

A SURVEY OF THE ENVIRONMENTAL CHALLENGES OF ISLAMIC COUNTRIES IN INDUSTRY AND MINE AND THEIR MANAGEMENT METHOD

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ABSTRACT

One of the most important issues of Islamic countries is environmental challenges in industry and mine. The unsuitable effects of industrial and mineral activities on local ecosystems as air pollution, water pollution, increasing metals concentration, garbage and industrial wastewater and marine pollution and water resources are some examples of these problems. The present study evaluated the environmental challenges of Islamic countries in mine and industry and also the reasons of their weakness in environmental management are taken into attention. The study method is descriptive-analytic and the data collection is done by document-library method. The results showed that Islamic countries are encountered with 4 major weaknesses as the weakness of law making and policy making, financial and economic problems, Technological weakness and environmental education weakness. By considering these issues, systematic and structural problems are increased more and some recommendations are presented to eliminate environmental challenges in these countries as taking environmental policies of Islamic countries, interaction of Islamic governments with international communities, considering Islamic teachings regarding the environment protection and green industries.

KEYWORDS: Environmental challenges, Environmental Management, Industry, Islamic Countries, Mine.

INTRODUCTION

In international era, one of the challenging issues is environment and relevant crises. The environment consideration was occurred in 1960s and they mostly focused on industrial pollution due to the increasing growth of industrial economies (Farazmand and Delphi, 2013). According to international convention of environment, the main universal threat of global community is “greenhouse gas” based on industrial activities. The studies showed that greenhouse gas has important link with ozone depletion and it is due to ChloroFluro Carbon gases. Also, it can have unknown impact on plants and animals life and deteriorate immunity system of many of these species (Miller, 2007). Also, mining and mine exploration activities are important environmental pollution examples and their effects are revealed well. The environmental destruction of industrial and mine activities is observed in developed countries, developing and third world countries. This is more serious in developing and third world countries as these countries attempt more to compensate their deprivation in development and achieving growth and developing to environment protection can be on priority (Nasrollahi *et al.*, 2012). Here, Islamic countries with their specific features should be considered more. The important features of Islam world are including undeveloped infrastructures, poverty, unemployment and the lack of innovation and creativity in technology development. Islam world is one of the greatest pioneers in mineral materials extraction (Adnan Khan, 2009). Also, it is developed from industrial development as environmental problems of industrial economy make the Islamic countries encounter with some difficulties (Bazzi, 2002). According to one of the new statistics in environmental destruction costs in Islamic countries, the costs in Middle East and Northern Africa in terms of GDP are including: 4.8% of GDP in Aljazeera, 5.4% in Egypt, 4% in Lebanon, 4.6% in Morocco, 4.7% in Syria, 2.7% in Tunisia, more than 4% in Bangladesh, more than 5% in Indonesia, 6% in Pakistan and 4.8 to 10% in Islamic Republic of Iran (Muawya, 2008).

One of the most important hypotheses regarding industrialization of developing countries namely in Islamic countries is pollution shelter. As developed countries apply severe environmental policies compared to developing countries, active polluting industries in developed countries, transfer their production operation from their countries to developing countries with weak environmental policies. Thus, developing countries are turned into a place to absorb polluting industries (BarghiOskuyi and Yavari, 2007; Nasrollahi *et al.*, 2012; Holinger, 2008). These factors can increase the environment destruction in developing countries and sustainable development in these countries is encountered with serious problems. Thus, air, water and soil pollution in these countries is an unavoidable product and industrial development by forming harmful chemical products and industrial wastage including heavy metals and increasing

energy consumption (fossil fuels) and air pollutant gas emission lead into environment pollution (Nasrolahi *et al.*, 2012:89). Most of Islamic countries are in third world or developing countries and considering the existing challenges in these countries regarding the pollutants of industrial and mineral activities is of great importance. We should say that today, the quality of environmental management system of each country is an important asset in competition to absorb direct foreign investment. As industrial and mineral investor companies found that social and political outcomes of environment destruction can impose heavy costs on business and it is necessary that Islamic countries absorb foreign investments and consider environmental management and eliminate the environmental challenges namely in industry and mine.

Based on the important issues in the present study, we can investigate the environmental challenges of Islamic countries in industrial and mineral pollutants and discuss the reasons of weakness of environmental management of Islamic world countries to cope up with the harmful outcomes of industrial and mineral activities. Finally, required solutions are presented to improve the quality of environmental management in these countries.

Study questions

- 1- What are the most important environmental challenges of Islamic countries in mine and industry?
- 2- How is the condition of Islamic countries in terms of environmental management and industrial environmental pollutants compared to developed countries?
- 3- What are the most important reasons of environmental management weakness in Islamic world countries?
- 4- Which solutions are appropriate to cope up with the environmental challenges of Islamic countries?

The shortage of relevant resources is one of the most important problems of the study. A few researches have been conducted on environmental challenges of Islamic countries. Also, there is no study regarding the environmental effects of mine and industry on Islamic countries. The researches mostly focused on Islam approach regarding environment and the investigation of environmental challenges of Islamic countries as generally. Some of the examples of the studies are including:

- The International Bank for Reconstruction and Development with the collaboration of The World Bank (2010) published a report “the costs of environmental degradation in Middle East and North of Africa”. This study evaluated seven issues of water, air pollution, forest degradation, land and soil degradation and estimated environmental degradation costs.
- The study of David Michle *et al.*, (2010) “Scientific, Intellectual, and Governance Cooperation on Emerging Environmental Challenges in the Muslim World in the meeting of Saban Center for Middle East Policy as affiliated to Brookings institution, followed a project “USA relations with Islam world”. The results of the study are regarding the investigation of environmental pollutants, investment of Islamic countries to control and prevent environmental degradation, education in environment and Islam world and USA collaboration to cope with environmental problems of Islamic countries.
- Muhammad Gallant (2010) in the study “Environmental Functions and its challenges in Muslim countries” evaluated Islam approach to environment and then explained different types of environmental pollutions in Muslim countries.

The study of Bazzi (2003), “A Reflection on Sustainable Environment in Islamic World” evaluated environmental challenges of Muslim countries and the reasons from the view of Islam. The results showed that increasing individualism in Muslim communities is not using Islam teachings regarding environment protection as the reasons of weakness of environmental challenges management from Muslim countries.

- Rezayiniad and Aftabi (2013) in a study “A view of environmental challenges in Muslim countries” evaluated the challenges and problems of Islamic countries in terms of Geographical location of countries. The results showed that the major environmental challenges and problems in these countries are dedicated to ecological issues as deforesting, water pollution and dryness. Also, the reasons of failure of Muslim countries are evaluated regarding the improvement of environment arising from external factors (colonialism, international labor division, and globalization) and internal factors (weakness of Islamic governments, not acting in accordance to Islamic teachings, scientific and technological weakness).

MATERIALS AND METHODS

The present study is development in terms of purpose and descriptive-analytic and comparative. The data collection is library method and it is collected based on annual reports of international organizations as World Bank. This study is

composed of three main sections. First section deals with introduction of Islamic countries and different environmental challenges. We refer to the condition of Islamic countries in terms of environmental indices in section 2. The reasons of the weakness of environmental management of Muslim countries are explained in third section.

Geographical location of Muslim countries

Muslim countries with the area of 30 million Km² and a population of more than one billion include 25% of the countries in the world (Niagharayi and Askarizade, 2010:1). Muslim countries include 57 countries distributed in four contents of the world. Albani as an European country and Turkey considering itself as European and Surinam, an American country, other countries are from Asia or Africa continent (Rezayinia and Aftabi, 2013:55). Generally, Muslim countries in six fields include as follows:

Table 1- The Islamic countries border

Geographical region	Explanation
Southwestern Asia	It is the most important Islamic region as Islam was emerged from this region and Mecca as Qible of Muslims is located here. In addition, Iran is located also in this region. Also, we should give much attention to the prophets land, Palestine and its religious and political issues.
Southeastern Asia	It is the farthest Islam country and Indonesia as one of the most populated Islamic country is located in this region.
Southern and central Asia	Southern Asia includes a part of India peninsula and Bangladesh and Pakistan as the second and third Islamic populated country is located in this region and Middle Asia is an Islamic region emerged after USSR collapse in the late 20 th century and five Islamic countries located in this place and Kazakhstan is the biggest country here.
Southern Europe and Balkan peninsula	In addition to Albania, many new countries as Bosnia and Herzegovina were created based on division of old Yugoslavia.
Central Africa (east and west)	In tropical region, it continues from east to west of Africa and GuineaGulf.
Northern Africa	It is based on great desert of North Africa and big northern Africa countries.

Source: Rezayinia and Aftabi, 2013

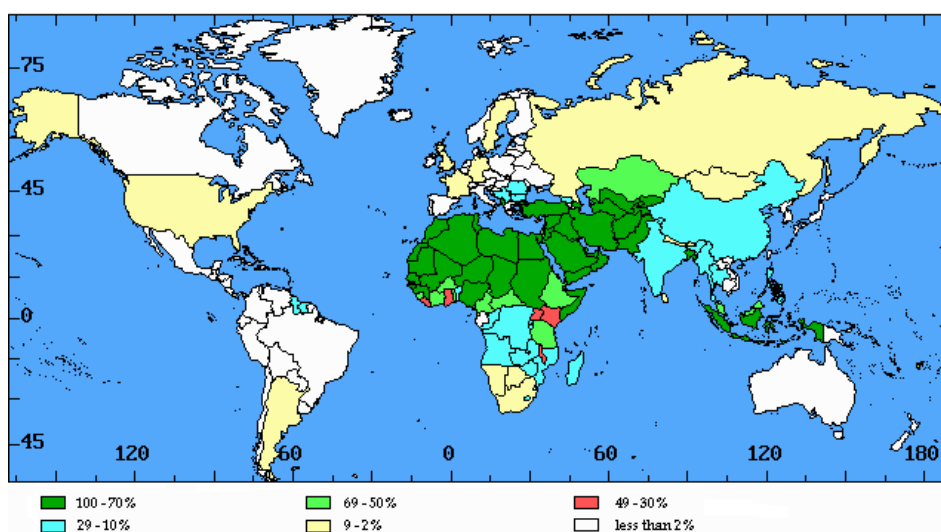


Figure 1- The location of Muslim countries, Source: Rezayinia and Aftabi, 2013

In 1969, these 57 Muslim countries formed Islamic conference organization as the most important organization uniting Islamic countries with each other. The first summit of this organization was held in Jadde. Figure 1 shows the location of Muslim countries.

Table 2- Population, GDP and greenhouse gas emission for 50 great cities in the world in 2010

City	Population (Million people)	GDP (Billion dollar)	Sum of greenhousegas	greenhousegas/GDI	City	Population (Million people)	GDP (Billion dollars)	Sum of greenhousegas	greenhousegas/GDI
Tokyo	35.53	1191	174	146	Lima	8.35	67	20	305
Mexico city	19.24	315	55	173	Bogota	7.80	86	30	348
Bombay	18.84	126	25	198	London	7.61	452	73	162
New York	18.65	1133	196	173	Tehran	7.42	88	49	560
São Paulo	18.61	225	26	116	Hong Kong	7.28	244	25	102
Delhi	16	93	24	258	Modares	7.04	38	9	246
Kolkata	14.57	94	16	171	Bangalore	6.75	45	9	199
Jakarta	13.67	98	24	245	Bangkok	6.65	89	71	799
Buenos Aires	13.52	245	52	211	Dortmund	6.57	234	76	327
Dhaka	13.09	52	8	159	Lahore	6.57	28	9	316
Shanghai	12.63	139	148	1063	Heidarabad	6.34	38	8	221
Los Angeles	12.22	639	159	249	Wuhan	6.18	38	21	554
Karachi	12.20	55	16	298	Bagdad	6.06	22	30	348
Lagos	11.70	30	27	893	Kinshasa	5.89	10	6	598
Rio de Janeiro	11.62	141	24	173	Riyadh	5.76	80	58	726
Osaka	11.32	341	122	357	Santiago	5.70	91	22	243
Cairo	11.29	98	23	233	Miami	5.48	231	65	282
Beijing	10.85	99	110	1107	<i>Belo Horizonte</i>	5.45	65	23	349
Moscow	10.82	181	167	922	Philadelphia	5.36	312	60	191
Mania	10.80	108	16	147	Saint Petersburg	5.35	85	83	971
Istanbul	10	133	51	384	Ahmad Abad	5.34	32	6	200
Paris	9.89	460	51	112	Madrid	5.17	188	36	190
Seoul	9.52	218	39	179	Toronto	5.16	209	60	286
Tianjin	9.39	45	104	2316	HôChi Minh	5010	38	6	158
Chicago	8.80	460	106	230	Chonking	5.05	35	19	535

Source: The World Bank ,2010

The various dimensions of pollution of industry and mine in Islam world

Although industrialization or industry making is necessary in developing countries, this phenomenon led into the environment degradation (Muralidaran, 2013). In these countries, industry created much combustion of fossil fuels, establishing power plants and numerous cars and materials and toxic gases by establishing various factories. Great industries namely chemical industries have important share in creating environmental pollution namely at local scale due to its great outputs and using semi-built materials in production process and creating unsuitable and toxic waste (Hunt, 1991). For example, since 1950 many industries were developed in Egypt along Nileriver including different food industries, metal and fabric products and they are the most important industrial productions of Egypt. Liquid industrial waste is disposed into water and they are great chemical threats to agriculture fields. The effects of most of liquid industrial wastes with organic or heavy metals or corrosive and toxic materials are not eliminated completely. Dangerous industrial wastes of more than 350 factories are disposed directly into Nil river and Mediterranean sea (Ibid).

Serious air and water pollution made the entire southwest of Asia and Persian Gulf encountering with serious environmental challenges. The major resources of these pollutions include open disposal of urban garbage, uncontrolled burning of urban garbage, inefficient use of fossil fuels to produce energy in industry and emission of sulfur oxide of industrial activities into nature (El Sayyed, 2008). In Persian Gulf countries, the industrial and manufacturing activities beside Persian Gulf coasts provided a good possibility for industry sector to be get rid of industrial wastewater with the least cost and dispose them without any monitoring and treatment into sea (Asgari, 2010). The main burden of development of industry is on marine ecosystem of southwest Asia and Persian Gulf. Although crude oil led into the considerable development in this region, the fixation water released of tankers, dredging operations of gas and oil installations off shore, loading terminals of tankers and high density of marine traffic are dangerous for coastal environment (El Sayyed, 2008).

Table 3- Environmental performance indices in 2014

Rank	Country	Rank	Country	Rank	Country	Rank	Country	Rank	Country
1	Swiss	37	Brunei Darussalam	73	Russia	109	Turkmenistan	145	Cambodia
2	Luxemburg	38	Cyprus	74	Moldavia	110	Peru	146	Rwanda
3	Australia	39	Israel	75	Dominican	111	Mongolia	147	Granada
4	Singapore	40	Latvia	76	Figgie	112	Indonesia	148	Pakistan
5	Czech	41	Bulgarian	77	Brazil	113	Cape Verde	149	Iraq
6	Germany	42	Kuwait	78	Thailand	114	Philippine	150	Benin
7	Spain	43	Southern Korea	9	Trinidad and Tobago	115	El Salvador	151	Qena
8	Austria	44	Qatar	80	Palau	116	Namibia	152	Suleiman Islands
9	Swede	45	Croatia	81	Morocco	117	Uzbekistan	153	Comoros
10	Norway	46	Taiwan	82	Bahrain	18	China	54	Tajikistan
11	Netherland	47	Tonga	83	Iran	119	Central Africa	155	India
12	England	48	Armenia	84	Kazakhstan	120	Libya	156	Chad
13	Denmark	49	Lithuania	85	Colombia	121	Zambia	157	Yemen
14	Island	50	Egypt	86	Romani	122	New Guinea	158	Mozambique
15	Slovenia	51	Malaysia	87	Bolivia	123	Equatorial Guinea	159	Gambia
16	New Zealand	52	Tunisia	88	Bliz	124	Senegal	160	Angola
17	Portugal	53	Ecuador	89	Macedonia	25	Kirgizstan	161	Jiboti
18	Finland	54	Costa Rica	90	Nicaragua	126	Burkina Faso	162	Guinea
19	Ireland	55	Jamaica	91	Lebanon	127	Laos	163	Togo
20	Estonia	56	Mauritania	92	Al-Jazeera	128	Malawi	164	Maynmar
21	Slovakia	57	Venezuela	93	Argentine	129	Ivory coast	165	Mauritania
22	Italy	58	Panama	94	Zimbabwe	130	Congo	166	Madagascar
23	Greece	59	Kyribati	95	Ukraine	131	Ethiopia	167	Burundi
24	Canada	60	Jordan	96	Antigua and Barbuda	132	Eastern Teimur	168	Eritrea
25	USA	61	Seychelles	97	Honduras	133	Prague	169	Bangladesh
26	Japan	62	Montenegro	98	Guatemala	134	Nigeria	170	Congo Republic
27	France	63	Azerbaijan	99	Oman	135	Uganda	171	Sudan
28	Hungary	64	Cuba	100	Botswana	136	Vietnam	172	Liberia
29	Chile	65	Mexico	101	Georgia	137	Guyana	173	Sierra Leone
30	Poland	66	Turkey	102	Dominica	138	Swaziland	174	Afghanistan
31	Serbia	67	Albania	103	Bhutan	139	Nepal	175	Lesotho
32	Belarus	68	Syria	104	Gabon	140	Kenya	176	Haiti
33	US	69	Sri Lanka	105	Bahamas	141	Cameron	177	Mali
34	Malt Thailand	70	Uruguay	06	Vanuatu	142	Niger	178	Somali
35	Arabia	71	Surinam	107	Bosnia Herzegovina	143	Tanzania		
36	Belvic	72	Southern Africa	108	Barbados	144	Guinea-Bissau		

Source: EPI, 2014

Such pollutions endanger the health of the residents in urban regions and industrial centers and destroys local ecosystem. Also, continual growth of population and rapid industrialization in southern and central Asia imposed many problems for key resources of sweet water in the region. In Send and Hirmand systems, the polluted water entering rivers is 19, 16% compared to the water renewable resources in year (babel and wahid, 2008). Civil war and explosions of oil and industrial installations are other challenges of some Muslim countries damaging the environment. For example, we can refer to the environmental outcomes of 22-day war of Qaza. In this war, small industries as factories, cement workshops and garages are destroyed and this leads to formation of various potential polluted areas in urban environment (Middle East Post, 2009). Regarding mineral pollutions, it can be said most of the Islam world countries namely African countries have wide mineral activities and these activities are the source of many pollutions in surrounding environment. In all mineral activities, mineral matter is separated from earth and it has direct effect on physical, chemical and biological environment. This influence is different depending upon the location and type of operation. Generally, mining operation affects hydrogeological parameters and water quality. It is because the activities

decrease underground water level and some pollutants enter underground water. Figure 2 shows an example of pollutions of mining.



Figure 2- An example of pollutions of mining operation in Islamic countries, Source: World Bank mines organization, 2007

DISCUSSION AND FINDINGS

One of the important fields of environmental challenges is considering environmental management of countries and the present study is regarding this issue. The environmental management plan is performed in many development plans of most of countries is one of the strong tools to reduce the adverse effects and is a solution to continue adaptability of industry sector with environment (Jozi and Rezayian, 2010). Thus, some of the most important indices of environmental management are investigated.

The condition of Muslim countries in terms of greenhouse gas emission

In recent years, more attempts are made to formulate the indices to investigate the environmental condition of countries. One of the most important factors is the index of greenhouse gas emission. Table 2 indicates the results of greenhouse gas emission for 50 big cities in the world. Some of these cities are Islamic cities highlighted with Red. As shown in the table, greenhouse gas emission in Islamic cities is less than developed countries. Highest emission is about New York, Tokyo and Moscow. In terms of the ratio of greenhouse gas emission on GDP, Tianjin, Beijing and Shanghai are on the first rank.

The condition of Islamic countries in environmental performance index

Other important indices as the criterion of comparing the countries regarding the environment protection as biannual is EPI(Environmental Performance Index) published by Yale Center for Environmental Law and Policy and Center for International Earth Science Information Network of Colombia and global assembly collaboration (EPI, 2014). Before 2006, this index was presented as ESI (Environmental Sustainability Index) and it was revised based on the problems of this report from the theorists all over the world and it was presented as environment performance index. Environmental performance index evaluates the ability of countries for environment protection. This index is composed of 16 statistical variables focused on two major goals of environment protection including reduction of environmental pressures on human health and improving ecological condition and correct management of natural resources. Two components are measures in 6 fields “Environment health”, “water resource quality” and “air quality”, “biological variety and habitat”, “productive natural resources quality” and “Sustainable energy”. EPI index is ranging 0 to 100 and 100 is the highest and 0 the worst (Farazmand and Delfi, 2013).

Table 3 shows the results of environmental performance of 178 countries in the world in 2014. Muslim countries are highlighted by Red. As it can be said, developed countries with high technology and more per capital income and GDP have better environmental performance compared to developing and third world countries.

Swiss, Luxemburg and Australia have first to third ranks in this regard. As shown in the table, Muslim countries don't have good position among other countries. The comparison of the rank of Muslim countries showed the improvement compared to 2012 (EPI, 2012). Among Muslim countries, United Arab Emirate and Arabia with ranks 25, 35 show best environmental performance. Iran rank is 83 in this year and it is improved compared to 2012 as rank 114. By comparing this table with Table 2, it can be said Islamic countries don't have great share in global pollution but they have weak performance in management and environment protection.

The grounds of inefficiency of industrial and mineral pollutants management in Muslim countries

One of the goals of the present study is evaluation of the effective factors on inefficiency of Muslim countries in environment management and reduction of industrial and mineral pollutants outcomes. Based on the results of the study and existing documents, inefficiency of environmental management in Islamic countries are defined in four dimensions as law making weakness, financial and economic weakness, Scientific and technological weakness and environmental education weakness

1- The law making weakness and policy making weakness

One of the most important environmental challenges of Muslim countries is the lack of adequate rules and in some cases the lack of clarity of these rules. Most of Muslim countries don't have legal, supervising and executive frameworks to improve innovation and progresses (Arab Knowledge Report, 2009). The lack of joining new and international conventions, the lack of update rules namely in industry and sea should be reviewed completely (Ghaderi, 2007).

Environmental policy making as the subset of public policy making of government is a coordinate set with macro policies of government and its main concern is eliminating the problems of environment in political and social arena (Abdollahi and Rezvanifar, 2012). As it was said, most of Muslim countries have weak environmental policies. Environmental degradation is observed in developed and developing countries and the share of developed countries is high and their duty for environment protection is great. Islamic countries as developing and third world countries should attempt to increase GDP. Thus, environmental management and its protection are not on priority for these countries and there are weak rules for evaluation of environmental effects, reduction of pollutants and supervising environmental performance. The most important weaknesses of law making are as:

- 1- The lack of inhibition and executive guaranty in environmental evaluation rules
- 2- Ambiguity in existing environmental rules
- 3- Negligence of international communities to oblige the foreign investor countries to observe environmental rules in Islamic countries.
- 4- The lack of definite land monitoring and its legal position in Islamic countries

2- The financial weakness of low economic development

Due to many economic problems, Islamic countries play weak role in international arena. Some of these countries have open and relatively small economy but in other systems, using economic control rules, commercial and subsidy policies and supporting industry are applied considerably (Tayebi *et al.*, 2008). The results of some of the studies regarding industrial trading of countries member of Islamic conference organization showed that totally OIC member countries have weak industrial foundations and also they are less flexible in the global business. Some countries including Malaysia, Indonesia, Jordan, Ivory coast, Oman, Kirgizstan, Senegal, Egypt and Saudi Arabia and Turkey have high industrial foundation compared to other countries (ZiayiBigdeli and Hassanpour, 2004).

According to the studies, among 57 Muslim countries in terms of income, more than half of (28 countries) have low income and only 11 countries are with average and above income level. The rest of countries have below average income. Indeed, Islamic countries are wide and dispersed in terms of Geographical issues and are also heterogeneous, poor and less developed in terms of income (Hassanpour, 2007). The entire trading (export and import) of Islamic countries in 1990 was 438.9 billion dollars and it was increased by 529% during 1990-2007 and it also reached 2.326 thousands billion dollars in 2007. The average share of Islamic conference organization member states of total global trading was 22.5% in 2007 (Tayebi *et al.*, 2008). It is obvious that there should be a relationship between economic growth and indices of environment (e.g. Environment performance index). Using modern technologies not destroying the environment is very costly for Muslim countries that are faced with foreign debts. Environment degradation is due to the poverty of communities. The process of continual environment degradation is increasing poverty. In poor areas, environment degradation is considerable. This cycle is one of the most dangerous cycles in human community moving

calmly and its destructive effects are revealed in future. The economic and social foundation of many countries with environmental degradation is vulnerable to this problem. Most of the programs that are provided to achieve development in most of Muslim countries don't have specific approach regarding environment protection. Thus, environment degradation continues severely in these countries and the compensation of these degradations is heavier than other degradations as destructive wars and no one is protected against universal environment crises.

3- Scientific and Technological weakness

Muslim countries have found the importance of science and technology in the globalizing world. In the early 1981, Islamic conference countries established the committee of scientific and technological collaborations to create the capacities to improve scientific collaboration among the members (Al Maktoum, 2009). However, the average investment in Islamic countries on research and development is lower than average global level. This reality is true about the poorest countries of Africa desert to Persian Gulf countries. The statistics of Islamic conference countries is as: Tunisia with 1% of GDP to research and development and science and technology is on priority, then Turkey with 0.7% and then Iran, Maldivia and Morocco with 0.6% of GDP are in the next ranks. However, Japan with 3.4, US 2.7 and Germany 2.6% GDP support development research (UNDP, 2002). The costs on research and development in Brazil, Russia, India and China range from 0.8% for India to 1.5% for China. The average global share of internal revenue is 1.4% for research and development. Arab countries in Africa 0.3% and Arab countries of Asia, dedicated only 0.1% of national revenue to research and development. Totally, the share of invested national income in this field by all Arab countries is hardly 0.5% of total global expenditures in research and development (UNDP, 2003). It can be said that Arabic countries have 210000 environmental research experts but the scientific publication of all Arab countries is 24 articles for each 1000 academic professor and full-time researcher. Finland produces scientific article as 1.75 times more than total Arabic countries and register inventions 22 times more than them (Al Maktoum, 2009).

4- The weakness of environmental education

Many Muslim countries support environmental research. Egypt sciences and research ministry with the support of National Research Center, conducted many researches with emphasis on engineering and materials sciences, environment and agriculture. Also, created suitable collaborations among Muslim countries. The scientific and educational foundation of Qatar was established in 1966 by the king of Qatar as collaborating with other kings in Islam world. Also, he conducted some researches with some American Universities. Middle East Science Fund has absorbed macro investments in holding conferences with the subject of agriculture and environment and provided a good ground for the relations of civil communities and scientific centers of Middle East with American institutions. There are a few studies about environment namely in mine and industry. Arabic countries should establish more educational degrees on environment as the highest scientific rank in environment in Arabic countries is BA and this is a few in MA and PHD (Riyad, 2008).

Some centers increased these opportunities as Sfax University in Tunisia, Masdar Institution of Science and Technology in Abudabi and King Abdullah University of Science and technology in Saudi Arabia. To produce many researchers, Islamic countries should support research institutions in environment to increase their efficiency. There are various reasons for weakness of Islamic countries in this ground. Research institutions are very poor in all Islamic countries. Also, in these countries, researchers are uncoordinated in relation to mines and industry. Thus, they cannot fulfill the required researches of mine and industry or translate the scientific findings of these two sectors from other languages. By considering these items, structural systematic problem is increased more (Arab Knowledge Report, 2009).

RESULT AND DISCUSSION

1- The solutions of eliminating environmental challenges

As it was said, Muslim countries cannot protect environment like developed western countries due to poverty and low economic and technological aspects. Thus, the most important solution of existing challenges is the support of Islamic governments and their pioneering in this regard. Considering different types of government policies in environment can be useful.

2- Environmental policy of Muslim countries as the most important solution

Environmental policy of Islamic governments as the most important solution. The most important issue that Islamic countries consider to reduce harmful outcomes of industrial and mineral development is taking relevant policies of

environmental management quality by the government. The government policy in relation to industry and environment pollution should be based on three economic, political and environmental systems (Chapman and walker, 1987).

3- Economic view

The industry performance is manifested in the form of economic system as fighting with industrial pollutions is costly. The costs of industrial pollution control for each of outputs is high under the conditions of complete control as the wastes are reduced as zero. The pollution control costs are described in figure 3.

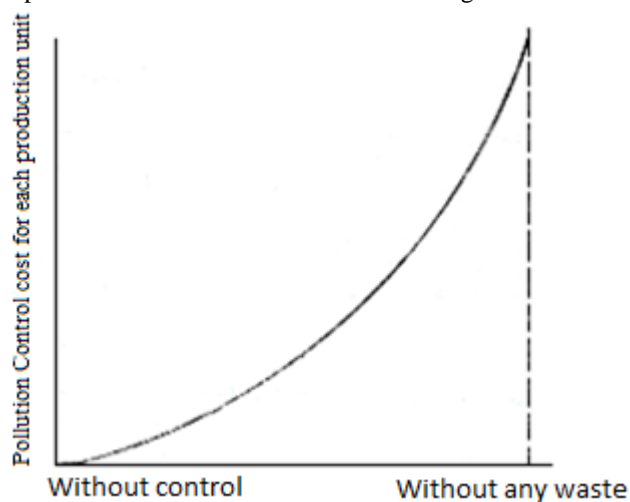


Figure 3- The pollution control costs

In 1988 in USA, 1.7% of industry capital was dedicated to industrial pollutions and the costs of pollution fighting are not similar among various industries. Based on the economic dimensions and costs of industrial pollution control in case of not paying the required subsidies, it has adverse effects on environment system from industries (BahramSoltani, 1992). Fulfilling such condition in political system of a country shows the government performance in the form of taking specific policies in establishment of industrial use and locating industry and establishing new industry and existing industry development. In some cases, the government obliges the industry to control the adverse effects of industry and accept its costs.

4- Environmental view

From environmental view, the best activity place is the one in which less pressure is on environment and the relevant use tolerates the least pressure from environmental changes of establishment. Thus, we should identify the effects of different applications and their negative aspects. Risk Analysis is composed of exact recognition of use, including it in spatial ecological system, determining all environmental effects of establishment and exact identification of environment reactions to application establishment (BahramSoltani, 1992). In addition, developing industrial health, optimal use of technology, education and human resources, industrial equipment renovation, creating new production methods and standardization of products, educating efficient and specialized human resources, providing required credits, environment protection training from the childhood, creating specialized university of environment protection are necessary (Cookson, 1989).

5- Political view

In this view, instead of giving priority to economic issues, social outcomes and dimensions are important. In other words, taking an economic sustainable development with reasonable scale in which environmental standards are observed can be proposed. As recognizing the natural environment capacities is a type of recognition of tools and a new belief foundation called environment religion. It seems this view is better and highly efficient than two other views.

The main component of environmental pollution reduction of industrial activities besides considering locating dimensions, the followings are considered: the type of applied raw materials, revising production chemical processes, coping up with industrial waste and fissile fuel energy reduction namely coal (based on carbon dioxide emitted and increase of greenhouse effects). The emitted carbon dioxide from coal, oil, gas, atom and electric energy is 100, 60, 60, 10, 10, respectively (Rice, 1990).

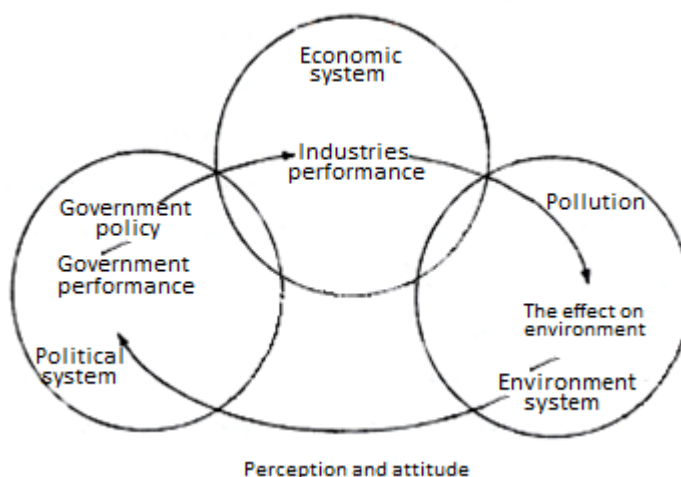


Figure 3- The relationship between industry, environment pollution and government policies

6- Other solutions

- 1- Muslim countries governments should put on priority environment protection and sustainability with international institutions as World Bank, International Fund, WTO and some organizations as OECD, 7 or EU and Nafta and consider environmental considerations in their projects and plans and dedicate most of the loans to environmental issues and sustainable development. This encourages the countries to take international environmental certificate.
- 2- Economic globalization process by improving technology transfer process and increasing innovative empowerment can improve environment quality in developing countries (Broadhead, 2002).
- 3- Integrating environmental considerations in economic decisions
- 4- Supporting environment friendly and green industries
- 5- Using environmental management tools (evaluation of environmental effects and environmental performance)
- 6- Considering Islamic teachings and using them as the most important environmental measurement

Conclusion

The present study evaluates environmental challenges of Muslim countries regarding industrial and mineral pollutants and countries performance in their management. The results showed that Muslim countries are faced with many challenges as water and soil pollution and local ecosystem destruction in mining operation. Islamic countries have less share of global pollutions compared to developed countries, their environmental performance is lower than developed countries.

Based on the study findings, there are 4 major reasons for weakness of Islamic countries for environmental management of great industrial and mineral pollutants as the law making and policy making weakness, financial and economic weakness, scientific and technological weakness and environmental education weakness. These items affect each other as causal and effect cycle and prevent Muslim countries to achieve environmental sustainable development. Thus, some solutions are presented to eliminate these challenges and the most important types are taking environmental policies of Muslim governments, interaction of Muslim governments with international global community, Islamic teachings regarding environment protection and green industry protection.

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