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Non-traditional security threats in Kazakhstan: an account of environmental problems

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ABSTRACT

Environmental problems have emerged as a serious threat not only to the economic development of the countries but are also to human security. The threats posed by environmental crisis have gone beyond the traditional concepts of security (e.g. terrorism, border conflicts and other threats to the territorial integrity of a state or country). Since long Kazakhstan is suffering from many environmental problems especially nuclear contamination, shrinking of Aral Sea followed by desertification and destruction of aquatic and terrestrial habitat, monoculture farming followed by land degradation and soil pollution, urban pollution and natural disasters. These are endangering the security of human life in terms of economic loss, health problems and degrading the quality of some essential resources. There is increasing rate of out migration from the areas adjacent to Aral Sea and the areas of nuclear contamination. Deep ecological problems of the region can be considered as an indirect threat for regional security. In this context, this paper aims to determine the major non-traditional security threats in Central Asia in general and in Kazakhstan in particular, the impact of environmental problems as non-traditional security threats to the country and the major policy initiatives taken by Kazakhstan to deal with environmental problems. Concluding part of this study offers some recommendations for a better environmental health and human security of Kazakhstan.

Key Words: Environmental problems, Aral Sea, Kazakhstan, Non-traditional security threats

"Kazakhstan of 2030 must be a clean and green country with pure air and waters. Industrial waste and radiation would no longer enter its homes and gardens. Our children and children of our children would live a full value life in healthy conditions."

-President Nursultan Nazarbaev

1. INTRODUCTION

Since the end of the Cold War, the concept of security has been widened and has expanded beyond the traditional concept of security threats e.g. terrorism, border conflicts and other threats to the territorial integrity of a state or country (Özcan 2013, 3). The Non-traditional threats to security have risen to prominence in developing and post-communist areas and particularly in Greater Central Asia since the end of Cold War (Swanström 2010, 36). Drug trafficking, water crisis, poverty, unemployment, health crisis and environmental degradation are major non-traditional security concerns which are now posing threat to Republics of Central Asia (Grävingholt 2004). Environmental problems have emerged as a major threat not

only to the economic development of the country but are also to human security. The threats posed by environmental crisis have gone beyond state and military security i.e. the traditional concepts of security (Swanström 2010, 35). The adverse impacts by environmental crisis have gone beyond the traditional concepts of security (e.g. terrorism, border conflicts and other threats to the territorial integrity of a state or country). The countries of Central Asia have many common environmental problems. The entire region suffers from ecological disaster with many more occurrences possible. Central Asia is particularly vulnerable to climate change, desertification, over-exploitation of land and unsustainable irrigation practices, soil erosion etc (World Bank 2009; Shankar and Prasanna Kumar, 2015; Mukherjee, 2016). The basic sources of environmental issues are impact of mining industry, radioactive materials, chemical pollution, threat of eco-terrorism, impact of hydroelectric power stations and constructional work. All of these problems are detrimental to sustainable development and human security of the entire region.

Among all the Central Asian Republics the problems of Kazakhstan (Fig: 1) need special attention. Since long the country is suffering from many environmental problems especially nuclear contamination, shrinking of Aral Sea followed by desertification and destruction of aquatic and terrestrial habitat, monoculture farming followed by land degradation and soil pollution, urban pollution and natural disasters (Kukeev 2015). These are endangering the security of human life in terms of economic loss, health problems and degrading the quality of some essential resources. Environmental problems in Kazakhstan are a potential source of interstate and intra state conflict in near future (Horsman 2001).

Rationale and Scope of the Study

In spite of huge literature available on the issue of environmental problems in Central Asia, few studies intend to focus on Kazakhstan as a study area. Moreover, there is lack of literature which shows the major environmental problems of Kazakhstan as serious non-traditional security threats to the country. This study intends to focus to represent previously mentioned environmental problems as a major threat to the

security of Kazakhstan and as source of potential interstate and intra state conflicts, religious extremism and terrorism.

Objectives

This study aims to determine the major non-traditional security threats in Central Asia in general and in Kazakhstan in particular, the impact of environmental problems as non-traditional security threats to the country and the major policy initiatives taken by Kazakhstan to deal with environmental problems. In the concluding part, this study will offer some recommendations for a better environmental health and human security of Kazakhstan.

Figure 1 Map of Kazakhstan
Image Source: Kazakhstan: Environmental Performance Review (2nd), 2008, p.17
URL: *http://www.unece.org/fileadmin/DAM/env/epr/epr_studies/kazakhstanper cent20II.pdf*

Data Source

Secondary data source for this study are international publications and project reports by Word Bank, Asian Development Bank (ADB), United Nations Development Programme (UNDP), United Nations Economic Commission For Europe (UNECE), United Nations Environment Programme (UNEP), Environmental Defence Fund (EDF), International Emissions Trading Associations (IETA) and CDC Climate Research. Other than these, governmental organization like Ministry of Environmental and Water Resources (MoEWR) and various online news paper articles are is useful source of data and information for this study. Satellite images (MODIS-Terra) of Aral Sea have taken from NASA to analyse the shrinking of water level.

2. METHODOLOGY

This study intends to apply both analytical and statistical measures. Year wise satellite image of Aral Sea (by NASA) has been analyzed here. Carbon dioxide emission in Kazakhstan has been represented through a line graph. An Environmental Hazard Map has been assessed to determine the areas under the threat of environmental problems.

3. ENVIRONMENTAL THREATS IN KAZAKHSTAN

Kazakhstan is suffering from diverse type of environmental problems (Fig: 4). Kazakhstan's environment began to suffer serious harm during the Soviet era. Between 1949 and 1991 the Soviet government conducted about 70 per cent of all of its nuclear testing in Kazakhstan, mostly near the city of Semipalatinsk or Semey (Kassenova 2009). More than 40 nuclear detonations occurred at other testing grounds in western Kazakhstan and in the Qyzylqum desert (Damith 2014). In 1991 the government of Kazakhstan put a stop to the practice. However, the testing grounds, and perhaps even underground aquifers (water-bearing layers of rock, sand, or gravel), remain highly contaminated. The dumping grounds of radioactive waste products

exist as biological and chemical hazards. Due to nuclear contamination, inhabitants are still suffering from mental or physical defects, immune system deficiencies etc (Horsman 2001, 4).

One of the most imminent ecological disasters in Kazakhstan is the shrinking of Aral Sea (Fig: 2), which is split roughly in half between Kazakhstan and Uzbekistan. The Aral Sea has shrunk to less than half its former size since the early 1960s (Horsman 2001, 2), when the Soviet government initiated a drive to increase cotton yields in the arid lands of Central Asia. Excessive canalization for irrigation substantially decreased inflow to the Aral, and the Aral's shoreline began to recede rapidly (Nassyr 2015). This has caused desertification, destruction of aquatic and terrestrial habitat and a number of health hazards for inhabitants (Lindsey 2015).

Kazakhstan's ecosystem – characterized by an arid climate, insufficient precipitation, high evaporation and periodic droughts – is naturally prone to desertification (ECE/CEP 2008, 15). Problems of land degradation and desertification were exacerbated by the unsustainable agricultural and water management practices of the Soviet era (OCED 2013, 84). About two thirds i.e. 66 per cent of the total land area of Kazakhstan is subject to land degradation (Youlin 2008). The situation is particularly serious in the wheat growing areas of northern Kazakhstan and the cotton and rice growing areas in the Syr Darya Valley in the south (Hanks 2005, 187). Monoculture farming has caused damage to ecosystems and the soil has lost its fertility due to the wind erosion, increased sanitization and overuse of pesticides. Soil pollution in farm lands includes the pollution of soils caused by industrial wastewater and/or wastes from irrigated farm lands adjacent to the factory districts .Soil of Western Kazakhstan is polluted predominantly by oil (Aytkeldiyeva et.al. 2008, 628). Development of underground resources and the resultant industrial wastes have the potential of causing soil pollution in the region, though more research and monitoring needs to be done in this direction. All of these problems are causing water pollution in the Caspian Sea.

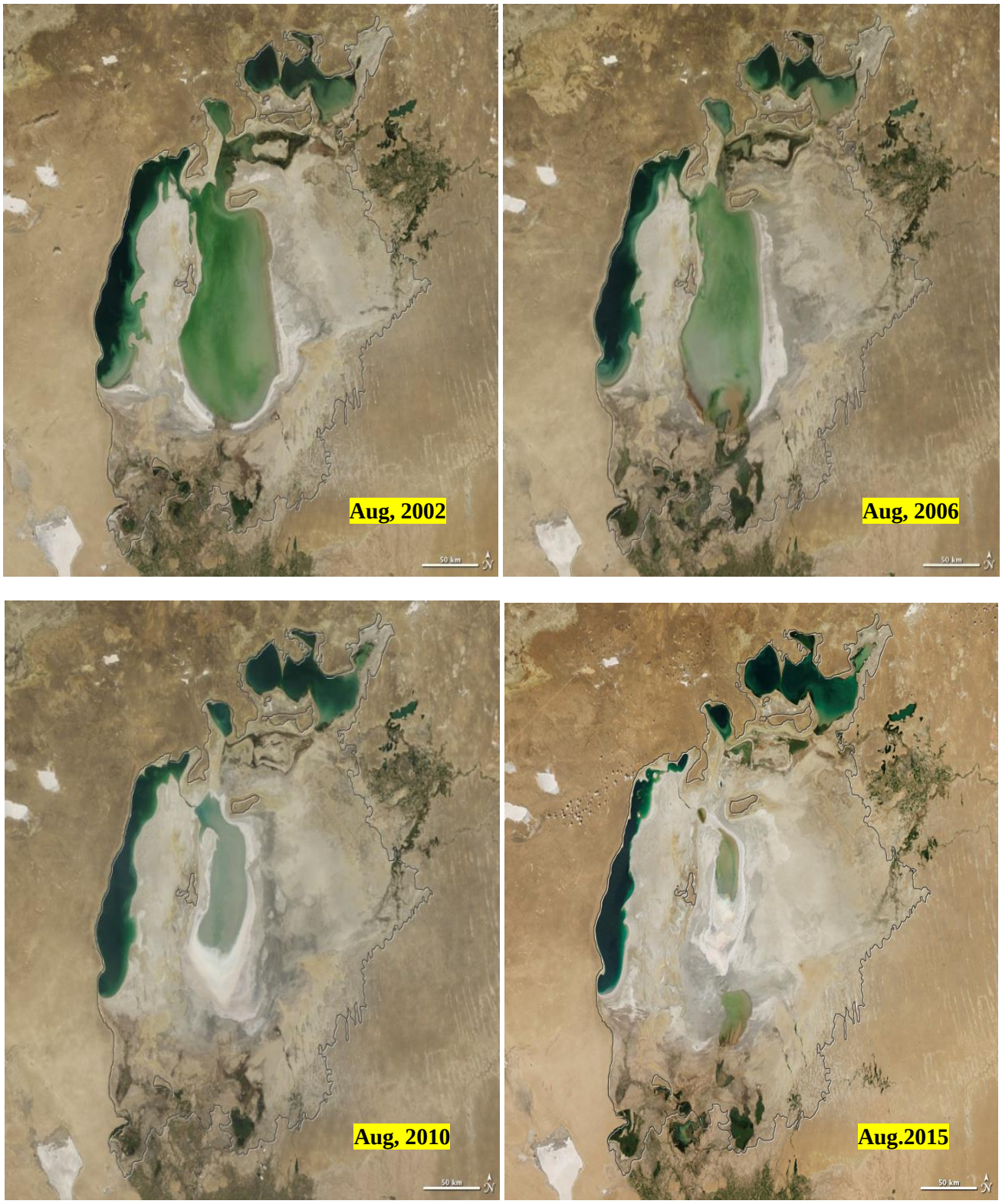

Figure 2 Shrinking of Aral Sea (Aug.2002 – Aug.2015)
Image Source: NASA
URL: http://earthobservatory.nasa.gov/Features/WorldOfChange/aral_sea.php

Urban pollution is another threat to Kazakh environmental security particularly in its eastern cities like Semey, Oskemen and Qaraghandy receiving harmful emissions from lead and zinc smelters, uranium-processing mill, and other industries (UNEP 2014, 7 - 9). Mining is Kazakhstan's second largest industrial sector after oil and gas (ECE/CEP 2008, 13). It also is the second largest export sector after crude oil .The mining sector accounts for 16 per cent of its GDP and 19 per cent of its industrial employment (Abbasova 2016). The mining towns around the reserves of natural resources (e.g. tungsten, lead, copper, manganese, iron ore, coal, chromes zinc etc.) are also under the threat of land degradation and soil pollution. Gas exploration, gas flaring, and ageing gas infrastructure in Kazakhstan result in escaped methane, a highly potent greenhouse gas (Farina 2011). Manufacturing is also a major polluter (Eserkepova 2014). Increasing quantities of untreated solid and liquid industrial waste are released from the industries of Almaty, Karaganda, Kyzylorda, Atyrau and West Kazakhstan oblasts (UNECE 2008). Toxic and radioactive waste can also be found at the non-industrial areas such as military bases, the Baikonur space complex and the Semipalatinsk nuclear test site (ADB 2010, 67). The motor transport sector is significantly affecting the environment as the result of aging fleets, substandard maintenance, and low-quality motor oil (ADB 2010, 167). Kazakhstan has practically no waste recycling enterprises which give the way to pollution chiefly in the above mentioned areas (UNEP 2014, 4).

Kazakhstan emitted 290 Mt CO_2 in 2009 (Fig: 3), an amount equal to 6 per cent of the EU's total output (EDF 2013, 1). According to World Bank and U.S. Department of Energy data, the country has one of the world's largest figures for emissions per unit of GDP (EDF/IETA/CDC 2015, 2). While its 2009 emissions were 23 per cent below 1990 levels, the country's GHG emissions have climbed 81 per cent over the past ten years, largely due to thriving energy and mining sectors largely due to thriving energy and mining sectors (EDF 2013, 1). Kazakhstan is one of the most energy intensive countries in the world, and a major reason for this is its power production process, which relies heavily on coal (EDF 2014, 1) and leaves renewable energy potential largely undeveloped. Disastrous floods as a result of storm surges occur the

delta of Ural River and across the North-East coast of the Caspian Sea (UNDP 2004, 13). In the last years the number of floods as a result of human activity has risen sharply. For example, floods on the Syrdaria River occur due to the increased level of water release from the Shardara reservoir in winter (MEWR Kazakhstan 2014).

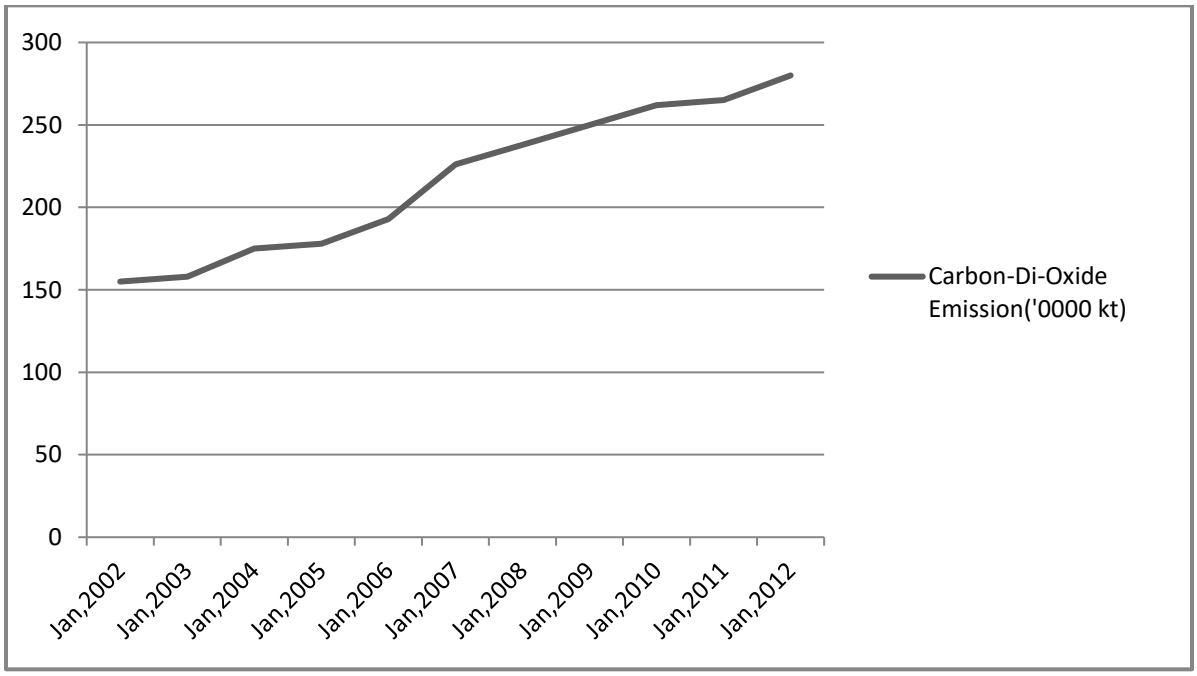

Figure 3 Carbon Dioxide Emission ('0000 kt) in Kazakhstan

Data Source: World Bank, 2015

Threat to human health is also posed by sewage water reservoirs of a number of Kazakhstan's large cities of Almaty, Aktyubinsk, Taraz and others (UNDP 2004). Some dams of major hydro-systems are in an urgent need for reparation (e.g. Tasotkel, Ters-Ashibulak, Shardara, Sergeevski and others) and can cause disastrous floods. More often debris flows and land slide occur in the South-East regions which are featured with intensive rainfall, active snowmelt, strong earthquakes and others. The most hazardous areas are mountains of the Kazakhstan, are exposed to the devastating effect of snow avalanche (ADB 2010). Across the territory

of Kazakhstan, the fires result in weakening of protective, water-balancing and other useful functions of forests and steppes. In addition, production and technical cultures, as well as meadows and valuable fauna become extinct.

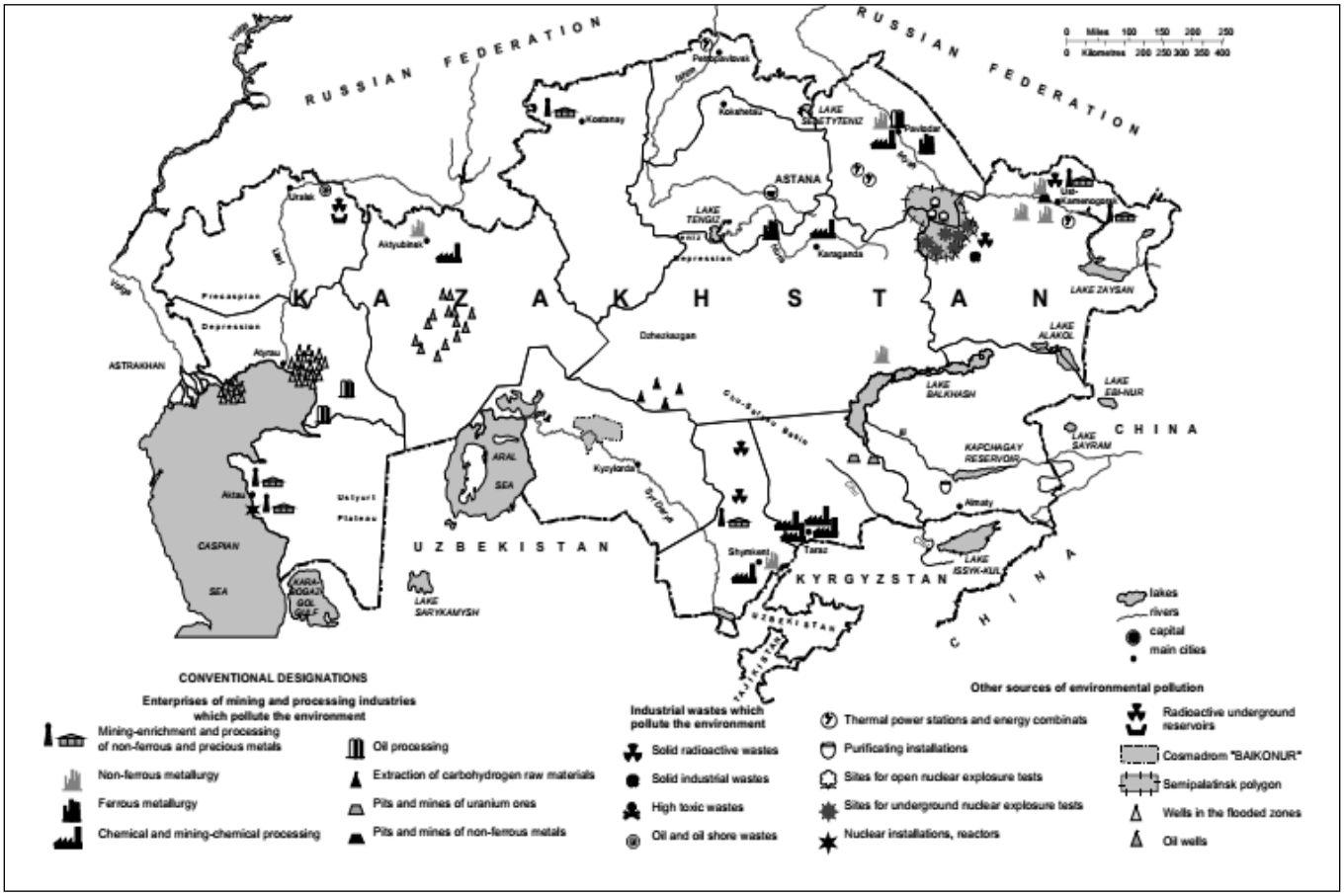

Figure 4 Environmental Hazard Map of Kazakhstan

Image Source: Environmental Performance Review, Series No.8, Kazakhstan.p.169

URL: *http://www.unece.org/fileadmin/DAM/env/epr/epr_studies/kazakhstan.pdf*

Environmental Problems as Potential Source of Conflict and Terrorism

Environmental problems in Kazakhstan are a potential source of interstate and intra state conflict in near future. There is increasing rate of out migration from the areas adjacent to Aral Sea and the areas of nuclear contamination. Out-migrants will tend to settle either in some other parts of Kazakhstan or in the

neighbouring countries, which will not only change the ethnic composition of that area or neighbouring country but there will also be an increase of population leading to ethnic conflict, congestion and pressure upon available resource base, food stock etc. of the recipient country. Deep ecological problems of the region can be considered as an indirect threat for regional security**.** Religious extremists use unemployment and substandard living conditions as tools to enlarge their community. Declining agricultural productivity and destruction of fishing industry are the major economic problems in Kazakhstan which could contribute to growing religious extremism.

Policy Measures

The Kazakhstan Constitution (1995) established "Kazakhstan 2030 Strategy," as the national master plan in April 1996. The Ministry of Environmental Protection formulated the environmental protection strategy developed by the National Environment Center for Sustainable Development of Kazakhstan, to bolster the above national development policy with support from the UNDP (Bekkaliev 2001). The environmental protection strategy divides its activity period into four stages: 1998 to 2000, 2001 to 2010, 2011 to 2020, and 2021 to 2030, and provides targets and activities for each stage. However, as there is no track record in evaluating and revising the activities up to 2000 and the UNDP also terminated its support. Therefore, this matter is no longer discussed within the ministry (Bekkaliev 2001).

The "Concept of Environmental Safety of the Republic of Kazakhstan for 2004-2015," a new medium-term strategy, was issued as Presidential Decree No. 1241 in December 2003. Although environmental pollution has slowed down in comparison with the early 1990s, not all of the past environmental problems have been solved, and the emergence of further environmental problems with the future development of the economy is of concern. Therefore, the above Concept was determined with an eye to the millennium development goals.

Although the Concept has a program to achieve goals by solving problems in three stages, it may become a dead issue halfway without specific implementation programs and budgetary backups, just like the environmental protection strategy. First stage (2004 - 2007) targeted to formulate the action plans to reduce and stabilize the pollution level. Ministry of Environmental Protection planned the medium-term program in the first stage. Second stage (2008 - 2010) targeted to stabilize the environmental indices and tightening environmental criteria for utilizing resources. Third stage (2011 - 2015) aims to improve the environmental qualities and realizing environmentally sound and sustainable social development.

The Kyoto Protocol was ratified in Kazakhstan on March 26, 2009,10 and in November 2010 the country introduced the new law "On Amendments to Certain Legislative Acts of the Republic of Kazakhstan Relating to Environmental Issues" (Law on Amendments) (EDF 2014, 2), which enhances the country's ability to participate in carbon markets. On 11 December 2012, Kazakhstan's government approved a law which would make the Kazakh ETS - the first nationwide cap-and-trade system in Asia, which will operate similarly to the EU ETS (EDF 2014, 2).

4. CONCLUSION

There are a number of environmental problems in Kazakhstan, primarily due to its years under the Soviet Union and partly because of its semi-arid steppe of climate characteristics. Along with near-absent pollution controls, this has contributed to an alarmingly high rate of disease in many rural areas. Shrinking of the Aral Sea followed by increasing regional climatic extremes and fertility decline of agricultural soil by salt deposits and eroded by wind. Desertification has engulfed substantial agricultural lands. In the north-eastern part, the Semey region has been suffering from long term radiation contamination from Soviet-era weapons testing. Moreover, the Ministry of Environmental Protection is underfunded and given less priority. Irrespective of new environmental regulation of the oil industry in 2003, oil exploration operations on Kazakhstan's Caspian coast worsen already alarming oil pollution. Kazakhstan failed to reciprocate

international programs aimed to save the Aral and Caspian seas. Kazakhstan's environmental condition is at a critical crossroads – on the one hand, there is the pressure of economic growth without adequate environmental management and on the other hand, the legacy of uncontrolled industrial production. Pollution is taking a toll on people's health, particularly in urban and highly industrialized areas.

Given the current situation with the development and implementation of social initiatives, as well as the increased activity of non-governmental organizations working also on the environmental issues, it is necessary to introduce a new and effective forms of interaction mechanisms between NGOs and public authorities at all levels, responsible for the environment protection.

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