of the Tehran Convention in entering into force is another problem, since some of their jurisdiction areas, such as the Regional Preparedness, Response and Cooperation in Combating Oil Pollution Incidents are of crucial value and may be rendered obsolete if an unfortunate accident takes place before it enters into force.

The major problems standing in the way of fulfillment of all three criteria are a typical weak implementation mechanism characterized by a lack of objectivity, favoritism and arbitrariness. The lack of a legal system establishing a commonly accepted delineation scheme have been somewhat problematic to this day, but seems to be increasingly so with the initiation of hydrocarbon development by Iran. The economic gains attained by each government via the hydrocarbon resources also contribute to neglecting the environmental problems brought by it. Where the 80-90% of the income of a single country is expected to be obtained via hydrocarbon resources in 2020, as mentioned in Chapter 2, overlooking its negative impacts becomes too easy.

Although these problems need to be solved to initiate a genuinely effective solution fulfilling all three parameters set forth in this study, it should be noted that awareness concerning the ill effects of the hydrocarbon production in the Caspian environment has been raised significantly. As things stand, environmental

effectiveness of the measures taken for the protection of the Caspian environment from the negative impacts of oil production is profoundly more advanced than before, yet still needs to be improved.

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