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Environmental Problems of Persian Gulf From Ecopolitical Perspective

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Abstract

Environmental risks and conflicts in the framework of the relations between countries and subsequently their role-playing in interaction and collaboration or conflicts and struggles between political actors especially in the level of states have reproduced serious discussions and disputes on environment, security and power which are interpreted as *environmental geopolitics* or *ecopolitics* by modern political geography.

Geographically, the Persian Gulf is a semi enclosed sea that has a very low capacity of self-dredging in comparison to high seas; hence, it retains the pollutants for longer periods of time. Some of its environmental problems arise from the various activities of the people residing along the northern and southern shores. Since this situation has exacerbated by the factors such as oil and it's subsequent pollutions, militarism and it's subsequent destructio and desalinasion of sea water and the construction of artificial islands, overall one can conclude that regional convergence among the countries neighbouring this body of water in the process of bio regionalism would be an essential necessity.According to the research findings, states acting in geopolitical region of Persian Gulf to produce power, security and to sustain them, from one hand, and to protect this shared aquatic ecosystem in the event of sustainable development, from the other hand, should mobalize all collective cooperations and operationalize the bioregionalism in regional and supranational scales.

Keywords: Ecopolitics; Persian Gulf; Institutional Proportionality, Environmental Risks.

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Introduction

The fact in geopolitical theories that human beings can collectively do widespread damage to the natural systems traces goes back to the 19th century, however this perspective to the issue as extensive concerns evolved from the World War II and also as serious debates in general geopolitics circles has raised during the recent decades. In this process, important concepts like: 'global issues' and 'global security' have been integrated into the geopolitics literature and environmental damages on natural systems rose to national and international security issues of western governments. The pattern emerging after 1970s and 1980s recognized the fact that powerful global institutions like Multinational Corporations and Multilateral Development Banks like World Bank whose scope of actions can globally spread over all places may cause major environmental risks and threats (O'Tuathail *et al.* 2001: 527). In this concern, it can be said that major part of the environmental problems regarding the Persian Gulf has an external source so that a majority in the world would extremely benefit from the energy sources in this region and never pay back their contribution to deterge the pollutant in return to their environmental share therefrom.

Conceptual and Theoretical Framework

1. Environmental Geopolitics

Way up to premodern era, the environmental issues were primarily state-intrinsic, mostly raised by political geographers and they were feasible to effectively deal with all environmental issues due to human actions in governments levels whether local or national. However in modern era, the mankind faces the phenomena such as internationalization and globalization of the environmental issues. In other words, supranational and transboundary dimensions of those issues have granted environment a geopolitical aspect.

Today, a large part of international relations ties pivot around the protection of the environment. If it is recognized and accepted that the increased utilization of the resources and the destruction of the Earth are the phenomena rarely encompassed and dealt within international borders, one

can obviously conclude that environmental issues must be discussed and debated explicitly in geopolitics. The fact that our World is getting 'contracted' means that human activities are expanding all throughout the biosphere according to the theory proposed by Vernadsky. He maintains that human agency in changing biosphere in fact, represents a geological transformation force on the Earth (Braden & Shelley, 2004: 235-36). Environmental issues in terms of environmental pollution, earth degradation and scarcity in resources due to wasteful exploitation all have turned into a source of threat to the states and affected the national, regional (supranational) and global policies (Braden & Shelley, 2000: 115). The resources in flow especially with their potential capabilities to trespass the borderlines are the subjects for the geopolitical conflicts. Therefore, environmental perspective points out the international conflicts and relations that occur in global level (affecting biosphere) or in regional level between two or more countries (affecting regional ecosystem) (Ibid: 236). Environmental issues will continue to control the main arena of geopolitics in the 21st century.

2. Ecopolitics

Ecology is a unique discipline that reminds us of a political movement as widespread as our entire globe. Furthermore, the actors in such an arena rarely include the expert scientists of ecology. Geographical factors have contributed to the development of ecological movements: in the Western Europe in the beginning of 1980s, the Euromissiles Crisis (during which the Red Army targeted new missiles onto the West) reminded the public opinion of the memory of Hiroshima and Nagasaki nuclear bombardment in 1945 and it encouraged the ecologists to mobilize against nuclear energy and disclose the sites of enrichment centrifuges especially built in France as a devastating danger (Lacoste, 2012: 192). Later on, the development of environmental crises and their aftermaths in relation with cooperative and collaborative or conflictual interactions between the groups, individuals and political actors became a main focus of attention on environmental issue for geopoliticians and experts in this field and this subject proved to be one of the schools of geopolitics. Environmental Geopolitics is also interpreted as Environmentalism or Green Geopolitics (Dodds & Atkinson, 2000: 360). Of

course, Castree and Dalby consider the terms "Geopolitics of the Nature" and "Geopolitics of the Resources" respectively as environmental geopolitics. For some, the relationships between the politics and the globe has become increasingly more important than ever so that the governments and the people may attempt to discuss and debate on such issues as the destruction and pollution of the environment, depletion of the resources, supranational pollution and global warming. Therefore, for an intellectual with some tendencies towards ecological issues and environmental policies, new geopolitics means ecological politics or ecopolitics (O'Tuathail *et al.* 1380: 23). Political ecology developed in the USA during 1968-1970 and revealed the distortions in the natural environment under the industrial development (Lacoste, 2012: 191). Political ecology enables the geography experts to examine the relationship between the physical environment with the processes affecting it and the human activities in general and modes of production in society in particular (Gallaher *et al.,* 2011: 23). Political ecologists aroused public opinion in mass media regarding the likelihood of environment disasters and also called the states on to adopt preventive policies so as to fight against environmental problems (Lacoste, 2012: 192).

3. Institutional Proportionality

In modern era, the human beings encounter the phenomena of internationalization and globalization of the environmental issues so that there is small spatial proportionality between the extent and scope of the country and the geographical scale affordable for the state to deal with the environmental issues. This shortcoming is due to the change in the scale of environmental issues that the states encounter. In exact words, the nature of most of the environmental problems is in a way that one knows how to deal with them, but there is an absence of an appropriate governmental structure to operationalize the solutions. This absence led Prins to recognize "the incapable state", i.e., after modern nationalism, the incapability of the states in satisfactorily supporting their citizens against such risks as water, weather, poisonous food and strong storms as well as rising sea level has been revealed. Dalby also approvingly writes, "The protection of the ecosphere as an active and onstream entity strongly involves the fact that the political

structures of the government should be questioned and absolute territorial sovereignty should be challenged for the sake of strategies based on the ecology."

Hereby, in the first phase, political geography and geopolitics pay heed to the questions concerning "Institutional Proportionality" and to the questions whether the geographical features of the political organizations responsible for environmental issues are appropriate for this expertise or not. In reaction to the "institutional proportionality", we face the fact that one individual sovereign state is too undersized and dimunitive to be able to cope with the issues in international or global scope (Muir, 1379; 427-29). What is important here to discuss is the very emergence of 'globally-, and in other words, supranationally-scalled environmental' perspectives as the object of analysis.

The above-mentioned perspective has provided the research groups with a framework about environmental sciences. The main reasons for the emergence of this perspective are as following. Firstly, the Earth, in it'self, is a unitary system within which biosphere is an active and essential component. Secondly, the activities of the modern human beings are extensive and widespread and their repercussions have influenced the entire globe in their swiftest and the most complicated manners (Dalby, 2005: 14). Accordingly, international borders can hardly ever narrow down the environmental systems and the environmental processes can trespass all these borders without any hinderance. Therefore, no matter how strict and severe the environmental rules and regulations of a country are, the welkin, waters and soil of that country are all exposed to pollution, erosion and even destruction due to the activities totally exterior to the borderline of that country and entirely out of control. It is even possible that the firm rules and regulations adopted by a country become null and void due to bad laws of another one (Johnston, 1992: 216). Therefore, the government is an obstacle rather than being instrumentally helpful in regulating the relations between the human beings and the environment, and certainly there would be some inconsistencies between the capabilities and challenges to the government leading to tensions between the government and the society (Muir, 2000: 443).

According to what was said before, no single country can initiatively and decisively take measures on the pollution in supranational scale. The states ought to act collectively and harmoniously so that their actions can be effective. According to this approach, most of the environmental and political thinkers maintain that the solutions for any security crisis or for whatever brought about as a result of environmental destruction entails measures of collective cooperation. This is where the concept of bioregionalism is put forth exactly due to the inconsistencies of the borders in biologically shared regions for which there will be more detailed information ahead.

4. Bioregionalism

Some environmentalists such as Peter Berg, with their particular perspectives concerning bioregionalism believe that rolling the relations between human beings and the globe back to local scale can help to reduce and amend the growing disasters happening in global scale. According to this view, those away from the resources can readily avoid their direct consequences and those in the vicinity fail to have the wise sense of responsibility for proper utilization or protection of the resources. Furthermore, the questions regarding the practice of justice and equal access to the benefit's of these resources stay with the necessity of investigating the potential geopolitical conflicts. When the acquisition of the resources and their control and responsibility are not specified as thus, they can be peculiar to any owner and at the same time, be possessed by none. In this case, according to the economic philosophy of the market, these resources can have joint ownership. "The Tragedy of the Commons" was first proposed by Garrett Hardin (Bradent and Shelley, 2004: 246). The important and salient point in the resources with shared ownership and consequently the question of the tragedy of the commons brings about various inconsistancies between state borderlines and bioregions. The establishment of various institutions in different spatial scales such as regional, national and global is the most effective way to deal with such inconsistancies. Byers concludes that for the institutions capable of settling down the conflicts originating from ecological issues and of creating an ecologically stable development, it is necessary to

transact over the governance in all "ecopolitical hierarchies" including local, subnational, national, multilateral and global. Ronald Johnston believes in this concern that a "spatial reality" has seriously hindered solving issues with a widespread scale. The globe contains many divided sovereign territorial containers known as countries each of which has sovereignty in their own territory and they should consign some (or probably most) of their sovereignty so as to have the global environmental problems solved to ensure the protection of the environment and the continuity of it's production power (Muir, 2000: 442).

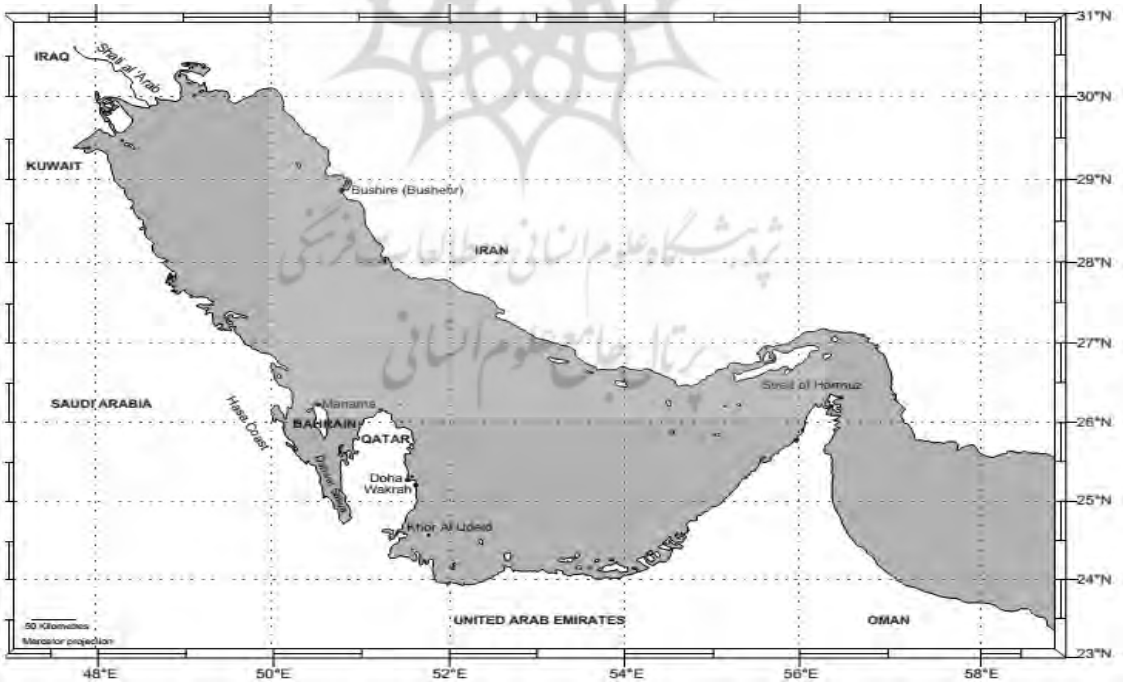
Bioregionalism in the Persian Gulf is one of the ecopolitical hierarchies in supranational and macroregional scale among coastal states. Considering that there are various problems in the water body of Persian Gulf, we will pay close attention to the necessity of environmental issues in the research findings section.

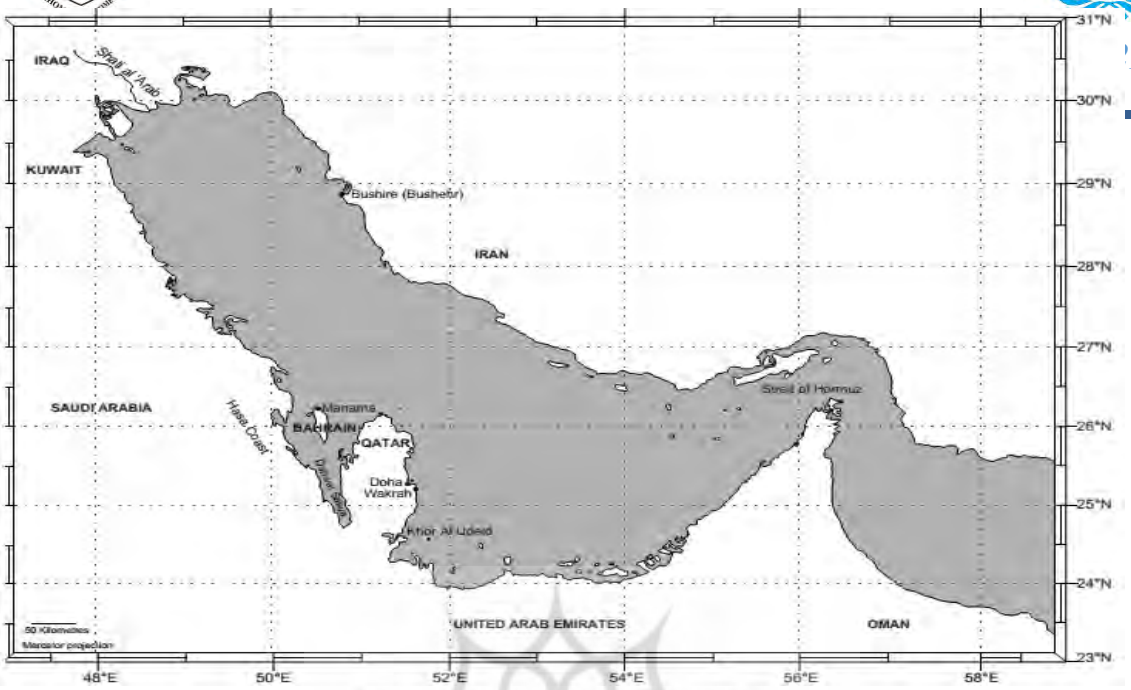
Research Area

Gulf is a huge reservoir of water upon which some states have a coastline and extends into a larger water body like a sea or an ocean through a narrow waterway (strait) or consists completely or partly of the territorial sea and the exclusive economic zone of two or more coastal states. According to criteria set out in the 1992 Convention Law of the Sea, there are more than 20 maritime areas on the globe which can be called as 'enclosed' or 'semi enclosed' seas (Bledsoe & Boezek, 1996: 290).

The Persian Gulf is one of these semienclosed seas. This semienclosed sea is located in the southwest of Asia and has actually penetrated into the Arabian Peninsulla. This gulf spreads over an area ranging from 23° – 30°N of latitude and 48° – 56°E of longitude (Map 1). The Persian Gulf varies from 185 to 333 kms in width. It hardly goes beyond 73.2 to 91.5 metres down in depth and its average depth is 25 to 35 meters that it comes to over 100 meters at Hormuz Strait. Hence, the entir Persian Gulf constitutes a continental shelf. The Persian Gulf has an area of 226000 square kilometers and contains 0.62% of the Earth's surface waters.

Map 1: Absolute (Mathematical) position of the Persian Gulf, Source: (Prescott & Triggs, 2008: 438)





The salinity of the Persian Gulf water is much higher than that of the other seas in the world for the reason that the rivers flowing into it carry salt and minerals and the evaporation rate is more than the input water supplied by rain and rivers pouring into it. The amount of the salt in the Persian Gulf water is estimated 38-70 per thousand and 60-200 per thousand in shallow waters. Over 600 aquatic fauna live among the seaweed in the Persian Gulf. The variety of colours and the beauty of coral reefs truly give the appellation of 'Marine Jewelry' to this region. In terms of living resources, the Persian Gulf is a special ecosystem with different species of animals. There are over 500 species of fish living in deep and shallow waters of this gulf (Hafeznia, 2013: 46-7).

Findings

According to the views of the United Nations, the main sources of marine pollution are:

1. Disposal of domestic sewage, industrial residue and agricultural waste;
2. Intentional dumping of wast and residue from sea vessels;
3. Disruptions in the marine environment through exploration and exploitation of petroleum and minerals;

4. Military exploitation of the sea (Churchil and Robin, 1988: 411).

The Persian Gulf is one of the largest gulfs on the planet that the access to and utilizations of its resources are shared out among eight countries. The Persian Gulf forms a special ecosystem due to such reasons as shallow waters, high salinity, warm weather, limited link to the high seas of the world and the absence of powerful marine currents. This makes the Persian Gulf frail and vulnerable to oil pollutions, militarism (war outbreaks), the movement of ships and oil tankers, increased industrial and economic activities, desalinasion of sea water, wastewaters and residues, power plants, refinery stations, immethodical land reclamation, drying the beach, the introduction of aggressive species via the ballast water of ships, new threats including reterritorialization (artificial islands) and military maneuvers. Concerning the various and hazardous environmental problems, the exact identification of the sources polluting this aquatic ecosystem is of the highest necessity in the first phase. Secondly, the convergence of the Persian Gulf countries in securing the ecological environment is an absolute necessity. It is certainly impossible to achieve sustainable development without the convergence of the countries attending the Regional Organization for the Protection of the Persian Gulf and Oman Sea. The Persian Gulf ecosystem problems have two origins: intra-regional and extra-regional. In other words, in addition to the impacts of coastal states, the footprints of other countries, especially the industrially developed countries, can be traced in creating and increasing such problems– the countries that have contributed a great deal to it's environmental disasters in the wake of the search for weath and power.

In many environmental changes, even in those overally harmful ones, there are winners as well as losers (Meyer & Turner, 2002: 371). While the benefits of resource extraction are dispersed across the globle, many of the negative ecological effects of extraction cast a shadow on local communities (Johnston *et al.,* 1383: 499). Hence, one of the main problems in the Persian Gulf is the absence of legal and administrative mechanism for the beneficiaries of the Persian Gulf which contribute to it's environmental pollution and destruction so that much of the world is benefited from this region but does not pay back their debts and duties (Ebtekar, 2007: 18). The

most extensive and important Persian Gulf disasters and environmental problems are caused by the extraction of oil and it's transportation by shipps, supertankers and oil pipelines. In documentation section, we will point out four cases of the most important environmental disasters impacting the Persian Gulf

a. Oil pollution
b. Militarism in coastal and marine milieu of the Persian Gulf
c. The threat of reterritorialization or the construction of artificial islands
d. Desalination of sea water

a. Oil pollution

The azure Persian Gulf waters have been severely polluted and it's biological system has been severely infected and affected because of the extraction and transportation of oil by tankers and pipelines also by the movement of motorized cargo ships. Thirty percent of the world's oil tanker traffic rate is allocated to the Persian Gulf with it's 25 oil terminals. The Strait of Hormuz between Oman Sea and the Persian Gulf annually witnesses 20 to 30 thousand tankers passing through.

Fifteen tons – in metric scale – of oil leaking from the the tankers frequenting in the Persian Gulf has made this region the most polluted marine environment. Totally, 3.1% of the world oil pollution is allocated to this region– the amount of which is actually 47 times the average appropriated for this region. The Persian Gulf region has 34 oil and gas fields with 80 production wells. Important eruptions can be disasterious in unusuall circumstances. During the years 1980 to 1983, four important oil spill incidents took place in this region as a result of which half a million barrels of crude oil flowed into the sea. The most amount of spilled oil was from 'Nowrooz' oil well located in Iranian waters that was damaged during the 'Imposed War of Iraq against Iran'. Maintenance and test of oil wells often bring about significan oil leak. Moreover, waste products such as oil sludge are dumped near the coast or possibly discharged directly into the sea. It seems that direct discharge of the ballast water of the ships and also oil leak, sludge and oil products have by far the most contribution in polluting the region. However, the amount of oil leaking due to the collision of tankers and spilling from the thousand-kilometer underwater pipelines linking the

oil wells located in the sea to the equipments based on the coast have not been identified yet.

A few breaches have been spotted in the pipelines that in one case an oil leak of 15 to 20 thousand barrels was estimated. The collision of the tankers from May 1981 to June 1987 caused 11 cases of severe pollution in the Persian Gulf and during this time range, the Imposed War of Iraq against Iran caused 13 severe pollution cases and brought about 107 disasterserous incidents affecting the environment (Dabirsiaghi, 2004: 255-56).

Unfortunately, the Persian Gulf region is one of the most polluted marine regions in the world because of the inflow of the pollutants from oil tankers and commercial ships and the influx of 10 million tons of wartime pollutants and wastewater according to the latest statistics suggested by World Reports. Hence, we annually witness over 1.5 million tons of oil spills into this aquatic water body. Consequently, the International Maritime Organization (IMO) announced this region as Special Zone of Marine (Fars News Agency, 2007).

Totally speaking, Persian Gulf is a very important and critical region in terms of oil and its transport. The main and first reason for the Persian Gulf hazardous vulnerability to oil pollutants is its natural conditions with its average depth of only 34 meters, and the second reason comes with the advent of small and large oil tankers and other oil transport lines (Aghaei, 2005: 160). The average daily traffic of oil tankers and commercial ships in the Persian Gulf region is 112 freund.

Every year about 25000 oil tankers pass through the Strait of Hormuz which amount is about 60% of the world's total oil exports and this is carried out by 34 main terminals in the region. Through the treatment of the ballast water of the oil tanker approximately 2 million barrels of oil leak into the waters of the region. In addition to the polluted ballast water, the ships produce other pollutions as well. Just as household installations, ships also produce garbage and residue which is estimates as 8.3 tons for every marine vessel (Hafeznia & Rabiei, 2013: 349).

If it is accepted that sea is a unique and extraordinary place for the marine flora and fauna life and reproduction and also for other extremely diverse

species, it should never be forgotten that sea had played a determining role in the creation and genesis of all creature on the globe (Bonnefous, 1996: 191). Therefore, pollution by oil products is incredibly damaging because this type of pollution cannot be removed by transformation systems of the nature (systems that break down the pollutant materials). Oil can extinguish the sea living organisms via such mechanisms as poisoning, suffocating, producing petroleum toxins soluble in water, destroying food supplies, reducing reproduction and eliminating the resistence potentiality of the marine animals. The seas and other aquatic bodies supply not only the protein required by human beings but also some part of the oxygen in the atmosphere through the activities of small aquatic creatures called planktons. These creatures are the main food for most fish. Oil pollution makes a great deal of damage to the survival of planktons.

Feasibility of energy extraction, low cost of production, ease of transportation, and the high potentiality of gas and oil production feature a large way for oil and gas extraction activities, the traffic of giant ships and establishment of oil industry; local-spatial reflections of such interactions caused the formation of the most polluted regions in the world. By environmental geopolitics approach, such risky and anti-environmental consequences endanger not the marine territory of one or two political unit's but bioregions of the entire Persian Gulf and all related political unit's and as a result all the interests of all the coastal states on Persian Gulf.

b. Militarism in coastal and marine milieu of the Persian Gulf

The geographers cannot ignore the processes which bring about war outbreak however but they focus their attention on the territory in terms of the ways that territorial issues may justify the conflicts or the ways that an impending war may cause some changes in the environment (Muir, 2000: 298).

The number of political geography studies on the destructive consequences of wars all over the world is not too many. One of the case studies in this concern is the Persian Gulf War. The experience of the Persian Gulf War showed some other possible mechanisms for environmental conflicts. It also showed that the environmental warefare machine would be more possibly utilized if any (Finger, 1991: 223). The Persian Gulf had been a battlefield

for four full-scale wars within a time range of over two decades– from 1980 to 2003. This small sea has held the world record for the number of the wars among all marine regions of the world during the past 30 years. The negative aftereffects and consequences of these wars on the national economy and environment were incredibly devastating. From a macro perspective, the consequences of militarism in the Persian Gulf can be classified as two effects of the pollutants on the coastal and marine milieu:

1. The consequences of militrarism on the Persian Gulf coastlines.

The political and social space of the eight countries around the Persian Gulf have become of alarmingly high security because of various reasons. The United States of America has taken the control of the main military role and function in the Persian Gulf region since 1990, especially after 9/11. The first consequence of militarization of the Persian Gulf, ranging from Bandar-i-Abbas to Al-ghanam, can be seen as a concrete, palpable and very clear reality in the landscape of 'numerous military bases'. Large or small military bases around Persian Gulf (excluding Iran) up to March 2008 include:

1) United Arab Emirates: Abu Dhabi, Dalma, Zeyd Port, Ajman, Rashid Port, Jebel Ali, Fujairah, Sakkar Port, Sharjah, Khor Fakkan, Tawila Port.
2) Bahrain: Jufair, Manama
3) Iraq: Al Basrah, Um Qasr
4) Saudi Arabia: Al Jubail, Al Qatif, Dhahran, Ras Tanura, Dammam, Ras al Mishab.
5) Oman: As sib and Adam, Raysut, Jaziratalghanam, Al Khasab, Ekoy and Muscat.
6) Qatar: Doha, Adid
7) Kuwait: Ad Dami, Shuwaikh and Failaka Island.

Most of these bases are under the control of the US or UK marines. In a brief conclusion about the presence of the US troops especially after 9/11 in the Persian Gulf, it can be said that firstly, the system, arrangement and the structure of American Military establishment in the region is provisioned to fight against classic army in the region and in no way is it similar to fight against terrorism. This military arrangement after war against Iraq still

remains as before. Secondly, such presence does not seem to be temporary and unstable. In other words, the scale of this presence is in a way that it reflects a permanent presence. But the features and environmental consequencies arising from these bases in the small sea of the Persian Gulf are varied and meanwhile destructive. From the viewpoint of occupied space, the average spatial distance between the military bases in the northern and southern shores of the Persian Gulf is slightly over 60 kilometres. In fact, the Persian Gulf holds the world record in terms of the relative density of naval, air, air force and army bases. High density of the military occupation of the seashore by the militants for security purposes also poses great environmental impact while this covers the best beaches from the viewpoint of natural indicators and landscapes (Karimipur & Heydari, 2009: 176-81).

2. The consequences of militrarism on the Persian Gulf marine milieu

The scope of the impact of militarism on sea pollution has been rarely studied and researched mostly because it is nationally and globally sensitive and critical classified information. The pollutions resulting from the Gulf War including Iraq's setting fire to all Kuwait's oil wells, utilizing the explosives and bombs, damages and losses by war, rocket attacks on land and sea, etc. are large-scale and very serious losses and damages in a large part of the region; some of which are irrecoverable and some others will make the people of the countries in the region suffer in the long run (Eslami & Abbaszadeh, 2012: 39).

Then a small part of military activism devastating the Persian Gulf marine environment can be summarized as following cases:

Burning oil wells: In February 1991, when Iraqi armed forces retreated from the territory of Kuwait, 650 oil wells were set to fire in this small country which lasted 250 days. Charging the cost of 1 billion dollars, sixteen international fire stations with the aid of 10000 firemen could extinguish the fire in a 24-hour effort over eight month (Karimipur & Heydari, 1388: 41). Fire flames of 60-meter (200-foot) height burned and funneled half a million

tons of pollutants into the atmosphere and 100-time higher and dark clouds poured 'black rain' in Iran before the winds could disperse them. According to the estimates of the American Agency for the Protection of the Environment, this event brought about one of the largest environmental disasters in recorded human history (Collins, 2006: 213).

Release of the crude oil into the sea: By order of the Iraqi ex-President, Saddam Hussein, six million barrels of oil was daily released into the sea in the second Gulf War, which was the largest amount of the ever released oil into the sea all through the history and it was 23 times the amount that leaked from the oil tankers. In January 1991, Saddam Hussein drained several million crude oil from an oil transfere terminal and from 5 oil tankers harbouring in Mina Al-Ahmadi Port and from huge coastal reservoirs out into Persian Gulf. The resulting pools of oil diffused around oil wells were like traps of death for the seabirds, and the people suffered nausea under the effect of oil malodor (*ibid*, 212). The point worth mentioning here is that during this war about 3 million barrels of oil was released into the shallow waters of Persian Gulf and during the initial months of oil leak, 20000 seabirds were killed (Muir, 2000: 304). Fourteen oil wells and eight exploration and production platforms were assaulted during Iraq's invasion of Nowrooz oil wells and Khark Terminal in February 1983 and over 2 million tons of crude oil was dumped into this sea. Meanwhile, five to seven thousand barrels of oil and 10 million cubic meters of gas were released into Persian Gulf during the US warship attacks on Reshadat Oil Platform in October 1987 and within a few days, 130 kilometers of Hormozgan seashore was covered by oil leak and critical coastal habitats were damaged.

Only during the eight-year Iran-Iraq war, Iraq attempted to extend the war by air attacks to farther reaches of Persian Gulf. The result of this war tactic was the repeated bombardment of Khark, Siri and Lavan oil Terminals. Iran targeted the Al-Bakr and Al-Omayye Oil Installations as well as oil wells and fields in the north and south of Iraq in retaliatory attacks.

In any case, war tactics in the Gulf War from 1980 to 2002 poured overally several million tons of crude oil into Persian Gulf which amounted to higher than the entire oil pollutions throughout the world oceans in the second half

of the 20th century. All factors came together to make the pollutions in Persian Gulf ten times worse in terms of standards (Karimipur & Heydari, 2009: 190-91)

The explosives: Although the second Gulf War was spatially and locationally limited, Barnaby reminds that the entire amount of the explosive used by coalition forces against Iraq was about 120 thousand tons equal to ten times the power of the nuclear bomb in Hiroshima.

Consecutive wars: After the end of war resulting from Iraqi invasion of Kuwait and expelling Saddam by the Americans and their accomplices was later known as [Persian] Gulf War whose destruction in Persian Gulf was to the extent that Regional Organization for Protection of Marine Environmental (ROPME) encountered several problems in environmental clean-up programs, but it was not long later that another war broke up in the region and this time under the pretext of liberating Iraq, the US and his allies intractably charged against Saddam Hussein and once again huge amount of crude oil and thick soot was added to Persian Gulf just as before.

In this case Executive Director of the UN Environment Program, Klaus Töpfer speaks about the research findings by a group of his colleagues in Iraq, "Aquatic plants and phytoplanktons in Arvandrood River were eradicated. According to analyses and satellite data of UN environment program, phytoplankton masses which produced oxygen in water were destroyed by the disposal of pollutants as a result of unusual transit of a number of ships through this region and there seemed to be a change in the colour of sea water" (Dabirsiaghi, 2004: 257). In an overview, it can be said that militaristic activites in the region have done serious damage to the peace and protection of Persian Gulf environment. This region expericed a war for more than 30 years and in global scales it was renamed as so-called 'Sea of War'. Certainly, some parts of these wars were ecological.

The War of Tankers and other Ships Carrying Hazardous Materials: The war of oil tankers in the form of laying mines, firing torpedoes and launching the missiles during Iraq-Iran War and environmental damages arising from it was remarkable and significant.

During the eight years of the war imposed by Iraq against Iran (1980-1987), 470 ships were targeted in total out of which 335 were oil tankers and the remaining 145 were commercial ones. The crude oil contained in most of these oil tankers directly leaked into the Persian Gulf waters (Safavi, 2001: 83).

The Traffic of Warships and Submarines: the presence of warships and submarines enven in times of peace is another human activity for which there are no official statistics for the security and military reasons. Most of these submarines are propelled by atomic fuel in the region. Only one human error suffices to eradicate all living creatures in this semienclosed sea with it's unique ecosystem and even makes the seawater useless.

c. Reterritoriality Threats or the Construction of Artificial Islands

Territoriality is a behavioral and intrinsic phenomenon within human beings which originates from his tendency to exert exclusive control over some part of space. According to the definition by Robert Sack, territoriality is "the attempts by an individual or a group to pose a constant impact, influence or control over the phenomena and their relationship via containment of and supervision on a geographical region." Therefore, the human beings attempt to gain territory. Territory is a part of the Earth (including soil and climate) on which property rights are observed and it is confined and demarcated (Mirheydar, 2005: 15). As for Persian Gulf, demarcation of marine territory directly correlates with the security and national sovereignty of the respective states. Therefore, all the attempts by the countries to demarcate the borders and marine territory are legitimate from the perspective of political geography and international laws. Iran maritime border with three countries of Qatar, Bahrain and Oman has been determined and approved until 1974. But for the time being, it is not demarcated with three other countries of Iraq, Kuwait and UAE. The failure to partition the maritime boundry between Iran and UAE goes back to UAE territorial claims over the Iranian islands in Persian Gulf (Mirheydar & Asgari, 2004: 161).

Bearing the above situation in mind, we can see that UAE has recently decided to reterritorialize in the Persian Gulf region by constructing various

artificial islands which is a serious threat from the legal, political geography and especially environmental viewpoint. This country has inaugurated a massive program to construct the largest artificial islands since 2001 in the warm waters of Persian Gulf: islands shaped like a palm tree in the waters with special design and specific location can attract a remarkable number of tourists to Dubai and also can add up to the length of the borderline of this little city. 300 out of 325 islands intented to be constructed by UAE belong in Dubai.

The creation of Palm Islands and the project of obtaining land from the sea under Dutch and Belgian companies specializing in the creation of artificial islands and drying ground are among the most important factors making damage to Persian Gulf for the reason that around 100 million cubic meters of soil and rock are utilized.

Dubai Palm Islands in fact consist of three big islands called Jumeirah, Deirah and Jebel Ali. Jumeirah with a main stem and seventeen branches stretched over five square kilometers, Deiyrah covering an area of 46 million square meters with the shape of a palm tree having 41 branches is going to be the largest artificial island in the world and it will be a host to approxiamately one million people. One billion cubic metres of soil and rock is reclaimed.

Other than the project of marine Palm Islands, another marine project called 'The World' is going to be performed that will take the design of Earth Map and the lands on which will be the same as the continents of the Earth and will be embraced by a huge oval waterbreak and the entire Island of The World will be 9 kilometers by 6 kilometers.

In case the project is performed fuly, the authority of the Emirates on the Persian Gulf shores will be 20 times authentic. In exact words, UAE has only a small part of the Persian Gulf coastline as long as 60 kilometers. At the end of these projects, the coastline of the UAE will increase from 60 kms to 1200 kms. Two decisive and problematic consequences of this issue include:

1. The threats arising from territoriality and broadening the soil of the UAE from aquatic environment of the Persian Gulf and finally creating the disputes over maritime borders;

2. The changes occurring on the sea surface and sea bed pose unwanted transformations in sea ecosystem and environment and can leave irrecoverable aftereffects. It's clear result is the falling of national interests of all coastal states into jeopardy. Adverse environmental consequences of these constructs (Artificial Islands) include:

The extinction of coral reefs, getting the coastal waters and marine transport into trouble, intervention into ecosystem, the increased sea pollution, demolishing the turtle nests on the beach; change in the natural currents of water and tens of other negative environment consequences.

d. The Problem of Desalinators

All the countries around Persian Gulf enjoy dry weather with very low rainfall due to being located in subtropical high pressure along the northern desert strip. As a result, there is acute scarcity in the fresh water supplies in the Persian Gulf countries. One of the ways to supply the fresh water is to desalinate the seawaters. Generally, 60 percent of the desalinators throughout the world are spotted in this region and annually the sea surface level comes down about 1.5 meters by evaporation, whereas only 10 mm of rainfall occurs in this region. However, 7% is added to the production volume of desalinators which aggregates ecological concerns more than ever.

Conclusion

The environment of Persian Gulf with respect to it's geographical location (absolute and relative), it's geostrategical, geoeconomical and political importance is mainly influenced by political, economical and communicational affaires and processes arising from various intra- and extra-regional countries in a way that all countries and their dwellers enjoy all the priviliges of Persian Gulf, but do not pay their contributions to it in terms of solving environmental problems. In other words, there is for instance, a universal perspective about such energy issues of this region as

oil and gas but there is no such a global perspective to deal with environmental problems. Hence, in addition to hundreds of some other environmental threats and disasters, the extraction of oil and it's transportation pose increasing interruption on the totality of this aquatic ecosystem. The main difference between Persian Gulf and other seas is that the former has a very sensitive and critical ecology due to it's being a semi enclosed sea and furthermore it's limited connection with high seas, from one hand, and this gulf is utilized and actually overrun beyond it's true ecological capacity compared to other seas, from the other hand. This is the point form which any measures should be taken with ecological and environmental considerations; the resources in flow especially with their potential capabilities to trespass the borderlines are the subjects for the geopolitical conflicts that occur in regional or global scale and form up two patterns of convergence (interaction and collaboration) or divergence (conflict and tension) among political actors.

One of the threats with which Iran is faced from the Persian Gulf region and other neighbouring states is the density and the accumulation of excessive pollutants in Persian Gulf. Understandably, a huge population lives alongside Persian Gulf coastline in 8 coastal states. Their permanent habitats and sources of revenue essentially depend on the ecological potency and capacity of Persian Gulf. Therefore the extent, intensity and continuity of pollution in this sea can endanger routine life of the residents around Persian Gulf in various ways and consequently the respective coastal states will have to pay a huge cost to dissolve or reduce environmental problems. Totally, the investigations indicate that the rate of oil pollution in Persian Gulf is 47 times the average pollution rate of world seas and in this respect Persian Gulf places first among all the oceans, seas, gulfs and bays in the world. The proponents of environmental security emphasize on this point that environmental degradation is caused by unspecified economic and social forces and it requires collaborative solutions (Porter, 1998: 215). Since the environmental threats in Persian Gulf affect all the residents in the region, collective collaboration of the countries in this geopolitical construct is required. Scientific and practical actions and also measures preventive of environmental degradation, pollution and problems in geographical region

of Persian Gulf will understandably increase political, social and economical collabouration potentials of the abovementioned construct and conversely environmental degradation will increase political-social failure of the actors in the Persian Gulf construct. Accordingly, the common interests of regional political unit's with sea-based geopolitics from ecopolitical perspective today are strongly dependent on collective collabouration of those unit's in relation with the protection of ecosystem of the region. Countries acting in the geopolitical region of Persian Gulf ought to operationalize their collective collaborations and bioregionalistic attempts in transnational and regional scale to produce power, maintain security and secure their continuity, from one hand, and ensure the protection of this aquatic ecosystem in line with sustainable development from the other hand; since the geopolitical structure of Persian Gulf from environmentalist perspective is in no way separate from the processes and procedures carried out by it's actors. In this regard, the statesmen in the geopolitical construct of Persian Gulf should bear in mind the principles enshrined and specified in the Third Conference on the Laws of enclosed and Semienclosed Seas.

"The states on semienclosed seas ought to collabourate on practicing the laws and implementing the obligations arising from the Convention and attempt to cooperate in solving various problems such as dealing with laws and obligations related to the protection and maintenance of marine environment. In practical procedures of international level, the collaboration of the states on semienclosed seas on such issues as the protection of animal resources, the prevention of sea and other waterbody pollution is of high necessity."

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