



Environmental pollution in the common borders between Iran and Iraq and the international governing documents

Davood Khoshnevisan ¹, Parvin Farshchi ^{2*}, Daryoush Karimi ¹, Mansour Pournouri ¹

¹ Department of Environmental Management, Environmental Law, Faculty of Natural Resources and Environment, Science and Research Branch, Islamic Azad University, Tehran, IRAN

² Department of Environmental Pollution, Faculty of Natural Resources and Environment, Science and Research Branch, Islamic Azad University, Tehran, IRAN

*Corresponding author: parvinfarshshi@gmail.com

Abstract

Iran-Iraq boundary has been of great social, cultural and economic importance since ancient times. The first civilization emerged in this land and the events took place around it affected the human societies. Today, the preservation of the environment is an important issue to everyone. People make use of all devices and possibilities to create an appropriate condition to survive. Environmental pollution in common areas between Iran and Iraq has long been affected the environmental issues of the two countries and imposed irreparable damages upon them. The present study, using a descriptive research method, examined the common environmental pollution in Iran-Iraq boundary and the international governing documents. The present article attempted to study the air pollution caused by dust storm and the air pollution in border areas caused by unconventional weapons (chemical and DU), with the order of importance. In this regard, the research findings and results show that international law, including international conventions, does not meet the environmental requirements of the two countries of Iran and Iraq in pursuit of sustainable development of the region, moreover, international cooperation, especially regional cooperation, can play an essential role in the creation of an appropriate basis for sustainable development.

Keywords: environmental pollution, joint cooperation, dust and sand storms, unconventional weapons

Khoshnevisan D, Farshchi P, Karimi D, Pournouri M (2019) Environmental pollution in the common borders between Iran and Iraq and the international governing documents. *Eurasia J Biosci* 13: 541-548.

© 2019 Khoshnevisan et al.

This is an open-access article distributed under the terms of the Creative Commons Attribution License.

INTRODUCTION

Human life is rooted in the material world. People are able to make changes in nature and the environment. Management, conservation and preservation of the environment are essential. Since humans and other living things need a clean Earth for their survival, environmental preservation is a major issue to be considered by humans.

Some of the advances in technology as well as world population growth in recent years have endangered the environment and the prevention and the compensation for environmental damages has always been a concern for many intellectuals and politicians around the world.

One of the areas undergone environmental changes, degradation and pollution is the borderland between the two countries of Iran and Iraq, which has endangered the region.

In the border areas of the two countries, the presence of dust storm, chemical contamination due to the use of chemical weapons, and the possible depleted uranium contamination from the use of unconventional weapons,

are considered as some causes of pollution and environmental degradation in the region.

The joint responsibility of governments and the need for environmental preservation have made the government collaborate closely with each other. In case, countries could solve their environmental problems alone, they would not enter into international treaties. Some environmental pollution is transboundary and is not considered an internal issue of a country, especially events occurring on the borders of two or more countries. Currently, the environmental issues in the border areas of Iran and Iraq are very important issues that need to be seriously addressed. Lack of research and the absence of practical action for prevention of the pollution in these areas will cause a lot of problems.

DUST AND SAND STORM

Dust and sand storm event is a meteorological phenomenon that has raised global concerns. Dust

Received: September 2018

Accepted: March 2019

Printed: May 2019

phenomenon is observed in all parts of the world and is not specific to a geographical area. The origin of dust and sand storms is a natural phenomena or a human activity.

Climate change, vegetation cover degradation, desertification, water scarcity, pastures and forests conflagration, industrial pollutants released into the air, building dams, abandonment of agricultural lands, smoke from cars and so on are considered as the causes dust and sand storms.

Types of Dust and Sand Storm

Dust and sand storms have different types that each has a different effect on the environment. "Dust and sand storms are usually classified according to effects they produce on visibility.

1. Blowing Dust: observable within the range of human vision, but the visibility is not below 1000m
2. Dust and Sand Storm: The visibility is reduced to below 1000m
3. Random Dust: The visibility is reduced to below 11km
4. Transient Dust: Dust generated from motor vehicles, transit on dirt roads, and mining
5. Dust Devil: dissipates soon, is visible as a column of dust, subsides after travelling a short distance (Ghaffari and Mostafazadeh 2015: 108-109).

Dust and Sand Storm Implications on Living Things

Dust and sand storm that occurs continuously and lasts for long hours, results in severe damages to living organisms, and especially humans. Dust and sand storm even causes major damage to buildings and electrical and telecommunication systems.

Dust and sand storm is a meteorological phenomenon that has adverse effects and environmental implications. Dust and sand storms have adverse effects on health, hygiene, and economy of the society, and climate change. Understanding the nature, origin and effects of dust and sand storms makes it clear that they can reach the height of 6km and travel a distance of 6000km/h and reduce horizontal visibility from 10^4 to 10^3 m. Atmospheric dust prevents light transmission, reduces agricultural production by 3-5%, and increases the risk of diseases such as meningitis, RVF, asthma, viral diseases, and DNA damages to skin and lung cells. For each $10\mu\text{g}/\text{m}^3$ density increase of suspended particles smaller than 10 microns at the time of dust event, the mortality rate increases by 1 percent. (Rabbani et al. 2014, Shahsevani et al. 2010)

The phenomenon of atmospheric dust, due to the presence of nutrients, affects primary production in seas. The average monthly variation in aerosol optical depth and the amount of chlorophyll a from 2004 to 2013 showed that there is a high correlation between the two parameters above; the amount of chlorophyll a raises

with an increase in aerosol optical depth and decreases with reduced optical depth (Soleimani et al. 2016).

Dust and Sand Storms Geographic Effects

The west and southwest regions of Iran, i.e. Khuzestan, Ilam, and Kermanshah provinces are affected by the dust and sand storm due to geographic and climatic conditions and proximity to Iraq and Saudi Arabia.

The origin and source of this phenomenon should be sought beyond Iran borders. The manner and type of the viewpoints held by neighboring countries or some Middle Eastern countries toward the political, economic, environmental management, infrastructure strategy, war, knowledge of agriculture, use of water and water resource management, desert greening, and so on play a vital role in the creation and development of this phenomenon. In a similar way, some natural events like drought, low rainfall, regional storms or Middle East sandstorms, and so on, as well as some human factors such as building dams, abandonment of agricultural lands, unconventional use of water resources, and so on, are effective in the creation of this phenomenon (Orhan 2018, Salah et al. 2018).

Dust Storm and International Environmental Law

Of atmospheric pollutants is the dust and sand storm that is a transboundary phenomenon. The kind of pollution mentioned and the damage to the environment have led legal scholars to use legal instruments specifically international laws for the prevention of pollution and the environmental degradation. The International Conference on Combating Dust and Sand Storms in Tehran in July 2017 is one of the international efforts to reduce the harmful effects of the dust and sand storms.

Department of Environment and Ministry of Foreign Affairs of Islamic Republic of Iran hosted the International Conference on Combating Dust and Sand Storms in Tehran. The international conference was held in Tehran on July 3rd-5th, 2017, with the collaboration of the various UN bodies, including United Nations Environment Program, United Nations Department of Economic and Social Affairs, and United Nations Development Program.

In the conference, the growing trend of dust and sand storm and the social, economic, and environmental impacts of this emerging phenomenon were examined. After three days of cooperation, invitees and experts from 44 countries completed their technical statement in 12 clauses.

Key Points of International Conference on Combating Dust and Sand Storms, 2017

This international conference, held by Iranian endeavor and persistence, introduced the emerging phenomenon of dust and sand storm as a global dilemma. And it is evident that Iranian intellectuals will

pioneer the global management of the phenomenon. The call for the conference focused on the following key points that made it possible to introduce dust and sand storm as an emerging global phenomenon.

A. It is estimated that 2000 million tons of dust will release into the atmosphere annually. These storms have significant implications, including social, economic, environmental and human health issues.

B. Dust and sand storms are the result of several interdependent factors that are existed in several countries of the region.

C. Improper farming practices for years, mismanagement of water resources, and climate change result in the reduction of vegetation cover, desertification, and drought; likewise, these issues directly result in the problem of dust and sand storm in the area.

D. Increased environmental degradation and the escalation of sudden climatic events, especially dust and sand storms, have many implications on social and economic lives and human development throughout the region.

E. Dust storms cause damages to human health, agricultural land, infrastructure, and transportation system.

F. Dust and sand storms have no respect for any boundaries. (United Nations website in Iran 2017)¹

CHEMICAL WEAPONS

Human use of chemicals dates back to ancient Greece, and when Iranian troops conquered Athens, Iranian forces did not use fruit gardens for the probability of polluted products. The consecutive use of chemical weapons particularly with the outbreak of World War I, and more specifically during the Holy Defense period, could be regarded as one of the most anti-human methods of armed conflicts against humanity.

The Ba'ath regime used various types of highly dangerous chemical weapons during the war for military and non-military objectives in Iran from 1984 to 1988, consecutively; moreover, it used chemical weapons in Abadan, Faw and Karkuk against the military forces and in Oshnavieh and Sardasht against urban areas lacking civil-defense shelters. It should also be noted that firstly Anfal Genocide was initiated to destroy all or a large number of Kurdish people living in northern Iraq, and secondly, the Ba'ath regime continued to use chemical weapons in the form of a targeted program led by Ali Hassan al-Majid (Sharifi Tarazkouhi and Modarres Sabzevari 2016).

Given that, in the Holy Defense, Iran's military strength is mainly depended on its manpower and night combat, and since the Iraq could not withstand only with military machine, the Ba'ath Party used chemical weapons to resist. In each chemical attack, vast areas of Iran and Iraq (water, air, soil) were exposed to chemical pollution.

Vast areas of Iran and Iraq were polluted which endangered the lives of many living organisms in the aftermath of the chemical attacks. Many human beings died of this anti-human behavior, many people suffered from refractory diseases, and some others are still infected by severe respiratory and skin diseases due to the polluted environment though many years have passed the disaster.

Chemical Weapons and International Environmental Law

Within the international law, numerous binding and non-binding rules have been regulated for the preservation of environment in the time of armed combats.

Few conventions are mentioned as follows: Stockholm Declaration 1972, Principles 21 and 26; Rio Declaration 1992, Principle 24; Convention on the Law of the Non-navigational Uses of International Watercourses 1997, Article 29; The Hague Convention 1907; The Geneva Convention 1949, Articles 22, 23, and Protocol I Additional to Geneva Conventions 1977; Chemicals Weapons Convention 1993; Environmental Modification Convention (ENMOD) 1997.

Principle 21 of the Stockholm Declaration states: Governments have, in accordance with the UN Charter and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that the activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction (UN Documents 1972).

In this regard, we will mention some of the international conventions on chemical weapons:

The Hague Conference 1907, respecting the Laws and Customs of War on Land and the Prohibition of the Use of Poison or Poisoned weapons in War

Article 22 of the Hague Conference stipulates that the right of belligerents to adopt means of injuring the enemy is not unlimited.

Article 23 also states that, under the prohibition set forth in the other conventions, the following shall be prohibited:

- To employ poison or poisoned weapons in war

For further information visit the following website: ¹

<https://un.org.ir/farsi-news/item/4190-03-july-2017-international-conference-on-combating-sand-and-dust-storms-iran-farsi>

- To employ arms, projectiles, or material calculated to cause unnecessary suffering (ICRC, Hague, 1907).

Fourth Geneva Convention 1949

The Fourth Geneva Convention in 1949, following the conventions of 1864, 1906, 1929, which was established for the protection of victims of armed conflicts, and after World War II, the Fourth Convention was held in Geneva in 1949. After signing it on December 8, 1949, this convention was ratified in Iran's parliament in 1957.

The Protocols Additional to the Geneva Convention were Established on June 8, 1977

In accordance with these conventions and Protocols I (C1: A46, C2: A47, C3: A13, C4: A33, C1: A 56-51-20), any attack on wounded, patients, shipwrecks, personnel and rescuers, personnel and civil defense services, prisoners of war, civilians, cultural and civilian and environmental sites, as well as systems that work on energies and dangerous forces, is prohibited. (Summary of the Geneva Conventions, August 12, 1949 and Additional Protocol -ICRC, 4)²

Chemical Weapons Convention

The draft convention was approved by the United Nations in 1992 and the Chemical Weapons Convention (CWC) was held in Paris in 1993 and signed by 87 countries in 1997 and it was legally binding. The Organization for the Prohibition of Chemical Weapons (OPCW) was established in Hague, Netherlands, in 1997 to administer the provisions of the convention. (OPCW, Hague 1997).

The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction is a multilateral document that besides dealing with issues related to the prohibition of the use of chemical weapons, it also mentions issues such as assistance and cooperation with the affected country (OPCW, Hague 1997). This convention can be a legal success in the world in its kind. It can be argued that the most comprehensive international document that has been approved for the prevention of the use of chemical weapons and which has been the result of three decades of extensive research and debates with the aim of finding ways to establish and strengthen a legal regime for the guarantee on the prohibition of the use of chemical weapons and the establishment of surveillance mechanisms is "the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction" (Zarif and Sadjadpour 2008: 591).

The Convention consists of an introduction with 24 articles and three annexes under the titles of chemical substances, verification, and maintenance of confidential information, all of which are equally legal and operational. The Convention has permanent credibility and the UN and the OPCW in The Hague are responsible for its administration and surveillance (Ardalan 2010: 1005).

In the convention (CWC), the chemical substances and the related matters are explained as follows:

According to this Convention, Article 2, the Chemical Weapons means the following, together or separately:

a. Toxic chemicals and their precursors, except where intended for purposes not prohibited under this Convention, as long as the types and quantities are consistent with such purposes;

b. Munitions and devices, specifically designed to cause death or other harm through the toxic properties of those toxic chemicals specified in subparagraph (a), which would be released as a result of the employment of such munitions and devices;

c. Any equipment specifically designed for use directly in connection with the employment of munitions and devices specified in subparagraph (b) (OPCW, article II, Hague 1993).

The Article 1 of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction declared the various forms of commitments of the State Parties:

Each State Party to this Convention undertakes never under any circumstances:

a. To develop, produce, otherwise acquire, stockpile or retain chemical weapons, or transfer, directly or indirectly, chemical weapons to anyone;

b. To use chemical weapons;

c. To engage in any military preparations to use chemical weapons;

d. To assist, encourage or induce, in any way, anyone to engage in any activity prohibited to a State Party under this Convention. (OPCW, article I, Hague 1993)

The matter that should receive considerable attention in this Convention is reservation and that "the provisions of the Convention are not subject to a reservation. Annexes of the Convention are not subject to a reservation against its aims and purposes". (Research Center of Islamic Legislative Assembly, 2017)³

For further information visit the following website:²

<https://www.icrc.org/eng/assets/files/other/icrc-241-0368-summary-geneva-conventions-fas.pdf>

For further information visit the following website:³

<http://rc.majlis.ir/fa/law/show/92923>

IDENTIFICATION OF DU WEAPONS

The United States used a new weapon in the invasion of Iraq, called DU; depleted uranium used in this weapon has long-term harmful effects on humans and the environment.

“Uranium, an element with atomic number 92, is the heaviest element in the earth and with an average frequency of 0.1-20.0mg/kg is more abundant than the average amount of gold and silver. Natural uranium has three isotopes with an abundance of 72.0%=238U, 2746.99%=235U, 0054.0=234U. In case the abundance of 235U and 234U isotopes, compared to 238U, is reduced below the amounts mentioned above it is called depleted uranium” (Ghaffari and Foroughi 2003: 319).

One of the features of this weapon is that depleted uranium bullets, or DU produce dust and toxic dust and radioactive materials at the time of hit and only 20 to 70 percent of the bullets burn at the time of the hit, and as a result radioactive suspended particles pollute the environment in the range of 50m (Pour-Heidari et al. 2006: 968).

Exposure to Pollution

How people are exposed to DU:

a. Environmental Exposure: through inhalation, eating and drinking, in this case the risk of polluted DU substances is much higher in eating and drinking.

b. Employee Exposure: mainly through inhalation or skin contact, in this case the risk of DU inhalation is higher. In this way, it can be said that water and food are the main causes of background exposure” (Ghaffari and Foroughi Zadeh Moghadam 2003: 320).

Environmental Damage of DU

According to the researches, some damages to humans and living things are caused by the use of DU weapons as follows:

Ian Fairlie stated that given a complication attributed to the use of depleted uranium weapons known as the “Gulf War Syndrome”, a number of soldiers involved in combat and persons living in areas near the site of missile strikes reported some pathological symptoms that are totally called the Gulf War syndrome. Symptoms of the syndrome are complex and progressive and affect various organs in the body. The symptoms include headaches, fatigue, joint and muscular pains, mental disorders, dizziness, visual disturbances, walking abnormalities, memory loss, swollen lymph nodes, pulmonary and kidney disease. The symptoms were observed in 20% of American soldiers participated in the Persian Gulf War (Bagheri Abyaneh and Ansarian 2014: 137)

Fallujah in Iraq is a city attacked by DU weapon. Studies conducted in 2001 showed that cancer had increased fourfold compared to years before the American invasion, and the types are very much similar to those reported in Hiroshima, Japan. Leukemia, childhood cancers, and breast cancer were reported to

be 38, 12, and 10 times more than the amount reported in Egypt, Jordan and Kuwait (Haji and Maskuri 2016: 188).

In studies conducted in Fallujah in 2011 by Alani and Tuphash (2011) about the carcinogenicity of DU, the contamination status in children’s parents and in their living environment with respect to uranium and other factors was studied. Hair sample from 25 parents of children with congenital anomalies were examined for the detection of uranium and 51 other substances. It has been shown that congenital anomalies and cancer were associated with depleted uranium (Haji and Maskuri 2016: 189).

“Mechanisms for the biological effects of exposure to radiation such as alpha particles emitted by uranium have been proposed that states besides damage to DNA as a target molecule, other sensitive extracellular sites are also affected” (Ghaffari and Foroughi Zadeh Moghadam 2003: 320).

Jane et al. reported in 1997 that the growth and productivity of the wheat plant that was cultivated on the ground contaminated with uranium would decrease dramatically; the number of clusters, the number of seeds in the clusters, and the weight of the seeds were significantly less than normal (Salbo 2004). Due to the contamination, contaminated soil should be collected and packed and it should be dealt with as a radioactive waste (Pour Heidari et al. 2006: 972).

Cytogenetic study of British soldiers’ blood stationed in the Persian Gulf during the war and comparing it with the control group stationed in Germany at the same time showed that given the number of chromosomal abnormalities (Dicentric and Ring), the rate of these abnormalities increased 4 times more than the control group. Based on the biological dosimetry method, this amount of damage is due to external radiation of 500mGy (Busby 2001), moreover, recently some theories have been introduced on mechanisms for the biological effects of exposure to radiation such as alpha particles emitted by uranium have been proposed that states besides damage to DNA as a target molecule, other sensitive extracellular sites are also affected. (Ghaffari and Foroughi Zadeh Moghadam 2003: 322).

Of course, some researchers are doubtful about the relationship between these symptoms and depleted uranium dust. For example, given the US soldiers two issues have to be considered.

First, we need to obtain adequate information on the sampling method of the community studied by the researchers, for the fact-checking of the announced statistics.

Second, the presence of the symptoms in 20% of American soldiers cannot be merely regarded as an indicator of the effects of the use of depleted uranium weapons. In addition, 80% of American forces have been reported to be immune to these symptoms (Bagheri Abiane and Ansarian 2014: 138).

International Law and Radioactive Materials

The use of depleted uranium as a radioactive material can have an adverse effect on the environment. In this regard, we will examine some of the rules of international law on the use of nuclear materials and we will review the implications and scope of the rules on this depleted substance.

According to international law, many rules have been developed for nuclear tests or the use of nuclear weapons; some of the rules are mentioned below.

1. United Nations General Assembly resolution (1) of 1946 (UN documents 1946)
2. Antarctic Treaty 1959 (UN treaty 1959)
3. Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water 1963 (UN treaty 1963)
4. Non-Proliferation Treaty 1967 (UN treaty 1967)
5. Australia and New Zealand complaints about nuclear tests against France 1974 (UN Request for an examination in the nuclear tests 1974)
6. The WHO Recall 1993
7. UN General Assembly Recall 1994
8. Comprehensive Nuclear-Test-Ban Treaty 1996 (UN treaty 1996)
9. The Treaty on the Prohibition of Nuclear Weapons 2017 (UN treaty 2017)

In the United Nations, 123 countries voted on the 20th of December 2017 to the Treaty on the Prohibition of Nuclear Weapons. They did not accept nuclear weapons as a war machine. Moreover, the issue of helping victims of nuclear tests and use of nuclear weapons has been considered.

The United States, Russia, Britain, France, China, India, Pakistan, the Occupied Palestine and North Korea did not sign the treaty, and NATO did not consider the treaty to be of assistance to international peace and stability (Eur. News 20/9 / 2017)⁴

The Islamic Republic of Iran, however, voted in favor of a non-proliferation treaty, declared its commitment to the non-proliferation of this widespread destructive weapon.

In the draft treaty on the full prohibition of nuclear weapons, nuclear-related measures, such as development, production, stockpiling of weapons and equipment, nuclear weapon test, and the use or the threat to use nuclear weapons have banned. It can be said that the test and use of nuclear weapon as a widespread destructive weapon is considered anti-human in the public opinion and it is recognized as a real threat to the environment and to the life of living organisms.

THE SCOPE AND DOMAIN OF LEGAL RULES

1. Lawyers attempt to use all the international legal capacity to deal with the environmental crises caused by this phenomenon in order to tackle pollution problems. Now, due to unsustainable development and the advancement of industry and technology that caused environmental problems and pollution, the environment problem has become an international issue. In this regard, today the environment and its preservation are a relatively new domain in international regulations. International law has taken legal action in order to respond to global or regional environmental issues and problems (Firouzi 2005: 25). It can be said that so far no international or regional binding agreements have been formulated and regulated by the countries for the prevention of dust and sand storm; therefore, dust and sand storm should be investigated with respect to the international treaties, international conventions, and the general principles of international law. International Environment Law (IEL), as a new branch within international law, is responsible for the legal examination of these types of pollution (Hoseini 2013: 69).

2. Iran, one of the 18 member countries of the UN Disarmament Commission in Seventies during the negotiation of the Convention, has played an active and dynamic role in concern with its own victims of chemical weapons in the Iraq war. The Islamic Republic of Iran should be considered as the biggest victim of the use of chemical weapons; about 50,000 Iranian soldiers and civilians were martyred or injured due to chemical attacks by the Ba'ath regime; the use of chemical weapons by the Iraqi invading army had been approved by United Nations team of experts several times and in their reports, they confirmed the use of chemical weapons by the Iraqi regime in 2005-2008. The fact is that the rules of international law did not prevent the trade of chemical materials, their production and use in the imposed war. And the most convincing evidence of the violation of these rules is the presence of injuries in the chemical patients of the civilian population and on the Iranian regime. The reference of the Islamic Republic of Iran on January 13, 1993 was one of the first signatories –the Treaty on the Prohibition of Nuclear Weapons 2017, and subsequently, ratified the treaty on January 27, 1997, and deposited the instrument of ratification on June 1, 2018. (Student News Network, international group, 2011)⁵

3. According to rules of law on the depleted uranium (DU weapons), it can be stated:

- A. Given that natural uranium has three isotopes, and if the abundance of isotopes of ²³⁵U

For further information visit the following website:⁴

<http://fa.euronews.com/2017/09/20/un-ceremony-nuclear-weapons-treaty>

For further information visit the following website: Student News Network, International Group, 2011⁵
<http://snn.ir/en/news/158771>

and ²³⁴U is reduced compared to ²³⁸U, the uranium is considered to be depleted. Regarding this point the question is that whether we could apply the rules of nuclear weapons for this depleted material? And can we consider this depleted weapon as a nuclear weapon? It can be said that none of the rules of international law on nuclear issues refers to depleted uranium. A series of binding and non-binding rules of international law, mentioned above, do not include this type of weapon.

B. Contrary to studies and the examinations conducted about the harmful effects of DU on humans and on the environment, a few has mentioned above, and particularly, given that the effects of depleted uranium on human beings will be better examined in the long-run, some researchers presented articles that depleted uranium weapons are harmless, which could challenge the view held by the first group. Some researchers in their articles claimed that this material has no harmful effect and it produces negative effects under certain conditions (Behrouzi et al. 2009: 165).

C. The depleted uranium in recent years has been used in some international conflicts, but this modern weapon has characteristics that seriously raise the issue of the legitimacy of its use in international law, especially international humanitarian law. Whether the depleted uranium is considered as a conventional weapon or a weapon of mass destruction, and in case it is used whether the effects are limited to the time and place of use, or it may have further harmful effects. Ultimately, whether the principles of unnecessary suffering prohibition, the discrimination principle, precaution, and environmental preservation that are recognized as international humanitarian law, are considered when this weapon is used? The examination of these issues makes it clear that because the scientific researchers have not reached an end result yet, it is still not possible to obtain a clear result about the

amount of damage that depleted uranium causes to humans. Moreover, there is no distinct legal reasoning and method in this regard at the international level and the international specialized agencies held different views (Bagheri Abyaneh and Ansarian 2014: 125).

RESULTS

An area that is undergone environmental changes, degradation, and pollution is the border areas between the two countries of Iran and Iraq as the pollution posed serious hazard in the region.

In the border areas of the two countries, the presence of dust and sand storm and chemical contamination due to the use of chemical weapons, we witness depleted uranium contamination from the use of unconventional weapons. These factors cause environmental contamination and degradation in the region.

Many rules of international law are non-binding, and in case some rules are binding, the power of political elites prevents the realization of concepts and the administration of their provisions on evidence. On the other hand, taking into account the scope of the rules, all regional issues cannot be resolved by solely relying on these rules. Therefore, we must bring about regional cooperation to prevent the environmental instability.

The research findings and results show that "international law including international conventions, because of their specific objectives, does not meet the environmental needs of Iran and Iraq in reaching sustainable development goals and in order to achieve environmental health, "the observance of international law and the cooperation between Iran and Iraq for the environmental preservation are necessary". In this regard, bilateral cooperation between Iran and Iraq could solve the transboundary environmental problems of the two countries, and this cooperation would be a good sample for cooperation in other border areas such as Aras.

REFERENCES

- Alaani S, Tafash M, Busby C, Hamdan M, Blaurock-Busch E (2011) Uranium and other contaminants in hair from the parents of children with congenital anomalies in Fallujah, Iraq. *Conflict and Health* Retrieved from <https://conflictandhealth.biomedcentral.com/articles/10.1186/1752-1505-5-15>
- Ardalan A (2011) Chemical weapons and international law. *Foreign Policy Quarterly*, 24(4).
- Bagheri Abiane A, Ansarian M (2014) The legitimacy problems in the use of depleted uranium weapons in international law. *Research Security Quarterly*, 13(45).
- Behrouzi A, Farashbandi F (2009) Applications of depleted uranium in the first and second Persian Gulf wars: a review article. *Iranian South Medical Journal. The Persian Gulf Biomedical Research Institute*, 12(3).
- Busby C (2001) Health Risk Following Exposure to Aeroesl Produced by the Use of Depleted Uranium Weapons. Conference 'Facts on depleted uranium. Retrieved from https://inis.iaea.org/collection/NCLCollectionStore/_Public/34/083/34083234.pdf
- Firouzi M (2005) *Right to the Environment*. Tehran: Jahad Daneshgahi.

- Ghafari M, Foroughi Zadeh M (2004) Health Consequences of Depleted Uranium application in the Persian Gulf & Balkan conflicts. *Journal of Military Medicine*, 4(4): 319-22.
- Ghaffari D, Mustafazadeh R (2015) An investigation on sources, consequences and solutions of dust storm phenomenon in Iran. *Journal of preservation and Exploitation of Natural Resources*, 4(2).
- Hosseini S (2013) Legal consideration of dust storm as transboundary pollution and an overview of Iran status. *Environmental Science and Technology*, Article 8(52).
- ICRC, the Hague 1907. Retrieved from <https://ihl-databases.icrc.org/applic/ihl/ihl.nsf/Treaty.xsp?action=openDocument&documentId=4D47F92DF3966A7EC12563CD002D6788>
- Khaji A, Mashkuri A (2016) The usage of ammunition containing depleted uranium and its impact. *Bioethics Journal Quarterly*, 6(19).
- OPCW, article I, Hague 1993. Retrieved from <https://www.opcw.org/chemical-weapons-convention/articles/article-i>
- OPCW, article II, Hague 1993. Retrieved from <https://www.opcw.org/chemical-weapons-convention/articles/article-ii-definitions-and-criteria>
- OPCW, the Hague 1997. Retrieved from https://www.opcw.org/sites/default/files/documents/publications/basic_facts/BasicFacts2k3.pdf
- Orhan E (2018) High Volume Adrenalin Solution Infiltration for Surgical Treatment of Gynaecomastia. *J Clin Exp Invest.*, 9(4): 145-9. <https://doi.org/10.5799/jcei/4001>
- Pourheidari G, Fallah F, Jenny N (2006) The destructive effects of depleted uranium weapons on the environment. *Journal of Army University: Annals of Military and Health Science Research*, 4(3).
- Rabbani M, Bagherzadeh N, Rafiei H (2014). Calculating raw material and work-in-process inventories in MTO. MTS production. *UCT Journal of Research in Science, Engineering and Technology*, 2(3): 109-16.
- Salah RB, Snoussi M, Louati N, Donia C, Frikha F, Hela M, Zouhir B (2018) The lymphoproliferative auto-immune syndrome: a rare cause of peripheral cytopenia. *Electronic Journal of General Medicine*, 15(5): em78. <https://doi.org/10.29333/ejgm/94112>
- Salbu B, Janssens K, Lind OC, Proost K, Gijssels L, Danesi PR (2004) Oxidation states of uranium in depleted uranium particles from Kuwait. <https://doi.org/10.1016/j.jenvrad.2004.04.001>
- Shahsevani A, Yarahmadi M, Jafarzadeh Haghighifard N, Naeimabadi A, Mahmoudian M, Saki H, Soulat M, Soleimani Z, Nadafi K (2011) Dust Storms: Environmental and Health impacts. *Journal of North Khorasan University of Medical Sciences*, 2(4). <https://doi.org/10.29252/jnkums.2.4.45>
- Sharifi Tarazkouhi H, Modarres Sabzavari S (2016) Use of chemical weapons in the Iraq-Iran war under the perspective of international criminal law. *Public Law*, 18(52).
- Soleimani P, Asgari H, Dadallahi Sohrab A, Elmizadeh H, Khazaei S (2016) Investigation on the dust effects on sea primary production in the Persian Gulf using remote sensing data. *Journal of Natural Environment (Iranian Journal of Natural Resources)*, 69(3).
- Student News Network International Group (2011) Retrieved from <http://snn.ir/en/news/158771>
- UN, documents, 1946. Retrieved from <http://www.un.org/documents/ga/res/1/ares1.htm>
- UN, Documents, Conference 1972. Retrieved from <http://www.un-documents.net/unchedec.htm>
- UN, Request for an examination in the nuclear tests 1974. Retrieved from <http://www.un.org/law/icjsum/9529.htm>
- UN, treaty 1959. Retrieved from <https://treaties.un.org/pages/showDetails.aspx?objid=0800000280136dbc>
- UN, treaty 1963. Retrieved from <https://treaties.un.org/pages/showDetails.aspx?objid=08000002801313d9>
- UN, treaty 1967. Retrieved from <https://www.un.org/disarmament/wmd/nuclear/npt/>
- UN, treaty 1996. Retrieved from https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVI-4&chapter=26&clang=_en
- UN, treaty 2017. Retrieved from <https://www.un.org/disarmament/wmd/nuclear/tpnw/>
- UN, website in Iran, 2017. Retrieved from <https://un.org.ir/farsi-news/item/4190-03-july-2017-international-conference-on-combating-sand-and-dust-storms-iran-farsi>
- Zarif M, Sadjadpour S (2008) *Multilateral Diplomacy*. Tehran: Ministry of Foreign Affairs Publication Center.