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Environmental law of the Kurdistan Region, and its compatibility with international principles of environmental policies

Salam Abdulqadir Abdulrahman

College of Law and Politics, University of Human Development, Iraq
salam.abdulrahman@uhd.edu.iq, salam.abdulrahman@gmail.com

Abstract. Environmental problems in Iraqi Kurdistan Region have been growing over the past two decades, and the regional government has responded by issuing legislation and regulation. This paper reviews the Kurdistan Regional environmental laws, and evaluates them against the international principles of environmental policies. It finds that the laws have incompatibility with the principles to varying degrees. The paper suggests that incorporating these principles into the environmental laws is necessary so as to have a just, participatory and precautionary environmental policy and a sustainable economy. The paper also looks at some environmental problems on the ground to further clarify the matter.

Keywords. IKR, Environment, Law, Regulation, Principle, Policy

Introduction

Iraqi Kurdistan Region (IKR henceforth) has witnessed economic development after the removal of the Iraqi dictator Saddam Hussein from power in 2003 and particularly after its status was formally recognised as an autonomous region within Iraq in the new Iraqi constitution which was approved in 2005 [1]. This recognition was followed by the allocation of a special budget to IKR from the Iraqi national budget and the creation of an opportunity to do trade and make business deals with other countries. IKR previously had existed as a self-administrative authority within Iraq since 1992 but it lived under two embargos up until 2003, one embargo was imposed by the United Nations on the whole Iraq and the other was imposed by the Iraqi government on IKR. The Kurds, which constitute the majority of the population of IKR, launched a popular revolt against Saddam in 1991 and in the following year the Western powers, mainly the United States, France and Britain, established a no-fly-zone over IKR to protect its population from Iraqi oppression.

The government of Kurdistan Region, formally known as the Kurdistan Regional Government (KRG henceforth), embarked on a development programme especially after 2005. It started with a national-wide reconstruction programme in the towns and villages and carried out developmental projects in the main cities. Part of the programme was the development of the oil sector which was done by inviting foreign companies and signing contracts with them. Work on the region's infrastructure had also begun. Needless to say, there were many shortcomings and corruption at all levels and at all times.

This development, however, is not without a cost. It has brought with itself many environmental problems. The region is now putting more CO₂ in the air; oil industry is growing fast which means more air, water and soil pollutions but also more depletion of the oil resource; cement, iron and other factories have increased in number; many more cars are on the roads than any time before; and electricity is now produced mainly from fossil fuel and its consumption has considerably risen. The surface water and groundwater are getting under more pressure, and the wastewater—municipal water, industrial and agricultural runoffs—are largely not treated. The change of lifestyle for many people, as the result of economic development, means more consumption of all kinds of products. This has resulted in an enormous increase of waste material, consequently large areas of land are polluted and the groundwater and nearby surface waters are contaminated. KRG has passed laws to deal with these problems.

The laws, however, need to be improved to accommodate better the international principles of environmental policies, (IPEPs henceforth). Sharon Beder has made a great effort in her book *Environmental Principles and Policies* to establish principles of environmental policies. These principles, according to her, have developed over the last decades and have roots in the international environmental treaties and agreements. And, more importantly, they can be used to evaluate national laws and policies. These are: *sustainability; the polluter pays principle; precautionary; participation; equity and human rights*.

This paper reviews the IPEPs briefly. It then reviews the environmental laws and regulations made by the Kurdistan Regional Parliament or other relevant governmental bodies and analyses them for their compatibility with IPEPs. These laws and regulations constitute the core environmental policy of IKR. Thus, the main question of this research is that to what extent the environmental policy of Iraqi Kurdistan Region is compatible with the international principles of environmental policies? The paper also looks at some environmental problems in IKR to further explain the matter.

This paper is about an evolving environmental policy of an oil-rich developing country in the Middle East. It is important for two main reasons: first, it shows the limitations and shortcomings of the environmental policy of IKR and proposes solution, i.e. how to improve IKR environmental policy for the benefit of both people and nature, and second, it suggests that in a globalised world a country is expected to consider the international norms and principles in dealing with various issues especially those which have a global dimension such as environmental issues. Environmental problems are growing in IKR. The first attempt by KRG to address the problem was by making laws and issuing regulations, but these laws and regulations need to improve and develop. This paper applies the IPEPs to achieve that goal.

The international principles of environmental policies

Sharon Beder establishes six principles for environmental policies in her book *Environmental Principles and Policies*. According to her, these principles ‘were developed over the past half century and have the broadest acceptance around the world’. They have, to different degrees, entered ‘international treaties and national law’. Beder argues that these principles can be used, as she does in her book, to ‘evaluate all environmental policies’ a country adopts. The first three principles ‘are specific to environmental matters’ and the last three principles ‘have wider social application’ [2].

The first principle is *sustainability*. According to this, the planet is finite and ‘the exponential growth of populations and industrial activity [cannot] be sustained without seriously depleting Earth’s resources and overloading the planet’s ability to deal with pollution and waste materials’ [2]. We can also say that sustainability is the one ‘that meets the needs of the present

without compromising the ability of future generations to meet their own needs,’ as defined by the United Nations General Assembly [3]. And it has two goals: ‘environmental health (measurement, evaluation, and control of environmental stressors to human health) and ecosystem vitality (measurement and assessment of ecosystem health and natural resource management),’ i.e. balance between the health of human beings and health of environment [4]. The *second* principle is *polluter pays principle*. This principle holds companies, pollution makers in general, responsible for the pollution they cause. They have to ‘either pay to prevent the pollution or pay for the damage’ they cause. This principle can change an old habit whereby companies were allowed to pollute air, water and land or deplete the natural resources ‘without compensation to society at large’ [2].

The third principle is *precautionary*. According to this, there must be a more anticipatory approach than reactionary approach to the environmental problems; i.e. considering ‘the environmental impacts of human activities in advance, evaluating risks and preventing activities known to be harmful...[as] it is safer, and often less expensive, to prevent damage rather than attempting to fix it up late.’ Modern environmental regulations ‘generally aim to prevent known risks rather than anticipate and prevent uncertain potential harm’, and governments are usually ‘reluctant to do anything to protect the environment unless demonstrable harm had already occurred.’ This principle, however, applies ‘when the risk is uncertain because either the probability of damage is uncertain and/or the extent of damage is uncertain’ [2].

The fourth principle is *participation*. This principle is about ‘the right of the public to participate in environmental decisions that might affect them.’ It is also about the right to be consulted. According to this principle the environmental impacts of any project have to be assessed and publically displayed so that the public have time to express their concerns and make submissions to the government, and the government must review the submissions before giving her approval to the project [2].

The fifth principle is *equity* which means ‘fairness’, in this context it means ‘fairness to future generations’. Equity is also defined as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs.’ It also means that ‘rewards and burdens [must be] distributed’ fairly [2]. This principle is close in practice to sustainability but more to its future aspect; to be fair to future generations.

And the sixth principle is *human rights*. According to this, ‘environmental protection is necessary to support some of the most fundamental of human rights, such as the rights to life, health and wellbeing...Environmentally damaging activities that result in death, injury and disease obviously breach human rights.’ However, the human rights can rather be achieved progressively, not immediately. This is accepted by international treaties such as the International Covenant on Economic, Social and Cultural Rights [2].

In the following sections we use these principles to evaluate the environmental laws and regulations of IKR and we bring examples to clarify the matter further.

Iraqi Kurdistan Region, the case study of this research, is a semi-autonomous region in the north of Iraq. Its administrative institutions were created in 1992 when the No-Fly-Zone was established over IKR by the Western powers, mainly the United States, France and Britain, following the defeat of Saddam Hussein in the first Gulf War in 1991 and the collapse of the Kurdish popular uprising in the same year. The No-Fly-Zone was established to protect the Kurds from the Iraqi government’s airpower. Later, the Iraqi government withdrew its administrative staff in the Kurdish areas so it left a vacuum which had to be filled soon. The Kurdish political forces at that time came together and held a general election, which was the first free election in Kurdistan Region, and established a government. The legislative branch of

the government, the Kurdistan Regional Parliament, started making legislation ever since but environmental matters were absent up until 2006 when for the first time water was discussed from an environmental perspective. IKR is recognised by the Iraqi constitution as an autonomous region within the federal Iraq [5]. IKR consists of three governorates, Erbil, Sulaymaniyah and Duhok, and its population is over 5 million. It covers an area of 40,000 km² [6].

Environmental Law

By *environmental law* we mean the laws that have been passed by the Kurdistan Regional Parliament on the environmental matters. These laws are over other laws except the constitution, i.e. regulations or instructions issued by the government must be based on the parliament laws.

Law No. 4 of 2006

This is first legislation by the Kurdistan Regional Parliament that contains a reference to the environment (*Law No. 4 of 2006* means the fourth package of law passed in the year 2006). It was passed to encourage and make rules for investment in IKR. Article 4 Paragraph 5 states that the investor must be committed to a clean environment and the security and health of the public [7].

The human rights principle is considered in this law. This can be understood from *a clean environment and the security and health of the public* which both can mean improving the life of the public. Article 3 of the Universal Declaration of Human Rights says: 'Everyone has the right to life, liberty and security of person' [8].

Law No. 9 of 2006

This law was passed for the then KRG Ministry of Water Resources (the Ministry of Water and Ministry of Agriculture were later combined and the laws stand valid). Article 2 Paragraph 1 states that the Ministry will work toward developing and investing in water resources to make the best use of water in the region. Paragraph 2 calls on the Ministry to raise the public's awareness about the importance of water resource and its protection. Paragraph 3 is about the water supply to agricultural farms, households, and industries...etc. Paragraph 5 states that the surface and groundwater have to be protected from 'dirt' and Paragraph 6 asks for the employment of modern methods to reduce water wasting in various sectors [9].

There are some complications in this law regarding the IPEPs. Sustainability appears in *developing and investing in water resources* so that, for example, the present and future generations have water security, however supplying water to agricultural farms, households...etc. without any sort of rationing or limitation will put pressure on the resource; water cannot be sustained in IKR if demand is only met by increasing the supply [10]. And the polluter pays principle does not get any mentioning in this law, in addition using the word 'dirt' instead of *pollutant*, from pollution, can negatively affect the process. *Pollutant* has a broader meaning, it is 'a substance that pollutes' while dirt is 'any substance that makes a surface not clean' according to the Cambridge Dictionary definition [11].

Related to this matter is Article 2 Paragraph 6 of *Law No. 1 of 2007* which was passed for the then Ministry of Agriculture. The law calls on the Ministry to provide modified seeds and artificial fertilisers to agriculture [12] but it ignores the problem of agricultural runoff; how it should be treated before it enters the rivers or mixes with groundwater. It is a fact that runoffs of agricultural farms cause water pollution since they carry chemicals from pesticides and other harmful substances [2].

Regarding the other principles, precautionary is slightly addressed—protecting waters from dirt—and participation is largely ignored; the public, farmers and other users, do not have a voice in the decisions related to the water management. Equity is considered, but there is a problem; increasing supply to farmers, industries...etc. will deny future generations from having an equal chance to the water resources.

Law No. 10 of 2006

Two essential IKR environmental laws are *Law No. 10 of 2006* and *Law No. 8 of 2008*, both outline the responsibility and duty of the then Ministry of Environment (this ministry was later dissolved and another body was formed in its place but the laws stand valid). We will discuss the latter law in the section following next.

Several purposes are stated for *Law No. 10 for 2006*; it is to protect and sustain the environment, a good public health, the natural resources and the different species; and it is to provide for sustainable development and bring about regional and international cooperation on environmental matters [13].

Article 2 identifies the duties and responsibilities of the Ministry of Environment. Paragraph 1 articulates that the Ministry will make suggestions to the government regarding environmental protection from pollution and improving its quality. Paragraphs 2, 3, and 4 talk about the sources of pollution; the necessity of having middle and long term plans to protect and improve the quality of environment and carry out the tasks in coordination with other ministries. Paragraph 5 pledges commitment to the regional and international environmental agreements and protocols. Paragraph 6 is about environmental safety which ought to be achieved by inspecting and investigating the possible sources of pollution and issuing regulations and observing their implementation to achieve the goals. Paragraph 11 is about researching and investigating the environmental impacts of the present and future projects on the region for the purpose of accepting or rejecting them. Paragraph 13 is about protecting and restoring nature and creating natural pastures. And the last paragraph, 14, is about considering the safety principles when treating trash and dangerous waste matters [13].

Sustainability principle appears in different words in Article 2 such as the environmental protection, improving environmental quality, commitment to international treaties which also consider sustainability, investigating sources of pollution...etc. Nevertheless, these expressions are not explicit about something; limited growth and limited use of natural resources. The polluter pays principle is barely hinted at in this law. There are no clear statements obliging the polluters to pay for the pollution they cause. And, equity gets some attention if we think of Paragraph 11; however sustainability as addressed in this law does not assure an equal chance for future generations to the natural resources in IKR.

Law No. 22 of 2007

IKR has vast reserves of oil and gas, and it has the legal power, granted by the Iraqi constitution, to exploit them [6]. Following the overthrow of Saddam Hussein, KRG started developing its oil through international foreign companies such as Chevron from the US, Western Zagros from Canada, Gulf Keystone Petroleum from the UK, Dogan Enerji from Turkey, Abu Dhabi National Energy Company from the UAE, Gazprom from Russia, Korea National Oil Company from South Korea, Addax Petroleum from China, Reliance Industries from India, and many more [14].

This law contains a number of references to the environment. Article 7 Paragraph 2 calls on the Ministry of Natural Resources, for which the law was passed, to develop the oil sector in a way

that minimises damages to the natural environment but also promotes a sustainable economic development. Article 24 Paragraph 3 Point 2 commits the party that undertakes exploration and development to the Ten Principles of the Global Compact which was launched by the United Nations in 2000 [15]. These principles are derived from international treaties and conventions. They are about the value system of a company which include values related to human rights, rights of labour, environment and anti-corruption. They point out that businesses should take ‘a precautionary approach to environmental challenges...promote environmental responsibility...[and] encourage...environmentally friendly technologies’ [16]. It is true that states have the choice not to consider the international principles in their internal policies [17]; however, the international principles are themselves a product of increasing interaction between states which also means an increasing obligation for states to follow them.

Article 26 is dedicated to invitation and awarding. Paragraph 3 stipulates a number of conditions for applicants, two of them are concerned with the environment: securing the health, safety and welfare of persons involved in or affected by the Petroleum Operations; and protecting the environment, preventing, minimising and remedying pollution, and other environmental harm from the Petroleum Operations [15].

Article 36 obligates the operator to remove from the contract area everything used in the Petroleum Operations and clean up the contract area (decommission)...’ Point 3 of this article obligates those who operate without a license to ‘clean up pollution resulting from those Petroleum Operations, or reimburse the costs of clean-up to the Region’ [15].

Article 37 Point 11 mentions safety, health, welfare, and environmental protection...etc. are to be in consistent with international criteria. Point 3 Paragraph 4 of this article states that protecting the environment requires ‘the adoption of methods and processes that minimise the impact of Petroleum Operations on the natural environment.’ Finally, Article 57 states that a percentage from the petroleum revenues ‘shall be used...to protect the environment’ [15].

Looking at the law from the perspective of IPEPs, we can say that sustainability principle is considered but it is not defined in any terms. This had probably allowed the then Minister of Natural Resources to say that he would try to increase oil production to 1 million barrels a day by 2016. He made this statement in 2014 when IKR was producing 400 barrels a day [18]. Attempt to accelerate pumping oil, which is finite and non-renewable, are not compatible with sustainability [3], and it may deprive future generations from this wealth. So equity as a principle is not well considered in this law.

The polluter pays principle appears in: using environmentally friendly technologies (the operator has to spend on technologies which are environmentally friendly) and minimising the adverse impacts of the petroleum by the operating company; remedying pollution; restoring or cleaning up the contract area or reimbursing the costs of clean-up; and a percentage from the petroleum revenues to the environmental fund. These rules can satisfy the polluter pays principle however the fact that no award or punishment is assigned, the operator may be tempted to evade the rules. For example, drivers of oil tanker vehicles or their owners never pay for oil spillage which frequently happens because of road accidents. More than 5,000 oil tanker vehicles in IKR transport crude oil mainly to the neighbouring countries [19].

Law No. 8 of 2008

This is the most comprehensive environmental law in IKR. Several purposes are stated; it is to protect the environment and public health from pollution and harmful activities; to use the natural sources modestly; environmental policy should be an inseparable part from general planning in all other sectors; and raising awareness and responsibility toward the environment [20].

Article 3 states that every person has the right to live in a calm and clean environment and it is the responsibility of every person to protect and work for a clean environment; protecting and improving the environment should be considered in the planning and programmes of all other sectors; all educational institutions in Kurdistan Region should make environmental study part of their curricula; it is the duty of all environmental civil society groups and all other similar groups, public and private institutions...etc. to spread environmental awareness and education; all administrative units should work on reducing the use of natural sources so as to have sustainability; the health institutions and others should include environmental programmes in their work; the Ministry of Environment may cooperate with international non-governmental groups on environmental matters; and KRG Ministry of Environment should cooperate with Iraqi Ministry of Environment regarding the international agreements and treaties [20].

Article 10 stipulates the creation of a special fund to be called Environmental Protection and Improvement Fund in Iraqi Kurdistan Region, and the aim is to have money available for environmental protection and the goals set in the law. The revenue of the Fund comes mainly from three sources: a portion allocated from the annual budget; donation; and environmental taxes and fines. Article 21 specifies one kind of fine which must be paid by those who harm the environment and do not repair the damages they cause [20].

Article 19 states that the civil society groups and individuals will inform the Ministry of Environment about activities and behaviour that might harm the environment. However, Article 20 takes the participation principle to another stage. It says that the Ministry of Environment in cooperation with the Ministry of Finance will give individuals incentives to carry out activities or provide opinions that can benefit the environment [20].

Three articles of the law are allocated to the protection and improvement of water resources; Article 22 articulates that all sorts of pollutants are forbidden to be thrown into water sources if they are not treated; Article 23 says that the regional standards will be applied in dealing with surface water and groundwater; and Article 34 states that the Ministry of Environment will identify, and change when needed, the level of permissible pollution of water [20].

Three other articles are allocated to the protection and improvement of air. Article 25, 26 and 27 say that everyone is obliged by law not to pollute the air, and all activities that pollute the air must follow the procedures and should not exceed the limit that the Ministry of Environment will set. And three articles are allocated to the protection and improvement of land and soil. Article 28 states that the following activities are prohibited: activities that pollute or harm agricultural lands; activities that pollute or harm pastures; industrial activities on agricultural lands; changing farmlands to houses or industrial projects; and moving soil away from agricultural lands and using it for non-agricultural purposes [20].

Article 30 states that the Ministry of Environment and in cooperation with other relevant parties will outline the working condition for activities that involve the exploitation of natural resources including oil in a way that protects the environment from pollution and misuse [20].

Article 31, 32 and 33 are allocated to flora and fauna. They prohibit the following activities: activities that lead to extinction of animals and plants; fishing and hunting in breeding periods; using explosives or poisons in fishing; cutting trees or plants in public areas; and hunting, catching and/or selling the endangered species [20].

Article 34, 35 and 36 are about dangerous materials. They point out that making, importing, selling or buying, transporting, storing, using, hiding or dumping dangerous materials, be they solid, liquid or gas, are not allowed by anyone unless it is certain that they do not harm the environment, and any action has to be coordinated with the Ministry of Environment. And the following three articles, 37, 38 and 38 outline the government policy regarding pesticides; the

internationally banned chemical materials will be banned in IKR; any pesticides used in agricultural farms must be harmless to the environment [20].

This law is the most comprehensive and progressive environmental law in IKR, and all the IPEPs have meaningful presence in it. However, the polluter pays principle is inadequately addressed.

The principle is approached in two ways: first, to prevent pollution from happening and, second, environmental taxes and fines to be collected and the polluter has to pay for the damages it causes. The first approach is not achievable in such general terms and it goes contrary to *a certain level of pollution* that allowed by this law. The second approach takes the matter closer to the principle however there must be instructions about who should pay and how to pay for environmental damages.

Law No. 3 of 2010

This law was passed for the board which has replaced the Ministry of Environment. The objectives of the law are stated in Article 3: protecting the environment from pollution and preserving the cleanness and beauty of the region; protecting the public health from environmental risks; eliminating traces of chemical and other weapons in the region; and promoting environmental awareness and individual responsibility toward the environment. The law identifies the functions of the board by repeating Article 2 of Law No. 10 of 2006. It also states that all the provisions of Law No. 8 of 2008 are valid and binding [21]. We previously assessed these laws, and the new clauses in this law do not have anything new to be discussed in relation to IPEPs.

Law No. 6 of 2010

In 2010 the two ministries of Agriculture and Water Resources were combined in one ministry called the Ministry of Agriculture and Water Resources for which *Law No. 6 of 2010* was passed. The law contains not many articles about the environment except Article 2 Paragraph 3 which states that the ministry will have to develop strategic projects such as building dams, irrigation projects and projects to protect surface water and groundwater, and Paragraph 14 mentions that the ministry will have to educate farmers on the best use of water [22]. These statements bring the law closer to sustainability and equity principles; however they need to be more precise about water conservation, consumption with limits and securing access to water for future generations.

Environmental Regulation

Regulations are generally defined as ‘rules and administrative codes issued by governmental agencies at all levels, municipal, county, state and federal’ [23]. In the context of IKR jurisprudence, regulations are usually issued by government ministries or other government agencies to facilitate the implementation of the laws made by the Parliament. Regarding the environmental issues, IKR has issued a number of regulations: environmental fund, noise reduction, atmosphere protection, natural reserves establishment, forest protection, water-well drilling, and environmental impact assessment of petroleum operations.

Regulation No. 2 of 2009, Environmental fund

This regulation was issued in 2009 by the then Minister of Environment to bring into force the creation of an environmental fund as demanded by Article 10 of Law No. 8 of 2008. The Fund has some objectives, they include financial support for: researches, activities and initiatives that contribute to environmentally sustainable projects, environmentally-friendly technologies, and

environmental preservation. The Fund will also be used to create environmental awareness and education, support local environmental groups, train environmental staffs, manage reserves and monitor the environment [24].

Article 3 orders the establishment of a committee to manage the Fund. Point 5 states that the chairman of the committee will nominate a ‘Representative of private sector...in coordination with the related parties’ and, according to Point 6, a representative, or more, from donators (honorary members) and Point 4 mentions that the Board of Environmental Protection and Improvement may invite experts to benefit from their views [24].

This regulation does not address precautionary principle and insufficiently addresses participation. The problems with participation principle are two: first, participation in decision making is restricted to private sector and donors and, second, the representatives of these groups are to be *nominated* by the chairman of the committee of the Fund and the position of the donors’ representative will be *honorary*. Thus, we can say that participation as a principle is not considered well in this regulation.

Also, sustainability principle is in trouble. The Fund is supposed to be used to restore the environment through repairing the damages...etc. but this is not what happens in reality. The head of the Environmental Protection and Improvement Board said that his board has no power whatsoever on the Fund and the money is controlled and spent by the Ministry of Finance. He further said that 80 per cent of the money in the Fund goes to the government public purse and 20 per cent goes to KRG traffic agency [25].

Regulation No. 1 of 2011, Noise reduction

This regulation was issued in 2011 by the chairwoman of Environmental Protection and Improvement Board in reference to Article 10 of Law No. 3 of 2010 and Law No. 8 of 2008. The purpose is to set an acceptable level of noise pollution.

Article 2 states that the Board of Environmental Protection and Improvement shall receive complaints by citizens about all sorts of noises that cause disturbance regardless of their sources. The Board will review the complaint, and if proved that the level of the noise is unacceptable the complaint will then be sent to the Provincial Council [24].

Article 3 instructs the formation of Noise Observatory in major cities to perform a number of tasks including: conducting researches about the current and future noises by studying the noise-making sources in the targeted area and their health impacts, and prepare data maps for that purpose; establish links with people through the media with the purpose of spreading awareness about the ‘risks of noises on public health, quality of life and preparation to execute’ this regulation. The Noise Observatory will prepare national programmes, Article 4 to 17, on how to reduce noise in all places by setting standards and measures for all sources which make noise [24].

Noise is a pollution hence the polluter pays principle applies here, however this regulation does not establish a scheme for polluters to pay and compensate for the damages they cause. This is at a time when noise pollution is rampant in IKR especially the noise of electricity generators installed in residential areas. For example, in the town of Kalar, which is located in the southeast of Sulaimaniyah Province and it is home to more than 200,000 people, there are 112 privately-owned electricity generators installed in different areas in the city. They burn diesel to supply power to homes and shops when the government electricity, supplied through national gridlines, cuts off. In summer, when demand on electricity increases due to high temperature, generators provide up to 15 hours in 24 hours. These generators are a big source of air pollution and noise. The houses or shops around them are exposed to intense noise which exceeds the 65 decibel considered by this regulation to be a dangerous level [26], and the noise can cause hearing

problem. 'In some developing countries, where generator sets are used regularly for electricity, the sound from multiple generators could cause some level of impairment after a long time' [3]. Lack of enforcement of this regulation can cause inadequacy in another principle; the human rights. According to Article 3 of the Universal Declaration of Human Rights, 'Everyone has the right to life, liberty and security of person', and Article 22 states that 'Everyone, as a member of society, has the right to social security' [8]. Exposure to constant noise and toxic gases, as it is the case of the local generators, is certainly against one's security.

Another principle which is not adequately addresses is participation. People are allowed to register complaints and the board will review and submit them to the Provincial Council in the city where the complaint has been made, but then no other follow-ups are mentioned as to what will happen to the complaint after it is forwarded to the city council.

Regulation No. 2 of 2011, Protection of atmosphere from common and dangerous air pollutions

This regulation was issued in 2011 by the chairwoman of Environmental Protection and Improvement Board in pursuance of Article 10 of Law No. 3 of 2010 and Articles 26 and 27 of Law No. 8 of 2008. The purpose is to protect the atmosphere from common and dangerous types of air pollution.

Article 3 categorises a wide range of 'common air pollutants' that most of them do not exist in IKR but some of them do such as cement plants, iron plants (they make iron rod for construction), oil refineries, paint plants, oil storages, and landfills [24]. The regulation surprisingly does not name motorcars as a source of air pollution. The number of motorcars in IKR currently stands at around 1,700,000 [27]. It is recognised that 'the use of motor vehicles powered by internal combustion engines is the major source of urban air pollution' [28].

Article 5 identifies what the environmental board should do about the air pollution: monitoring and determining the sources, level, type, size and impact of air pollution in specific areas through data collection and analysis; preparing a national standard for the air quality in IKR; inspecting all public and private establishments which pollute the air; establishing monitoring stations in different areas; all future projects should take the opinion of the environmental board; and all the concerned persons should supply the board with information and data [24].

Article 8 and 9 order all the parties that cause air pollution to do the following: submission of environmental impact assessment and procedures for ambient air quality protection according the standards of the region; providing and maintaining efficient methods for treating air pollution; constant monitoring and supplying the government with information; and attempts to reduce air pollution through cleansing techniques [24].

These are the important provisions in this regulation. However, two IPEPs are ignored here. The first one is polluter pays principle. It is clear from the regulation that certain level of air pollution is allowed, however the parties causing pollution are under no obligation to pay for their pollution. The second one is participation. It is true that the regulation demands the concerned parties to supply information and data, however neither the public nor the parties causing pollution are going to be consulted, and it is generally the public who are mostly affected. For example, the air over Bazyan town near Sulaymaniyah city is badly polluted by the smog of the cement factories in the area [29] and the agricultural farms in Gwer district, located in the southwest of Erbil city, are seriously affected by the toxic gases emitted by nearly 80 oil refineries in the areas. Many of these refineries operate without a legal licence. Farmers in the area complain that their products are contaminated by the refineries [30]. This pollution means that the lives of people in those areas are in danger, thus the human rights principle is under question.

Equity depends on the current action on air pollution. This regulation is an attempt to limit the air pollution in IKR and the parties are required to try to reduce air pollution, but no hard measures are yet in place. This means that the future generations can be badly affected.

Regulation No. 9 of 2011, The natural reserves in Iraqi Kurdistan Region

This regulation was issued in 2011 by the Council of Ministers of Kurdistan Regional Government in pursuance of Article 44 of Law 8 of 2008 to maintain the natural reserves in Kurdistan Region of Iraq. The natural reserve is defined in Article 1 as ‘any area of land or water with determined geographic dimensions, containing unique natural systems or living species coexist together... [they must] be preserved and sustained’ [24].

Article 2 and 3 explain the aims of the regulation and duties of the supreme committee which will be established in the future. The aims are: preservation of the environmental resources, biodiversity, plants and species of the protected areas; setting up plans for the management of the reserves; conducting scientific studies; encouraging environmental tourism; spreading awareness among citizens regarding the importance of the natural reserves as a national heritage, using the media outlets for that matter; arranging relocation for residents in the preserved areas; protecting natural views and caves; sustainable use of economic resources in the site; preservation of cultural, heritage and traditional knowledge of the local society related to the site; and coordination with related international organizations and states that have experience in natural reserves [24].

These are the important provisions in this regulation which clearly address the principles of sustainability, precautionary, equity and human rights—maintaining reserves will be good for the health of the environment hence for the health of the people. However participation principle is missing. The regulation states that the supreme committee will try to preserve the ‘traditional knowledge of the local society related to the [preserved] site’ but this does not amount to any important level of the public’s participation in the decision making process. Moreover, no areas in IKR have yet been designated as a natural reserve, as far as the author is informed, but there are vast areas in the region, mostly agricultural, that are occupied by the government and ruling party officials for private leisure [31]. This kind of occupation is in a sense polluting the area; the land no longer remains wild so the occupiers need to pay for the damages they cause should we consider the polluter pays principle.

Regulation No. 10 of 2012, Act of forests in Kurdistan Region of Iraq

This regulation was issued in 2012 by the President of IKR for the Ministry of Agriculture and Water Resources to maintain the stability and expand the natural or man-made forests, reduce the impact of climate change, encourage investment in the forests and develop tourism areas. These aims are stated in Article 2 [24].

Article 4 introduces procedures for forest protection: disposing of forest is prohibited; transferring forest ownership from public to private is not allowed; it is also not allowed to: cultivate forest lands, cut the trees, graze, change forest’s landscape, and extract or fragment forest lands. And when a project is approved to be built within a forest, 30% of its trees and bushes must be preserved. However, Article 7 makes few exceptions for residents living in or nearby a forest: they can utilise dry woods; graze cattle but only their own cattle [24].

Article 8 states that the Ministry of Agriculture and Water Resources may expand forests and afforest areas where trees do not grow naturally, and educate the public about the importance of forests, and how to preserve, protect and maintain forests from fire, and also to make this subject part of school curricula in different stages and involve students in afforestation

campaigns [24]. The ministry will also encourage private forest nurseries according to Article 11.

The other articles aim at forest preservation and management through orders and financial penalties. For example, Article 14 calls on the forest police to confiscate the tools used in damaging forests, Article 15 states that making charcoals in the forests is not allowed, and Article 20 lays down rules to protect forests from fire. The rest of the articles, 22-24, are all about fines and prison sentences for violators of the terms of this regulation [24].

The IPEPs appear well in this regulation: conservation will help to manage the forests in a sustainable way, sustainability, for this and future generations so equity can materialise too; the fact that the forests are reasonably approached in this regulation means that precautionary principle is also considered; the financial penalties and prison sentences for violators mean that the polluter pays principle is present as well; and healthy forests are good for people's health so we can say that human rights as a principle is considered. However, participation principle does not appear very well here. The local knowledge and expertise can be very important for the preservation and development of the forests, and local people can be used in fighting fire in the forests.

Fire in the forests in IKR is a huge and persistent problem. Every year hundreds of fires occur in the mountains and hillsides that result in burning trees, destroying habitats of animals and birds, loss of pasture and other significant resources, and damages to air and the environment as a whole [32]. The regulation mentions in Article 20 that the Ministry will provide 'mechanical and manual tools and requirements for fire fighting'. Fire in the mountains is a recurring event. Getting the locals to fight fire in their areas by providing tools and incentives is very significant for controlling fire.

Regulation No. 1 of 2015, Water well drilling

This regulation was issued in 2015 by the Minister of Agriculture and Water Resources to regulate the drilling of water wells in IKR. It was made in pursuance of Paragraph 3 of Article 5 of Law No. 6 of 2010 which was issued for the Ministry of Agriculture and Water Resources. The regulation sets many rules for digging wells in IKR and makes the process of obtaining licence difficult.

Article 2 determines the distance which must exist between two water wells; it sets different distances for different regions, ranging from 250 to 600 metres, based on precipitation and recovery expectation, and distance between water walls and springs or karezes must be at least 500 metres according to Article 3 [24].

Article 4 is about agricultural water wells. It stipulates that only when the surface water does not serve anymore, when it is not available anymore, wells can then be drilled. And Article 7 gives more instructions on the circumstances in which drilling wells are allowed for irrigation purpose. Those instructions make obtaining licence difficult and subject to renewability. Paragraph 10 says that 'The well owner should install irrigation gauge on the well, and should only extract the requisite amount of water'. There is also penalty for those who do not adhere to the license procedures; the water well will be backfilled and further financial penalties will be applied [24].

Article 10 states that obtaining license to groundwater is conditional upon water recovery in the area; 'if underground water level lowered or water type and quantity changed' then the authority 'will stop licensing any pool or partial pool'. Article 14 explains the various financial penalties for drilling wells without licence and the actions taken against the owners of the drilling tools [24].

This regulation addresses many of IPEPs except participation. Plans are made by those who hold top position and the public are expected to follow them. The local knowledge is indispensable for water preservation plans [33] while strict government observation is necessary to stop and hold accountable those who violate the rules set out in this regulation. Lack of observation in the past has led to somehow a chaotic situation regarding groundwater exploration in IKR. There are around 15 unlicensed wells just in the Province of Sulaymaniyah [34], and there are thousands in the other provinces [35]. This is too much for a small region like IKR and it certainly depletes the groundwater.

Regulation No.1 of 2015, Environmental impact assessment of petroleum operations

This is the last regulation to discuss in this paper. The regulation was issued by the KRG Minister of Natural Resources in pursuance of articles 53 and 60 of the Oil and Gas Law. The aim is to ensure that petroleum operations in IKR ‘are designed, operated and terminated in a manner that minimises damage to the environment’ [36]. We note that this regulation and the one before are given the same number, No. 1, but this is not a conflict because they are issued by two different ministries.

Article 4 articulates that all petroleum companies are required to submit an environmental impact assessment report to the KRG Ministry of Natural Resources before starting any operations, and the guidelines of the report and what should be in are stated in Article 5. Article 1 Paragraph 6 defines the environmental impact assessment as: ‘the identification, prediction and assessment of the significant positive and negative effects of any given Petroleum Operations on the environment’ and ‘the determination of appropriate measures (including design and operational choices) to manage, mitigate and where possible avoid any significant negative environmental effects of the Operation’ [36].

Article 18 makes mandatory for all petroleum operations in IKR to provide their environmental assessment impact including those operations which precede the issue of this regulation. Many other articles explain the options the Ministry has regarding the reports and the options the operators have when they hear back from the government [36].

Article 28 states that the ministry ‘may allow any organisation, government body or member of the public to inspect any EIA Reports and related information submitted to the Ministry and any responses that it issues in respect of such Report.’ The rest of the articles set forth penalties for violators of the rules of the regulation [36].

This regulation addresses the precautionary principle very well; it is about considering future impact of petroleum operations on the environment and what should be done. This caution is linked to sustainability and equity; if the right assessment is done and the right measures are taken to manage and mitigate the negative environmental impacts of oil operations then precautionary, equity and, to some extent, human rights principles are materialised. The polluter pays principle is also addressed; penalties are identified for the violators. However, participation principle is paid a lip service in Article 28. The public *may* be given a chance to see the report but no further action is promised.

The environmental impact assessment report of petroleum operations as required by the government does not seem to be having any effects on the ground. There are many operators without a license and even those with a license do not seem to be following the instructions. People in many areas in IKR complain about air pollution caused by oil refineries. People also worry about the impact of pollution on their health [37].

Conclusion

Iraqi Kurdistan Region possesses laws and regulations to deal with environmental problems. From 2006 to 2015 the Kurdistan Regional Parliament and Kurdistan Regional Government have made several laws and regulations on the environment. However, the laws and regulations are not thoroughly compatible with the international principles of environmental policies. This research was an attempt to identify the shortcomings of IKR environmental laws and regulations by evaluating them against the IPEPs.

The rationale of our research lies in three interrelated factors: the first one is that the environmental problems are largely global by nature, for example, national air pollution and water pollution have regional and international impacts; the second one is that the IPEPs are the result of many environmental international treaties and agreements developed over a long period of time, as Beder points out, and they can be integrated into national laws and policies; and finally, IKR is part of the global world and it is expected to consider international norms and principles in its policies. The IPEPs aim to improve the health of the environment and the health of human beings, and so we have used them to evaluate the existing environmental laws and regulations of IKR, and we have come up with the some results as we explain below. We go from the principles that are most reflected in IKR laws and regulations to the principles that are least reflected.

Human rights, which means in this context protecting the environment so as to protect the humans' right to life and health or preventing damages to the environment to prevent damages to humans, their health and their wellbeing, is *mainly* reflected in the laws and regulations of IKR. We believe that this is because the principle is rather broad and flexible and can accommodate many policies which aim to generally improve life for human beings.

Sustainability, which means the needs of the present generation to be satisfied without comprising the needs of future generations and the health of the environment, is *generally* reflected in the laws and regulations of IKR. The IKR environmental laws, like environmental laws in other countries, were made to deal with environmental problems or protect the environment. This increases the sustainability element in them. However, we need to say that this principle is not well presented or defined in some of the laws and regulations.

Equity, which means being fair to future generations in distributing the benefits of the natural resources and the environment in general and not to make life more difficult for them than as it is to us, is also *generally* reflected in the laws and regulations of IKR. This principle can be linked to sustainability to a great extent, i.e. equity can be achieved when sustainability can be well achieved, and if the latter faces problem the former faces more problems. Since sustainability lacks clarity in definition and approach, equity then cannot be in a great position. Precautionary, which means environmental problems need to be approached in an anticipatory way rather than in a reactionary way, i.e. to prevent problems from happening rather than to deal with the consequences, is *somewhat* reflected in the laws and regulations of IKR. This principle usually requires advancement in environmental science and technology, and in studies and research. IKR is a developing region within a developing country in the Middle East, and science, technology and advanced studies are generally in short supply, hence precautionary does not occupy a central position in IKR laws and regulations.

The polluter pays principle, which means the polluters should pay, first, to prevent pollution or, second, to pay for the damages they cause to the environment, is *not well reflected* in IKR laws and regulations. The reason for this, we believe, is that IKR is a rentier country with a background in socialism so it does not have a developed taxation system. The fact that polluters are not fully targeted as a source of revenue has roots in the economic system of IKR and in its understanding to environmental problems and solutions.

Participation, which means allowing the public to be part of the decision making process regarding the environmental matters, is *the least reflected* principle in IKR environmental laws and regulations. This has to do with the political system of IKR which is not very democratic. Elections are held and freedom of speech exists but the political authority has not been able to completely throw away past authoritarianism and take the public opinion seriously. This principle needs to be very well integrated into IKR environmental policy. The other principles also need to be reviewed and better considered.

Finally, as we have seen from the examples we provided about the environmental problems in IKR, it is clear that IKR has far more problems with enforcing laws and regulations than making them. It is very important to understand the factors that make the environmental law enforcement weak in IKR. This can be the subject of future researches.

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