

Regulating Hydropower in Turkey:

An Evaluation of the Environmental Impact Assessment Regulation

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TABLE OF CONTENTS

Table of Contents.....	I
Abbreviations.....	III
1 INTRODUCTION	1
1.1 Thesis Statement, Main Issues and Structure	1
1.2 UNEP Goals and Principles for Environmental Impact Assessment	4
2 ENVIRONMENTAL IMPACT ASSESSMENT	5
2.1 Environmental Impact Assessment in General.....	5
2.1.1 History and Development of EIA in Brief	5
2.1.2 Important Stages of EIA Process	7
2.2 Environmental Impact Assessment in Turkey.....	10
2.2.1 Country Profile of Turkey	10
2.2.2 EIA in Turkish Law	14
2.2.3 Conclusion.....	27
3 ENVIRONMENT AND HYDROPOWER PLANTS.....	30
3.1 Environment and Hydropower in General.....	30
3.1.1 Brief Information about Renewable Energy and HPPs.....	30
3.1.2 Possible Environmental Impacts of HPPs.....	31
3.1.3 EIA for HPPs.....	36
3.2 Environmental Impact Assessment for Hydropower Plants in Turkey	37
3.2.1 Environmental and Energy Policy of Turkey.....	37
3.2.2 HPPs in Turkey	39

3.2.3	Evaluation of Turkey’s EIA Regulation for HPPs.....	41
3.2.4	Conclusion.....	49
4	CONCLUSION	51
5	TABLE OF REFERENCES	53

Abbreviations

AKP	Justice and Development Party
DANIŞTAY	Turkish Supreme Administrative Court
EIA	Environmental impact assessment
EIAR	Environmental Impact Assessment report
EMRA	Energy Market Regulatory Authority
EU	European Union
GDP	Gross domestic product
GHG	Greenhouse gas
HPP	Hydropower plant
IFC	International Finance Corporation
KWh	Kilowatt hour
MoENR	Ministry of Energy and Natural Resources
MoEU	Ministry of Environment and Urbanization
MoFWA	Ministry of Forestry and Water Affairs
MW	Megawatt
NGO	Non-governmental organization
OECD	Organisation for Economic Co-operation and Development
OP	Operational Policy
SWMA	State Water Management Authority
TMMOB	Turkish Union of Engineer and Architect Chambers
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on the Climate Change
WB	World Bank
WCD	World Commission on Dams
WUA	Water Usage Agreement

1 INTRODUCTION

1.1 Thesis Statement, Main Issues and Structure

Industrial production has brought the world into the verge of environmental disasters in approximately 200 years. Protection of the environment has become an important topic for the international community. Human beings are trying to cope with crucial environmental problems such as climate change on an international level. United Nations Framework Convention on the Climate Change (UNFCCC) and the Kyoto Protocol are universally accepted legal tools to tackle the problem.

Based on the common but differentiated responsibilities principle in international environmental law, the Kyoto Protocol brought different obligations on the parties. Developing countries took the lead for the first (2008 – 2012) and the second commitment (2012 – 2020) periods, however, it is expected for developing countries to take some initiatives after the second commitment period.

As an OECD member, Turkey is in the Annex 1 of the UNFCCC and ratified the Kyoto Protocol in 2009. On the other hand, Turkey had a low level of greenhouse gas (GHG) emissions in 1990; and was therefore unwilling to make commitments under the Protocol and have not made any commitment so far. Pursuant to researchers, Turkey's GHG emissions highly increased compared to 1990 levels.¹ As a result of developing its economy by carbon emitting production it is expected for Turkey to make commitments after 2020. For this reason, Turkey must prepare itself for the after 2020 commitment period.

Energy consumption in Turkey is going to grow due to its rising economy and increasing population² and energy production is known as a highly carbon emitting sector. Therefore, renewable energy is vitally important for Turkey to lessen its level of carbon emissions.

¹ Turkish Statistical Institute records: Total GHG emissions in 1990 was 188,43 million tons; in 2011 was 422,42 million tons <http://www.turkstat.gov.tr/PreHaberBultenleri.do?id=13482>

² The Scientific and Technological Research Council of Turkey, expects 80% rise in energy demand in 10 years: <http://www.dunyabulteni.net/?aType=haber&ArticleID=235036> (in Turkish)

Indeed, Turkey has instituted regulations to support private investments in renewable energy production.

Turkey does not have valuable oil and natural gas resources and produces half of its electricity based on natural gas.³ As a result, oil and natural gas are substantial import entries for Turkey. Therefore, it is not unexpected for Turkey to take precautions to lessen its dependency to these sources. For this reason, in addition to offering support to renewable energy production, Turkey introduced governmental inducements to support energy production based on domestic coal which is considered highly harmful to the nature.

Nonetheless, Turkey is targeting increase in renewable energy and hydro power, power plants that produce electricity by transforming water's potential energy to the kinetic energy, is the most important part of Turkey's renewable energy potential. According to the Electricity Market Regulatory Authority (EMRA) records of 2011, 525 hydro power plants (HPPs) were being constructed in Turkey.⁴

At first sight, as a kind of renewable energy, HPPs are expected to be environmental friendly and welcomed by the environmentalists and local people. However, both environmentalist NGOs and local people are fighting against HPPs in Turkey because of their potential adverse impacts to the ecosystem and biodiversity. They believe protection of water quality is more important than power generation. There is a serious civil resistance against the building of HPPs, especially in the Black Sea Region.⁵ This level of opposition evokes the questions of whether HPPs cause more harm than their benefit or whether their adverse impacts are tolerable for their benefit.

Environmental Impact Assessment (EIA) process is an important legal tool to tackle the adverse impacts of an investment project. EIA is an essential instrument that includes

³ EMRA records: Turkey's electricity production by source in 2008: %49.74 Natural Gas, %29.09 Coal, %16.77 Hydropower, %3.79 Oil, %0.62 Other. EMRA Electricity Market Report 2010 p.3

http://www.epdk.gov.tr/documents/elektrik/rapor_yayin/ElektrikPiyasasiRaporu2010.pdf (in Turkish)

⁴ EMRA records 2011, cited in M. Gökdemir, M. Kömürcü, T. Evcimen, 2012, Outlook of Hydropower in Turkey, , Chamber of Civil Engineers Bulletin 2012/1,, p. 25 (in Turkish)

⁵ Civil Resistance against Hydroelectric Plants Grows, Today's Zaman, 21/02/2010

<http://www.todayszaman.com/news-202141-civil-resistance-against-hydroelectric-plants-grows.html>

obligations of investor during project, construction, operation and close-down process of a HPP to prevent negative environmental impacts. Turkey has had an EIA Regulation since 1993. For this reason, an investor has legal obligations in accordance with the EIA Regulation while constructing or managing a HPP in Turkey. However, it seems people are not satisfied with the current situation and believe that HPPs can do serious harms against the nature. In the legal context, it is important to determine whether the EIA regulation is sufficient or not for the environmental protection against the adverse impacts of HPPs. In this context, it is also important to point out that EIA regulation is not the only legal tool for this purpose in Turkish Law; there are also other related instruments such as the Law on Expropriation⁶ or the Water Usage Agreement Regulation⁷. However, EIA is the main and the primary instrument to analyze in this regard.

For these reasons set out above, I think the Turkish EIA regulations for a HPP deserve to be analyzed. In order to determine its weaknesses and strengths, I am planning to analyze it under international standards. Eventually, I am aiming to find out whether Turkish EIA Regulation is sufficient to protect environment against HPP projects under the international standards or not.

For this purpose, firstly I am planning to study the EIA process in general as well as analyzing Turkey's EIA Regulation under international principles. In this context, I am going to use the United Nations Environmental Programme (UNEP) Principles for EIA since they have detailed regulations that indicate international standards. After finding out the strengths and weaknesses of Turkey's EIA Regulation in general (chapter 2), I am planning to study HPPs and their adverse impacts over environment, as well as analyzing the consequences of Turkey's EIA Regulation for the protection of environment against HPPs (chapter 3). I am going to use The World Commission on Dams (WCD) report called "Dams and Development a New Framework for Decision Making" (2000) to summarize possible adverse impacts of dams against environment. Finally, the thesis will conclude with the outcomes of the analysis.

⁶ Law number: 2942, Adoption date: 04/11/1983

⁷ Official Gazette Number: 25150 Date: 26/06/2003

1.2 UNEP Goals and Principles for Environmental Impact Assessment⁸

Currently there is no universally accepted legally binding instrument or standards for EIA. However, there are rules and procedures on the international level in EU. At first I thought about using EU directives in order to analyze Turkey's EIA Regulation, but since Turkey is officially recognized as a candidate for full membership and needs to align its legislation to the EU regulations, this work could turn into a conformity check. For this reason, I decided not to use EU directives for EIA. There are two other alternatives that indicate international standards: UNEP Principles and procedures of multilateral banks' such as World Bank or International Finance Corporation. I have chosen to use the UNEP Principles for EIA since these principles constitute an important soft law instrument and were adopted in order to assist states. It also sets clear targets for the EIA regulation.

Goals and Principles for Environmental Impact Assessment was adopted in 1987 by the Governing Council of UNEP. It is not legally binding for the member states but advisory as a soft law instrument. It includes 3 targets and 13 principles. The document has been prepared for simple and adequate guidelines for the preparation of EIA to assist member states. 83 experts from 20 different countries attended to the meetings for the preparation of the document.⁹ In my view, the UNEP Principles sufficiently indicate international standards in order to determine strengths and weaknesses of Turkey's EIA Regulation.

⁸ United Nation Environmental Programme Res. GC14/25, 14th Sess. (17/07/1987), endorsed by GA Res. 42/184.

⁹ *ibid*, Preface

2 ENVIRONMENTAL IMPACT ASSESSMENT

2.1 Environmental Impact Assessment in General

2.1.1 History and Development of EIA in Brief

Industrial production led to a high level of development with an unprecedented speed; however human beings are faced with serious environmental problems such as climate change and global warming as a result of this development. The opposing relationship between development and environmental protection induced the introduction of the concept of sustainable development. Sustainable development is defined as “Development that meets the need of the present without compromising future generations to meet their own needs”.¹⁰ In this respect, protection of the environment is vitally important in the course of economic development.

Some investment projects might affect the nature. When the nature is contaminated restitution is often burdensome or even impossible. Therefore, it is more convenient to make a regulation to prevent negative impacts than to redress environmental harm. Accordingly, the concept of Environmental Impact Assessment (EIA) has been developed. EIA is a process that examines the impacts of a development project to the environment in advance, consisting of the environmental, social and economic aspects. In addition to the sustainable development principle, EIA is related to the precautionary principle in environmental law in this regard.

EIA aims to affect decision makers with an indication of possible environmental outcomes of their actions. The EIA process includes different steps such as screening, scoping, assessment of alternatives, prediction of impacts, identification of mitigating measures, public consultation and participation, post-decision monitoring and auditing. EIA may lead

¹⁰ United Nations 1987 "Report of the World Commission on Environment and Development." General Assembly Resolution 42/187, 11 December 1987. Retrieved: 2007-04-12

to withdrawal of certain proposals, however, its focus is more strongly on mitigation of any harmful environmental impacts likely to arise.¹¹

EIA was first established in the United States under the 1972 National Environmental Protection Act (NEPA) as a part of domestic law. Thereafter EIAs have spread into a great number of national legal systems.

The Expert Group on Environmental Law of the World Commission on Environment and Development had identified EIAs as an emerging principle of international law.¹² The Rio Declaration Principle 17 refers to EIA as a mandatory instrument: “*Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.*” United Nations Environmental Programme has adopted “Goals and Principles of Environmental Impact Assessment” in 1987 that states international standards in EIA especially for developing countries. However, it is not a legally binding document.

It is also possible to see EIAs in international treaties such as the 1991 UNECE Convention on Environmental Impact Assessment in a Transboundary Context (1991 Espoo Convention), 1991 Protocol on Environmental Protection to the Antarctic treaty and, 1982 United Nations Convention on the Laws of the Sea (UNCLOS). However, international law understandably concentrates on transboundary context and there is not any detailed procedure to carry out and minimum requirements that need to be satisfied.¹³

EU Council Directive 85/337/EEC on the environment was the first international instrument to provide details on EIAs. The EIA Directive of 1985 has been amended three times in 1997, in 2003 and in 2009.

Multilateral development banks, including World Bank, have their own EIA procedures. The International Finance Corporation (IFC) has also detailed procedures on how to conduct EIA to development projects. These regulations are important for private investors

¹¹ S. Jay, C. Jones, P. Slinn, C. Wood, 2007, Environmental Impact Assessment: Retrospect and Prospect, Environmental Impact Assessment Review 27, p.288

¹² P. Sands, J. Peel, 2012, Principles of International Environmental Law 3rd Edition, p. 602

¹³ Ibid., p. 606-616

when they require financial assistance by these multilateral banks. In such projects, even if there is not an EIA regulation in the host state, an investor still needs to follow these regulations.

2.1.2 Important Stages of EIA Process

Before starting to analyze Turkey's EIA Regulation under UNEP Principles, I believe it will be useful to describe the important stages of the EIA process. For this purpose I am going to explain screening, scoping, consideration of alternatives, impact prediction and mitigation, public consultation and participation and post decision auditing.

2.1.2.1 Screening

Screening is the first key stage of the EIA process. The object of screening is to determine whether a proposed activity requires EIA or not.¹⁴ A screening mechanism seeks to focus on projects with potentially significant adverse effects.¹⁵

Two mechanisms are common for project screening: compilation of thresholds to determine which projects should be assessed and case-by-case approach as a discretionary determination. J. Glasson, R. Therivel and A. Chadwick point out that the first mechanism, thresholds, is simple to use, more certain and consistent but on the other hand inflexible; there is less room for common sense; difficult to set and once set, difficult to change; and it might lead to proliferation of projects lying just below the threshold. Conversely, the case-by-case approach allows common sense, is flexible and can evolve easily. However, this approach is likely to be complex, ambiguous, slow and costly; as well as, open to abuse by decision makers and poor judgment. It is also likely to be swayed by precedent and could therefore lose flexibility.¹⁶ On the other hand, according to N. Robinson, the use of lists as

¹⁴ EIA Course Module: http://eia.unu.edu/course/index.html%3Fpage_id=136.html

¹⁵ J. Glasson, R. Therivel, A. Chadwick, 2005, Introduction to Environmental Impact Assessment 3rd Edition, p. 89

¹⁶ *Ibid.*, p. 91

a threshold is evidence of an immature EIA process in which resort to a clear rule of thumb is preferable to a more sophisticated and initially open analysis based on scientific data.¹⁷

2.1.2.2 Scoping

Scoping is another important stage of an EIA process, especially for the quality of it. Which impacts and issues need to be covered by EIA is determined by the scoping procedure. It is a crucial matter whether physical and socio-economic impacts or direct and indirect impacts or short-run and long-run impacts ...etc. are covered or not under the EIA regulation.

Scoping is intended to focus the EIA on the most important topics, removing irrelevant impacts, while ensuring that indirect and secondary effects are not overlooked.¹⁸ Besides, the scoping process should be designed to comply with the needs of the specific project being proposed.¹⁹ Consultation and public participation in scoping is important, first in raising issues for consideration early in the EIA process and, later, in narrowing down the range of issues to be considered in the EIA.²⁰

2.1.2.3 Consideration of alternatives

The US Council on Environmental Quality describes consideration of alternatives as “the heart of the environmental impact statement”.²¹ The significance of the consideration of alternatives is that it ensures that the developer has considered both other approaches to the project and the means of preventing environmental damage.²²

The origin of consideration of alternatives should be the purpose and need for the project. This process is mainly about discussion on alternative locations, different scales and alternative process and equipment. At the same time, alternatives must be reasonable: they should not include ideas that are technically impossible or illegal. Essentially, alternatives

¹⁷ N. Robinson, International Trends in Environmental Impact Assessment, Pace Law Faculty Publications. Paper 382, p. 596

¹⁸ C. Wood, 2003, Environmental Impact Assessment A Comparative Review 2nd Edition, p.159

¹⁹ B. Marriot, 1997, Environmental Impact Assessment: A Practical Guide, p.40

²⁰ C. Wood; *ibid.*, p.161

²¹ US Council for Environmental Quality 1978, Regulation 1502.14

²² J. Glasson, R. Therivel, A. Chadwick, *ibid.*, p.93

should allow the competent authority to comprehend why this project, and not some other, is being proposed in this specific location.²³

2.1.2.4 Impact prediction and mitigation

A development project might have various impacts on environment: physical and socio-economic; direct and indirect; short-run and long-run; reversible and irreversible ...etc. Prediction of these impacts is an important issue since all EIA processes are actually about prediction. There are different technical methods for prediction of impacts.²⁴

As a matter of course prediction includes uncertainty and in the face of scientific uncertainty a precautionary approach is necessary for the environmental protection. Once impacts have been predicted, there is a need to assess their relative significance to enlighten decision-makers whether the impacts may be considered acceptable.²⁵

Mitigation is defined as “measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects”.²⁶ This is actually the main purpose of the EIA process: reducing adverse impacts to an acceptable level and prevent unsuitable development by showing that certain impacts cannot be mitigated. Different mitigation measures might apply to different adverse impacts at different phases.²⁷ Without a doubt, in an EIA process, protection of environment is dependent on the application of effective mitigation measures. This is the substance of the whole EIA process.

2.1.2.5 Public consultation and participation

Consultation and participation aims to improve the quality of EIA. Public participation usually includes people living near the development project and who might be affected by it and groups concerned with environmental issues in general. Depending on the host country's domestic regulations, consultation and participation may take place in different stages. It might be useful in every stage, but especially in determining the scope of an EIA

²³ *ibid.*, p.95

²⁴ See, *ibid.*, p.129-135

²⁵ *ibid.*, p.137

²⁶ Directive 2011/92/EU of the European Parliament and of the Council of 13.12.2011 Article 5/3-b

²⁷ C. Wood, *ibid.*, p.258

and evaluating the relative significance of the likely impacts. Different methods might be applied for consultation and participation, like use of media, surveys, public meetings, workshops ...etc.

Transparency is important for an effective consultation and participation; related documents must be available to the public, lack of information prevents adequate public participation.²⁸ Public participation in EIA also aims to establish an interrelation between the public and decision makers and to ensure that decision-makers adopt the public's view into their decision.²⁹

2.1.2.6 Post decision auditing

EIA is considered as a procedure before a decision is made on whether a project should be given approval to proceed. But actually the EIA process is not finished when a decision is made. There must be a mechanism that ensures developer fulfills their obligations in accordance with the EIA during construction, operation and close-down stages. Even if the best mitigation measures are envisaged against the possible adverse impacts and the perfect EIA report has been prepared in theory, it will be useless if it is not implemented in practice.

Requirement of a competent auditing mechanism that observes whether a project is being carried out in accordance with EIA is crucial. In an effective EIA regulation there must be proper sanctions, to prevent any environmental harm, against developers that fail to fulfill their obligations. Otherwise the EIA process will only turn into a bureaucratic burden.

2.2 Environmental Impact Assessment in Turkey

2.2.1 Country Profile of Turkey

I am going to start with a brief description of the historical and political background of Turkey. In order to understand Turkey's law making process it is important to know characteristics of Turkish democracy and its dissimilarities with the western European

²⁸ *ibid.*, p.278

²⁹ J. Glasson, *ibid.*, p.161

examples. Governmental attitude to the law should be considered under Turkey's own circumstances.

2.2.1.1 Historical and political background:

Turkey, officially the Republic of Turkey, was accepted as the successor state to the Ottoman Empire, and was founded in the early 1920s by the national hero Mustafa Kemal Atatürk. Under his rule Turkey adopted wide-ranging reforms that transformed the country into a part of modern world as a secular, constitutional republic. However, these reforms were adopted in the absence of public demand. Contrary to the European examples, Turkish people acquired their basic civil and political rights without fighting for them.

The first multi-party elections were held during the 1950s and continued until now however Turkish democracy has been subjected to military coups 3 times, in 1960, in 1971 and lastly in 1980; each case resulted in a return of political power to civilians. Therefore, Turkey's democracy does not have a long history and the culture of democracy has not developed enough.

Turkey's law system is entirely integrated in the continental European system, shows similarities notably to Switzerland in civil law and to France in administrative law. The current constitution was made by the military coup in 1980 but accepted by the 91.3% majority in the referendum. The Constitutional Court of Turkey, as the highest legal body, examines the constitutionality, in respect of both form and substance of laws. Moreover, regulations (by-laws) are subjected to judicial control of the Supreme Administrative Court (Danıştay).

Turkey is a founding member of United Nations, the Organization of the Islamic Cooperation and the Organization of Economic Cooperation and Development (OECD). Turkey joined the Council of Europe three months after its foundation. Turkey is also member of the World Trade Organization (WTO) and North Atlantic Treaty Organization (NATO). Furthermore, Turkey is officially recognized as a candidate for full membership to the European Union (EU) in 1999, however negotiations are still ongoing.

According to official data, Turkey's population was 74.7 million people in 2011. The increase rate of the population is expected to decline in the not so distant future; population will make a peak in 2050 with 94 million people thereafter it is going to decrease slowly.³⁰ Turkey has the world's 17th largest nominal GDP and the country has a largely free-market economy which is increasingly driven by its industry and service sectors. After the 1980s an aggressive privatization policy has reduced state involvement in economy. Furthermore, Turkey seeks development in private investment, particularly foreign investment. The Turkish economy has been steadily grown in the last decade and has not been affected from any of the economic crises. However, the country's high level of current account deficit is considered as vulnerable.³¹

2.2.1.2 Current political scene

General elections are normally held in every 5 years in Turkey and there is an electoral threshold of 10%. Turkey's democracy used to have coalitions until the elections in 2002. The Justice and Development Party (AKP) won the elections in November 2002 with 34.2% and Republican People Party (CHP) got 19.3%, and as a result of electoral threshold none of the other parties could enter to the parliament.³² Thereafter two more general elections were held in 2007 and in 2011 and the AKP increased its voting rate to 46.6% and 49.8%.³³ Therefore, since 2002, Turkey has been governed by single party, AKP government.

Under AKP rule, Turkey's economy has grown and people enjoyed stability in politics after the years of coalitions. On the other hand criticisms have increased that Turkey is becoming a more totalitarian country, individual human rights and freedoms are

³⁰ Turkish Statistical Institute Database <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=15844> (in Turkish)

³¹ CIA World Factbook (<https://www.cia.gov/library/publications/the-world-factbook/geos/tu.html>)

³² General elections in 2002 was held after serious economic crisis that people suffered heavily, as a result none of the political parties which were represented in the parliament were able to pass the electoral threshold (DYP 9.5%, MHP 8.3%, ANAP 5.1%. DSP 1.2%).

³³ Percentages show the percentage of valid votes, do not include constituency who did not vote.

deteriorating³⁴, particularly the freedom of expression³⁵, the freedom of assembly and the demonstration and press freedom³⁶.

The AKP government has not reached to the level of majority to make constitutional amendments on its own in the parliament. For this reason in 2010, the government decided to hold a referendum and these constitutional amendments were accepted by 57.8% majority. By the constitutional amendments the government gained influence over the judiciary.³⁷ Many opponents have been arrested for years, among academics and journalists by coup plot accusations which created high level of suspicion in public.^{38 39}

In the light of the facts set out above, in Turkey, after the ten years of single party government experience, it is clear that in the absence of a democracy culture, when a political party reaches to power to shape the country in accordance with their policy they do not hesitate to do it against the will of 49% of people. Courts or, in general, law are not able to stop governmental policies, even constitutional amendments can be made with the support of 51% of people. It seems there is a long way for Turkey in order to achieve rule of law.

³⁴ See, Kerem Oktem, Why Turkey's Mainstream Media Chose to Show Penguins rather than Protests, The Guardian (<http://www.theguardian.com/commentisfree/2013/jun/09/turkey-mainstream-media-penguins-protests>)

³⁵ See, European Commission, Turkey Progress Report 2012, (p.72: An increase in violations of freedom of expression has given rise to serious concerns, and freedom of the media continued to be further restricted in practice.)

³⁶ See, J. Kestler-DAmours; Turkey: 'World's Biggest Prison' for Media, Aljazeera (<http://www.aljazeera.com/indepth/features/2013/02/2013217124044793870.html>)

³⁷ See, European Commission, Progress Report Turkey 2012: (p.70: ...criticisms of the legislation on the High Council of Judges and Prosecutors referred to in last year's progress report, e.g. the role given to the Minister of Justice, have not been addressed. There was concern that decisions to suspend prosecutors in the Deniz Feneri case reflected pressure from the executive. The polarised political atmosphere was reflected in opposition accusations that the government was controlling the judiciary.)

³⁸ See, D. Rodrik; A Sledgehammer Blow to Turkish Democracy, The Financial Times 03.06.2013 (<http://bilimakademisi.org/wp-content/uploads/2013/06/Turkey%E2%80%99s-protesters-have-been-let-down-by-all-sides-FT.pdf>)

³⁹ See, European Commission, Turkey Progress Report 2012: (p.7: Concerns persisted over the rights of the defence, lengthy pre-trial detention and excessively long and catch-all indictments, leading to significantly enhanced public scrutiny of the legitimacy of these trials. Offering a chance to strengthen confidence in the proper functioning of Turkey's democratic institutions and the rule of law, these cases have been overshadowed by real concerns about their wide scope and the shortcomings in judicial proceedings. Moreover, they tend to contribute to the polarisation of Turkish politics.)

2.2.2 EIA in Turkish Law

2.2.2.1 Background of EIA Regulation

Everyone's right to live in a healthy, balanced environment is protected in the 1982 Constitution by Article 56. The Law on Environment No. 2872, which came into existence in 1983, requires in Article 10 an EIA for projects which may have adverse impacts against environment. However, it took ten years to make a regulation for principles and procedures of EIA and the first EIA Regulation was adopted on the 7th of February 1993. According to Turkish Law, ministries and public institutions have the authority to adopt regulations. Exact names of ministries have been changing; however, the ministry that deals with environment (Ministry of Environment and Forestry or Ministry of Environment and Urbanization) adopts EIA Regulations.

The EIA Regulation of 1993 had been subjected to several amendments before a new EIA Regulation was issued in 1997. New EIA regulations have adopted six times in the last 20 years: In 1993, in 1997, in 2002, in 2003, in 2008 and lastly in 2013. These changes in the EIA regulations have been criticized for bringing changes in accordance with investors' needs and bringing the environmental protection to a level lower than before the first regulation in 1993.^{40 41}

2.2.2.2 Analysis of Turkish EIA Regulation under the UNEP Principles for EIA

The United Nations Environment Programme (UNEP) adopted "Goals and Principles of Environmental Impact Assessment" and recommended them to be considered as a basis for EIAs. As these principles indicate international standards for EIA, I am going to use them to analyze the Turkish EIA Regulation in order to determine whether it is sufficient on the international level.

⁴⁰ M. Kartal, The Use of EIA Reports, Journal of Bursa Bar Association Issue: 87 December 2009, p. 91 (in Turkish)

⁴¹ T. Baştak, General Manager of WWF Turkey, Press Statement, 28.04.2011 (www.ntvmsnbc.com/id/25207460/) (in Turkish)

2.2.2.2.1 Principle 1

“States (including their competent authorities) should not undertake or authorize activities without prior consideration, at an early stage, or their environmental effects. Where the extent, nature or location of a proposed activity is such that it is likely to significantly affect the environment, a comprehensive environmental impact assessment should be undertaken in accordance with the following principles.”

Principle 1 points out the importance of the existence of the EIA regulation. Currently in Turkey, pursuant to above mentioned Law on Environment No. 2872 Article 10, a proposed project that is likely to have significant impacts on the environment has to carry out an EIA and in this assessment all the adverse impacts and how to mitigate these impacts shall be taken into consideration for the environmental protection. Before completion of an EIA process these kinds of projects cannot get inducement, approval, license, construction permit and cannot start investment or tender.⁴²

2.2.2.2.2 Principle 2

“The criteria and procedures for determining whether an activity is likely to significantly affect the environment and is therefore subject to an EIA, should be defined clearly by legislation, regulation, or other means, so that subject activities can be quickly and surely identified, and EIA can be applied as the activity is being planned.”

Principle 2 points out the importance of a clear screening procedure. Turkish EIA Regulation has two types of mechanisms: Compilation of thresholds to determine which should be assessed and case-by-case approach as a discretionary determination.

In Appendix – 1 of the EIA Regulation there is a list that counts types of projects which are subjected to EIA process. This means in case a proposed project is in the Appendix – 1, an EIA report has to be prepared for the project.⁴³ This mechanism is an example of compilation of thresholds. There are 52 types of projects in the Appendix – 1 in the current EIA Regulation; it seems to include all the major projects.

⁴² EIA Regulation 2013, Article 6/3

⁴³ EIA Regulation 2013, Article 7/1

In the Appendix – 2 of the EIA Regulation there is a list that counts types of projects which are subjected to selection – elimination criteria. This means in case a proposed project is in the Appendix – 2 it will be assessed by its specific circumstances in order to determine whether it is subjected to EIA process. This decision can be made by the Ministry of Environment and Urbanization (MoEU) or the MoEU may give this authority to the governorship.⁴⁴ This is an example of case-by-case approach as a discretionary determination.

In case a project is not listed in either Appendix – 1 or Appendix – 2, it is not subjected to an EIA process. However, after the completion of any project, in case of any improvement that increases the capacity, the total capacity after the improvement will be taken into account in order to determine whether a project is subjected to EIA process or a discretionary determination. As an example if a wind power project includes less than 5 tribunes it is not subjected to EIA process; if it has 5 – 20 tribunes (Appendix –2) it is subjected to selection – elimination criteria and it will be determined by case-by-case approach; if it has more than 20 tribunes (Appendix – 1) it is subjected to EIA process. Furthermore, in case any improvement will be done to a wind power project such as increasing tribunes from 4 to 6 then it is subjected to case-by-case approach otherwise improvement cannot be done.

There is one more issue that needs to be discussed under this heading. Since the first EIA Regulation was adopted in 1993, there has been a provisional article that exempts some projects from EIA procedures. Projects that started to operate or which has an investment plan was approved before the adoption date of the first EIA Regulation, 7/2/1993, are exempted from the EIA procedures. As an exceptional provision it would be understandable to include such exempted projects at the beginning. However, after 20 years, even the latest regulation includes the same provisional article.⁴⁵ Bearing in mind, even the projects that are subjected to EIA process have to start investing in 7 years after

⁴⁴ EIA Regulation 2013, Article 5

⁴⁵ EIA Regulation 2013, Provisional Article 3

the decision of ‘EIA positive.’⁴⁶ Keeping this provisional article in the EIA Regulations for 20 years of time is not suitable with the principles of law and does not serve the purpose of protection of environment or sustainable development.⁴⁷ The existence of these exemptions to the EIA is also criticized by the EU.⁴⁸

A part of the provisional article in the EIA Regulation was annulled by Danıştay (Turkish Supreme Administrative Court). This part was allowing vast controversial projects such as the 3rd bridge to Istanbul Strait, the 3rd airport to Istanbul, the Ilısu Dam and, the Akkuyu Nuclear Power Plant exemption from the EIA process. However, the new EIA Regulation (2013) includes similar provisional articles again. Pursuant to provisional Article 2 and 3 of EIA Regulation 2013, these vast controversial projects are exempted from the EIA procedures. Provisional Article 2 specifies that projects which were included in the public investment program before 23.06.1997 and in which tender process or operation started before 29/5/2013 are exempted from the EIA, and Provisional Article 3 specifies that projects which started to operate before 7/2/1993, are exempted from the EIA. The latest provisional articles are blatantly designed to exempt these vast contentious projects from EIA.⁴⁹ Apparently, the government considers EIA process as an obstacle to overcome for the development.

In conclusion, Turkish EIA Regulation has clear screening mechanisms thus activities can be quickly and surely identified. Furthermore, it is designed to apply EIA as the activity is being planned. However, provisional articles which regulates exempted projects are not in accordance with principles of law and do not serve the purpose of sustainable development. Moreover, existence of these exemptions has the potential to single-handedly ruin the effectiveness of EIA Regulation. For these reasons set out above, Turkey’s EIA Regulation is not in suit with international standards in this respect.

⁴⁶ EIA Regulation 2013, Article 14/4

⁴⁷ S. Alica, Evaluation of EIA under Court Decisions, Gazi University Law Faculty Journal 2011/3, p. 109 (in Turkish)

⁴⁸ European Commission, 2013 Progress Report Turkey p.69

⁴⁹ G. Gülten, No EIA for Airport too, Vatan Newspaper, 03.10.2013 (<http://haber.gazetevatan.com/havaalani-da-cedsiz/573819/2/ekonomi>) (in Turkish)

2.2.2.2.3 Principle 3

“In the EIA process the relevant significant environmental issues should be identified and studied. Where appropriate, all efforts should be made to identify these issues at an early stage in the process.”

Principle 3 points out the importance of the scoping process. In the course of the EU harmonization process, Turkey is improving its legislation in accordance with EU Directives. Scoping is a compulsory stage in EIA process for EU pursuant to Article 4 of the relevant Directive. Therefore, Turkey’s last three adopted EIA Regulations (2003, 2008 and 2013) have included the scoping process.

In case the EIA process is required for a project, a commission is founded by the MoEU. While determining the commission, the MoEU takes the application file of the project into account and assigns representatives from relevant public institutions, ministry officials, owner of the project and institutions which are authorized by the MoEU.⁵⁰ In case the MoEU considers it is necessary it may invite representatives from non-governmental organizations, universities, professional organizations or unions to the commission’s meetings.⁵¹ The commission is responsible for determining the scope and a special format for the specific project by taking important environmental impacts of the project into consideration.⁵² The commission also takes public participation into account while determining the scope.⁵³ After the determination of scope and special format, an EIA report has to be prepared in 18 months, otherwise the application is considered invalid.⁵⁴

To sum up, the Turkish EIA Regulation has a scoping stage after the first public participation meeting and before the preparation of an EIA report. The quality of scoping is dependent on the commission’s work. Turkish EIA Regulation is in accordance with international standards for the scoping stage.

⁵⁰ EIA Regulation 2013, Article 8/4

⁵¹ EIA Regulation 2013, Article 8/7

⁵² EIA Regulation 2013, Article 10/1

⁵³ EIA Regulation 2013, Article 9/2

⁵⁴ EIA Regulation 2013, Article 10/4

2.2.2.2.4 Principle 4

“An EIA should include, at a minimum:

- (a) A description of the proposed activity;*
- (b) A description of the potentially affected environment, including specific information necessary for identifying and assessing the environmental effects of the proposed activity;*
- (c) A description of practical alternatives, as appropriate;*
- (d) An assessment of the likely or potential environmental impacts of the proposed activity and alternatives; including the direct, indirect, cumulative, short-term and long-term effects;*
- (e) An identification and description of measures available to mitigate adverse environmental impacts of the proposed activity and alternatives, and an assessment of those measures;*
- (f) An indication of gaps in knowledge and uncertainties which may be encountered in compiling the required information;*
- (g) An indication of whether the environment of any other State or areas beyond national jurisdiction is likely to be affected by the proposed activity or alternatives.*
- (h) A brief, non-technical summary of the information provided under the above headings.”*

Principle 4 states minimum requirements of an EIA. Similarly there is a general format of EIA at the Appendix -3 of the Turkish EIA Regulation 2013 that is applied to every project. The general format of EIA includes description of the project, description of the potentially affected environment, impacts of the project during the construction and operation phases and mitigation measures, public participation and a non-technical summary.

Description of the project includes definition, features, service life, service aims, importance and necessity of the project. It also contains consideration of alternatives for the selection of location and technology for the project.

Description of the potentially affected environment includes population, fauna and flora, geologic and hydrologic features, state of natural disasters, earth, water, air, atmospheric circumstances, climatic factors, status of property, architectural and archeological heritage, landscape features, land use situation and level of sensitivity and relevant features.

Impacts of the project during the construction and operation phases and mitigation measures includes firstly, determination of the possible adverse impacts, amount of pollutants, interaction with the environment and cumulative impacts of the project; secondly, determination of the GHG emissions and the impacts related climate change of the project; thirdly, mitigation measures to reduce the adverse impacts of the project; lastly, a monitoring plan for the construction phase of the project.

Public participation includes determination of the people who could be affected from the project and methods for the reflection of these people's opinions to the EIA. Moreover, it includes other parties that are anticipated for consultation.

The EIA Regulation 2013, does not have a description for the non-technical summary, only states it in the general format.

Consequently, Turkish EIA Regulation almost includes everything that is stated in Principle 4. The only exception is international impacts; it does not include any special part for the environment of any other state or areas beyond national jurisdiction that are likely to be affected by the proposed project. Apart from this detail Turkish EIA Regulation suits international standards for the content of it.

2.2.2.2.5 Principle 5

“The environmental effects in an EIA should be assessed with a degree of detail commensurate with their likely environmental significance.”

Principle 5 draws attention to the importance of significant environmental impacts. Appendix-5 of the Turkish EIA Regulation 2013 contains a list of sensitive regions. Firstly, it counts special protected areas by law and states the relevant regulation; secondly, it counts the international agreements that Turkey is a party and relevant areas, thus internationally obliged to protect and lastly, special areas such as areas prohibited for construction, special agricultural areas, special wetlands and areas which have special importance for the scientific research. These areas require special attention in EIA process according to Turkish law. In addition to Appendix 5 there are not any other specific article for the significant environmental impacts.

I think it is necessary to analyze practice to see whether actual importance is given to significant environmental impacts, analyzing only the regulation in theory is insufficient.

2.2.2.2.6 Principle 6

“The information provided as part of EIA should be examined impartially prior to the decision.”

Principle 6 points out the importance of impartiality of the decision making. In Turkish law a decision is only made by MoEU upon the submission of EIA report.⁵⁵ EIA report is an essential part of EIA process. The primary responsible party of the preparation of the EIA report is the project owner/developer.⁵⁶ After the commission has determined the scope and the special format, EIA report has to be prepared in 18 month by the developer. The developer needs to get help from private bodies which are given authority by the MoEU.⁵⁷ When the EIA report is prepared it is submitted to the MoEU. The MoEU examines whether the report is prepared by qualified experts and whether it suits the special format. In case any impropriety is found the report is sent back for improvement.⁵⁸ In case the report is found proper by the MoEU then it is submitted to public consultation.⁵⁹ After the public consultation the commission comprehensively analyzes the EIA report and in case it finds important inadequacies at the report sends it back for improvement.⁶⁰ At the end, the commission makes its final conclusions about the report and submits it to the MoEU.⁶¹ The MoEU submits the final EIA report to the public consultation one last time.⁶² Thereafter the MoEU takes public participation into account and makes the ultimate decision whether “EIA is positive” or “EIA is negative”.⁶³

I think the regulation only can be criticized for giving the main responsibility to a political institution, ministry. The government’s position in general regarding the balance between development and environmental protection can overshadow the impartiality of the examination. An autonomous public agency may perform more impartially in the political

⁵⁵ EIA Regulation 2013, Article 5/1

⁵⁶ EIA Regulation 2013, Article 10/4

⁵⁷ EIA Regulation 2013, Article 27

⁵⁸ EIA Regulation 2013, Article 11/1

⁵⁹ EIA Regulation 2013, Article 11/3

⁶⁰ EIA Regulation 2013, Article 12/6

⁶¹ EIA Regulation 2013, Article 12/9,10

⁶² EIA Regulation 2013, Article 14/1

⁶³ EIA Regulation 2013, Article 14/3

environment of Turkey as explained above (Chapter A-1-b). However, the role of the commission during the EIA report examination which constituted by the experts and public participation may be argued to provide impartiality. In my opinion, impartiality of the examination can only be found out by looking into how it works in practice.

M. Kartal considers EIA process as only a paperwork or a formality based on the fact that between 1993 and 2009, in the first 16 years of EIA experience, in Turkey 1769 EIA processes have completed and 1738 (98%) of them gave a positive result, whereas only 31 (2%) of them gave a negative result.⁶⁴ M. Kartal also points out that these negative EIA decisions were mainly in petroleum and mining sector. After the government made a change⁶⁵ in the Law on Environment and the Law on Mining in June 2004, these facilities are not subjected to EIA process anymore.⁶⁶ It seems the government solved the problem in its unique way by leaving the sector which is subjected to highest number of negative EIA decisions out of the EIA process.⁶⁷ However, the Constitutional Court annulled the change in 2009 based on the reasoning that economic development should be achieved without causing environmental harm.⁶⁸

Statistical data also shows that case-by-case examination is a formality for Appendix-2 projects. Between 1993 and 2004, in the first 21 years, 10081 Appendix – 2 projects examined and for 9906 of them an ‘EIA is not required’ decision was made, whereas only for 175 of them an ‘EIA is required’ decision was made.⁶⁹ It seems if a project is under the stated threshold for Appendix -1 projects it is not subjected to EIA process in practice.

In the light of the facts set out above, I think impartiality of examination is under serious suspicion in Turkey. Even though the Regulation seems to suit international standards and

⁶⁴ M. Kartal, The Use of EIA Reports, Journal of Bursa Bar Association Issue: 87 December 2009, p. 92 (in Turkish)

⁶⁵ It is common in Turkey’s law making process to make changes in various laws by way of a new law that called “package law”.

⁶⁶ M. Kartal, *ibid.*, p.92

⁶⁷ At first an amendment made in the EIA Regulation by the Ministry however Danıştay annulled the amendment in 1999. Thereafter a change made in the law thus Danıştay do not have the authority to review or annul.

⁶⁸ Constitutional Court, 15.01.2009, E. 2006/99, K. 2009/9

⁶⁹ TMMOB, 2011, Hydropower Plants Report, p.43 (in Turkish)

particularly EU standards in theory; impartiality of the examination is not convincing in practice.

2.2.2.2.7 Principle 7 and Principle 8

“Before a decision is made on an activity, government agencies, members of the public, experts in relevant disciplines and interested groups should be allowed appropriate opportunity to comment on the EIA.”

“A decision as to whether a proposed activity should be authorized or undertaken should not be taken until an appropriate period has elapsed to consider comments pursuant to principles 7 and 12”

Principle 7 points out the importance of public consultation and participation and principle 8 states it should be taken into account during decision making process. Principle 8 also refers to the importance of international consultation when necessary. The international issue is going to be analyzed below under the heading 2.2.2.2.10.

According to the EIA Regulation 2013, public consultation is applied in 3 stages. Firstly, after the constitution of the commission, before the scoping stage, a public participation meeting is held in order to inform the public about the proposed project.⁷⁰ Also the commission pays attention to the public concerns and takes them into account while determining scoping. Secondly, after the preparation of the EIA report, the MoEU or governorship makes the report available to the public and announces that an evaluation of the report has started and that the commission takes public views into account.⁷¹ Lastly, after the commission’s final analysis of the EIA report, it is submitted to the MoEU for the ultimate decision. Before making its decision, the MoEU submits the report to public consultation one last time before it makes its decision by taking these views into account.⁷²

Turkey’s EIA Regulation includes public consultation and participation in different stages and applies different methods. Furthermore, transparency is provided to public and decision makers adopt the public’s view into their decision. In this respect it suits international

⁷⁰ EIA Regulation 2013, Article 9/1

⁷¹ EIA Regulation 2013, Article 11/3,4

⁷² EIA Regulation 2013, Article 14/1

standards. However, application of the regulation into practice is criticized. G. Yılmaz thinks that the public participation meeting is a formality and does not have any function in practice.⁷³ She also adds, this is the reason why people are protesting and preventing these meetings.⁷⁴

Consequently, even though the EIA Regulation suits international standards in theory, public consultation and participation is a controversial issue in practice.

2.2.2.2.8 Principle 9

“The decision on any proposed activity subject to an EIA should be in writing, state the reasons therefor, and include the provisions, if any, to prevent, reduce or mitigate damage to the environment.

This decision should be made available to interested persons or groups.”

Principles 9 states that the decision on EIA should be in writing, with reasoning and available to public access. In Turkish Regulation at the end of the process, the MoEU makes the final decision whether it is positive or negative. Reasoning is not mentioned as a requirement of the decision. On the other hand, Turkish Regulation requires a detailed EIA report and the report should include detailed explanations on how to prevent, reduce or mitigate the adverse impacts of the proposed project. These reports are also open to public access.

Even though Principle 9 uses the word “decision” which should include written explanations how to prevent, reduce or mitigate the adverse impacts of the proposed project, instead Turkish Regulation has the “EIA report” for this purpose. Therefore the regulation suits international standards in this respect.

⁷³ G. Yılmaz; Can EIA Reports Assess Environmental Impacts, Perspectives Journal, April 2013, p.26 (in Turkish)

⁷⁴ *ibid.*

2.2.2.2.9 Principle 10

“Where it is justified, following a decision on an activity which has been subject to an EIA, the activity and its effects on the environment or the provisions (pursuant to Principle 9) of the decision on this activity should be subject to appropriate supervision.”

Principle 10 points out the importance of supervision and auditing of the activity after the EIA decision. In Turkish law, the MoEU audits whether a developer fulfills its obligations.⁷⁵ If it is necessary, the MoEU may cooperate with relevant institutions.⁷⁶ The developer must inform the MoEU in case it makes any alteration on the project after the EIA decision and submit monitoring reports during the beginning of the investment stage and construction stage.⁷⁷

A Supervision and Control was department founded four years after the adoption of the first EIA Regulation in 1997. This department controlled 580 EIA processes (66.05%) and 1075 Appendix – 2 projects examination (12.61%).⁷⁸ Apparently, too many projects have not been supervised so far, this is probably because of the insufficient number of units for the supervision and control. In Turkey’s socio-cultural environment, this may cause for developers to fail in fulfilling their obligations in accordance with the EIA report, especially during the management process.

Turkey’s EIA law includes sufficient regulation to audit development of projects. However, the MoEU do not have adequate number of units for supervision. Furthermore, without efficient audit in practice, existence of a theoretical framework for auditing has no actual meaning and statistical data shows there are serious problems in supervision in practice. For this reason, Turkey does not suit international standards in this regard.

2.2.2.2.10 Principle 11 and Principle 12

“States should endeavour to conclude bilateral, regional or multilateral arrangements, as appropriate, so as to provide, on the basis of reciprocity, notification, exchange or

⁷⁵ EIA Regulation 2013, Article 18/1

⁷⁶ EIA Regulation 2013, Article 18/2

⁷⁷ EIA Regulation 2013, Article 18/4

⁷⁸ TMMOB, *ibid.*, p.43

information, and agreed-upon consultation on the potential environmental effects of activities under their control or jurisdiction which are likely to significantly affect other States or areas beyond national jurisdiction.”

“When information provided as part of an EIA indicates that the environment within another States is likely to be significantly affected by a proposed activity, the State in which the activity is being planned should, to the extent possible:

(a) notify the potentially affected State of the proposed activity;

(b) transmit to the potentially affected State any relevant information from the EIA, the transmission of which is not prohibited by national laws or regulations; and

(c) When it is agreed between the States concerned, enter into timely consultations.”

Principle 11 and 12 states the importance of international context of the EIA process. A prohibition of transboundary harm is customary international law. As a result, Turkey is obliged not to cause any damage to the environment of other states or areas beyond the national jurisdiction. Turkey is also obliged to fulfill its responsibilities in accordance with the treaties it has ratified. However, Turkish EIA law does not include any regulation on this issue. Stated obligations in these principles are not a part of Turkish EIA process.

In conclusion Turkey’s EIA Regulation does not contain any stage regarding international context. Thus it does not suit international standards on this part.

2.2.2.2.11 Principle 13

“Appropriate measures should be established to ensure implementation of EIA procedures.”

The last principle points out the importance of the mechanism that ensures implementation of EIA procedures. Projects which are subjected to EIA according to Turkish law (projects take place in the Appendix 1-2) cannot get inducement, approval, license, construction permit and cannot start investment or tender unless “EIA positive” or “EIA is not required” decision is made.⁷⁹ After these decisions, in case MoEU or governorship identify a violence in developer’s obligations in accordance with the EIA report, MoEU or governorship gives

⁷⁹ EIA Regulation 2013, Article 6/3

90 days period to the investor to correct the violation. In case the violation is not corrected in 90 days, the project is halted.⁸⁰ By way of these mechanisms Turkish EIA Regulation ensures implementation of EIA procedures.

Instead of directly halting the projects when violations are identified, giving a period of 90 days is criticized for giving more value to the development than the environmental protection.⁸¹ Indeed, 90 days seems longer than a sufficient notice for the environmental protection. It also causes unfair competition with other developers that fulfill their obligation in accordance with EIA. Danıştay annulled a change in the EIA Regulation in 2001 that had the same effect, on the basis that it was causing unfair competition and being against the public benefit.⁸² However, newer regulations contain the same article, including the 2013 regulation.

In conclusion, Turkish EIA Regulation includes sanctions to ensure the implementation of EIA procedures. Therefore, it is in suit with international standards, despite the criticism mentioned above.

2.2.3 Conclusion

The Turkish EIA Regulation in general suits international standards as set out in the UNEP Principles. The last decade, changes have been made in accordance with the EU Environmental Directive, and therefore it also suits EU standards. During the EU harmonization process, stages like scoping and public participation and consultation became more effective. The EIA Regulation 2013 requires comprehensive mitigating measures and includes a framework for implementation and supervision. However it is lacking special regulation for the environment of other states and areas beyond national jurisdiction.

On the other hand keeping provisional articles in the regulation after 20 years of time that exempts vast projects from EIA process is a crucial impropriety with the international standards. Removal of these provisional articles is necessary for the environmental

⁸⁰ EIA Regulation 2013, Article 19

⁸¹ S. Alica, *ibid.*, p. 100

⁸² Danıştay 6th Chamber, 06.11.2001, E. 2000/3626, K. 2001/5220

protection and sustainable development. On the contrary, the government made changes in the regulation to extend the exemptions in the last few years and these changes were annulled by the Danıştay. However, the government adopted similar regulations against the judicial annulments. The wording of the latest changes makes it clear that the changes are designed to exempt vast contentious projects such as the 3rd bridge to Istanbul Strait and the 3rd airport to Istanbul. Apparently, the government considers EIA process as an obstacle to overcome for the economic development. Even though professional bodies and environmental organizations carry out a legal fight against the governmental attitude; the current socio-political level of Turkey is not sufficient to tackle governmental policies in judicial way.

This governmental approach leads to inadequacies in practice. Although the regulation in general suits the international standards in theory, application of the regulation into practice causes serious suspicions. Statistical data shows that the EIA process generally concludes in favor of the developer's wishes. Only 2% of 'EIA negative' decisions in the first 16 years of EIA and negligible number of 'EIA is required' decisions for the projects subjected to selection – elimination criteria (Appendix – 2) prove that the environment is not sufficiently protected against the adverse impacts of development projects. Similarly, supervision and control have not been carried out sufficiently for the environmental protection.

Nowadays, it is often possible to see in the news people protesting and preventing public participation meetings in EIA procedures. Also, growing civil resistance in the Black Sea region against hydropower plants shows people have lost their trust to the state authorities for the protection of environment. Similarly, the biggest civil unrest of the history of Turkey, Gezi Park protests in June 2013, started with environmental demonstrations against the demolition of a park in the central Istanbul.

To sum up, Turkey's EIA Regulation textually suits international standards. However, the governmental attitude towards EIA, which considers it as an obstacle, leads the government to make regulations to exempt development projects from EIA and it makes the regulation inefficient. Moreover, in practice there are serious doubts over the application of the regulation. Consequently, even though Turkey's EIA Regulation as a text is efficient and

suits international standards as a text, it does not function effectively for the environmental protection.

3 Environment and Hydropower Plants

3.1 Environment and Hydropower in General

3.1.1 Brief Information about Renewable Energy and HPPs

In accordance with the increase in population, urbanization and technology, energy consumption is constantly growing. Consumption in electrical power is accepted as an indicator of level of development of a country. On the other hand, energy production is one of the main sources of environmental pollution.

Fossil fuels are still the main source of energy production. Natural gas, oil and coal, as finite resources, are leading in GHG emission which is accepted as the main problem in global warming. Energy production based on coal also leads to air pollution. Nuclear power on the other hand is a contentious issue involving serious environmental harm in case of an accident.

Renewable energy first of all depends on infinite sources such as solar, wind, hydro, biofuels, geothermal, tidal and wave power. Bearing in mind grow in energy consumption, renewable energy is a very important tool to cope with environmental problems like global warming. Renewable energy is accepted as environmental friendly and does not contribute to the GHG emissions.

The proportion of renewable energy in total energy production is limited in the world. A great deal of countries, especially developed ones, are targeting to increase the proportion of renewable energy in total energy production and are developing policies in accordance with this aim.

Hydropower is one of the main contributors to renewable energy and is used in many countries all over the world. For instance, in Norway almost all power generation is hydropower.

Hydropower is provided by transforming the potential energy of water to kinetic energy. There are two main types of hydro power schemes: hydropower plant with reservoir or dam and run-of-river (hydropower plant without a reservoir). HPPs with reservoir have a special importance: “Hydropower with reservoirs provides the required backup energy to sustain

other renewables with intermittent service and ensures electricity supply in times when there is no wind or sun”.⁸³

3.1.2 Possible Environmental Impacts of HPPs

HPPs have various impacts over the environment. The World Commission on Dams (WCD), which was set up in 1998 by the World Bank and World Conservation Union, has published a report called “Dams and Development a New Framework for Decision Making” in 2000. I am going to use the report to show the possible environmental impacts of large HPPs in brief.⁸⁴ Report considers environmental and social impacts of dams separately. However, I am going to evaluate them under the same heading because it is difficult to distinguish them, and also social aspects can be considered under the definition of environment. Since the report only considers impacts of large dams, subsequently I am going to evaluate impacts of run-of-rivers:

3.1.2.1 The impacts of reservoirs on terrestrial ecosystems and biodiversity (p. 75)

The construction of a storage dam and inundation of the reservoir area kills terrestrial plants and forests and results in displacement of animals. Flooding a reservoir may lead to the occupation and clearing of upstream catchment areas as replacement for land lost to the reservoir. Land use change may lead to habitat loss, elimination of flora and fauna and land degradation, as well as feedback effects on the reservoir through alterations in hydrologic function.

3.1.2.2 The emission of greenhouse gases associated with large dam projects and their reservoirs (p. 75-76)⁸⁵

The emission of GHGs from reservoirs due to rotting vegetation and carbon inflows from the catchment is an identified ecosystem impact of storage dams. This challenges the

⁸³ Statkraft Energi; Fact Sheet Hydropower, p.1
([Http://www.statkraft.com/Images/Hydropower%2009%20ENG_tcm9-4572.pdf](http://www.statkraft.com/Images/Hydropower%2009%20ENG_tcm9-4572.pdf))

⁸⁴ WCD, 2000, Dams and Development, p. 73-133

⁸⁵ See also, D. Graham-Rowe, Hydroelectric Power's Dirty secret Revealed, New Scientist, 24.02.2005
(<http://www.newscientist.com/article/dn7046#.UjcWwMbBqUc>)

conventional wisdom that hydropower produces only positive atmospheric effects and leads to a reduction in carbon emissions when compared with power generation sources that burn fossil fuels.

3.1.2.3 The impacts of altered downstream flows on aquatic ecosystems and biodiversity (p. 76-83)

Dams are intended to change the natural distribution and timing of stream flow. Natural rivers and their habitats and species are a function of the flow, the quantity and character of the sediment in motion through the channel. Flow regimes are the key driving factor for downstream aquatic ecosystems. Flood timing, duration and frequency are all critical for the survival of communities of plants and animals living downstream. Small flood events may result in fish and invertebrate migration; major events create and maintain habitats by scouring or transporting sediments. Moreover, water temperature and chemistry are altered as a consequence of water storage and the altered timing of downstream flows.

3.1.2.4 The impacts of altering the natural flood cycle on downstream floodplains (p. 83-84)

Reduction in downstream annual flooding affects the productivity of riparian areas, floodplains and deltas. The loss of annual silt and nutrient replenishment as a result of upstream impoundment is thought to have contributed to the gradual loss of fertility of formerly productive floodplain soils as used in agriculture and flood-recession agriculture. Dramatic reductions in bird species are also known, in downstream floodplain and delta areas, where wetlands may not be replenished with water and nutrients once a dam is installed.

3.1.2.5 The impacts of dams on fisheries in the upstream, reservoir and downstream areas (p. 84-86)

The blockage of sediment and nutrients, the re-regulation of stream flow, and elimination of the natural flood regime can all have significant, negative effects on downstream fisheries. The alteration or diversion of freshwater flows by dams negatively affects marine or estuarine fisheries. Substantial losses in downstream fishery production as a consequence of dam construction are reported from all over the world.

3.1.2.6 The enhancement of ecosystems through reservoir creation and other means (p. 86-88)

Productive wetlands can be created by pumping water through a previously dry area, which generates considerable wildlife and tourism values. Some reservoirs are known to support threatened reptiles and have importance for birds. However, productive wetlands are most likely to be created around reservoirs where these are shallow or have shallow margins and limited reservoir drawdowns.

3.1.2.7 The cumulative impacts of a series of dams on a river system (p. 88-90)

Within a basin, when the number of dams increases, the fragmentation of river ecosystems also increases. They affect both the physical variables, such as flow regime and water quality, and the productivity and species composition of different rivers. The problems may grow as more large dams are added to a river system, resulting in an increased and cumulative loss of natural resources, habitat quality, environmental sustainability and ecosystem integrity.

3.1.2.8 Socio-economic impacts through the planning and project cycle (p. 97-102)

The delay between the decision to build a dam and the beginning of the construction is an important social impact at the planning and design stage. This may lead to communities living for decades starved of development and welfare investments. A related problem is many people may feel fear as a result of living in a possible reservoir area. Dam projects require a large amount of unskilled workers and smaller amounts of skilled labor during construction phase. For this reason new jobs are created both for skilled and unskilled workers during this phase. Furthermore, new energy services provided by dams have benefited urban populations and others connected to power distribution systems.

3.1.2.9 Displacement of people and livelihood (p. 102-110)

Large dams have widespread ecosystem impacts due simply to the blocking of a river. The result is a series of terrestrial, aquatic and riparian impacts that affect ecosystems and biodiversity as well as people who live both near and far from the dam site. Displacement occurs not only from the inundation of reservoirs but also from the installation of project

facilities and associated infrastructure. Resettlement sites are usually selected without taking into account the availability of livelihood opportunities or the preferences of displaced people. Those people have often been forced to resettle in resource-depleted and environmentally degraded areas around the reservoir. Resettlement programs have mainly focused on the process of physical relocation rather than on the economic and social development of the displaced people.

3.1.2.10 Indigenous peoples (p. 110-112)

Indigenous and tribal peoples have suffered disproportionately from the negative impacts of large dams due to neglect and lack of capacity to secure justice because of structural inequities, discrimination and economic and political marginalization, while often being excluded from sharing in the benefits. For indigenous peoples and ethnic minorities, dam-induced displacement can trigger a spiral of events that spreads beyond the submergence area.

3.1.2.11 Downstream livelihood (p. 112-116)

Downstream impacts can extend for many hundreds of kilometers and beyond the confines of the river channel. The serious implications begin only after completion of the dam and a number of the impacts only develop over time. Important losses to downstream fishery production as a result of dam construction are reported from around the world. In addition to subsistence agriculture, fisheries constitute an important livelihood activity among large rural populations.

3.1.2.12 Cultural heritage (p. 116-118)

Large dams have had substantial adverse impacts on the heritage through the loss of local cultural resources (temples, shrines, and sacred elements of the landscape, artifacts and buildings) and the submergence and degradation of archaeological resources (plant and animal remains, burial sites and architectural elements). The latter may be part of the cultural life of local communities, or they may be before the arrival of people currently inhabiting the dam site.

3.1.2.13 Human health (p. 118-120)

Environmental change and social disruption caused by large dams and associated infrastructure developments such as irrigation schemes can have important adverse health impacts for local populations and downstream communities. Among resettled people, access to drinking water, health services and ability to cope with new social and physical environment determines health conditions. Furthermore, numerous vector-borne diseases are linked with reservoir development in tropical areas.

3.1.2.14 Equity and distribution of cost and benefits (p. 120-128)

Building and operating dams has serious, mostly negative, impacts on ecosystems, biodiversity and human livelihoods. Large dams have a tendency to produce benefits for groups of people other than those who suffer the social and environmental costs. People who bear the costs are often poor, vulnerable (such as indigenous peoples), or unrepresented (such as future generations).

3.1.2.15 Impacts of Run-of-rivers

Run-of-river HPPs do not have a reservoir and have a smaller installed capacity than HPPs with reservoir. As a result of having no reservoir, run-of-river HPPs are subjected to seasonal river flow and are not reliable.

Unlike HHPs with reservoir they do not have impacts like inundation of a reservoir area and related effects resulting from it such as physical displacement of people or GHGs emissions. However, they still have some adverse impacts similar to dams during the construction and operation phases⁸⁶ such as reduction in the water flow, changing water velocity and depth which causes reduction in the habitat quality for fish. Likewise, they

⁸⁶ See, World Wide Fund for Nature (WWF), *Hydropower in a Changing World*, 2003: "Small hydropower plants (smaller than 15MW) generally do not involve storage reservoirs but can still have considerable impacts on river ecosystems. In fact, a large number of small hydro plants on a river and its tributaries can have a worse impact downstream by the 'sum of their parts' being greater than one large hydropower dam. In countries where the potential for large hydro schemes has been exploited, further small schemes can cause considerable damage on the remaining unregulated rivers."

may also have negative impacts on the all-important riparian vegetation⁸⁷. Besides, since run-of-river schemes have smaller capacities, there might be several run-of-river projects that need to be done instead of a dam project and the cumulative risk of several run-of-river projects might be unacceptable.⁸⁸

3.1.3 EIA for HPPs

In a world of increasing energy demand, hydropower can be considered as an attractive option. However, exploitation of this potential should not cause widespread environmental damage. As stated above, HPPs have several adverse effects to the environment and it is crucial to take these adverse impacts into account. EIA is designed to predict possible environmental impacts of a proposed project thus these impacts can be taken into consideration during the decision making process.

The EIA process is compulsory for large HPP projects in many countries. All important adverse impacts of HPPs should be taken into account for a specific project in an effective EIA process. Site selection is a substantial part of the EIA process. Consideration of alternatives may be done in a more effective way when the same significance is given to social and environmental aspects as technical, economic and financial factors.⁸⁹ Even after the selection of the best location for a HPP, mitigation measures against adverse impacts may still be needed.

Therefore a qualified EIA process is vitally important for a HPP project. Differences between the predicted results of an EIA and the actual results of a HPP project should be analyzed so as to provide a scientific basis for better development of HPP projects and propose some reasonable measures to reduce the adverse impacts.⁹⁰

⁸⁷ T. Douglas, P. Broomhall, C. Orr, 2007, Run-of-the-River Hydropower in BC: A Citizen's Guide to Understanding Approvals, Impacts and Sustainability of Independent Power Projects, p. 7

⁸⁸ *ibid*, p.9

⁸⁹ U. Collier; Hydropower and the Environment: Towards Better Decision Making, p.2

⁹⁰ Q.G. Wang, Y.H. Du, Y. Su, K.Q. Chen, 2011, Environmental Impact Post-Assessment of a Dam and Reservoir Projects : A Review, p.4

3.2 Environmental Impact Assessment for Hydropower Plants in Turkey

3.2.1 Environmental and Energy Policy of Turkey

In Turkey three different ministries are in charge of the environmental and energy fields: the Ministry of Energy and Natural Resources (MoENR), the Ministry of Environment and Urbanism (MoEU), the Ministry of Forestry and Water Affairs (MoFWA). The former Ministry of Environment and Forestry was split into two ministries in 2011.

Due to its economic development and increasing population, Turkey's energy consumption is expected to grow.⁹¹ According to a MoENR report, Turkey's energy consumption will be 500 billion kWh by the year 2023.⁹² Turkey is producing its own electricity, however, importing all the natural gas and oil as well as 30% of the coal that is required to produce it.⁹³ According to EMRA records Turkey's electricity production by source by the year 2008: 49.74% Natural Gas, 29.09% Coal, 16.77% Hydropower, 3.79% Oil, 0.62% other.⁹⁴ For this reason oil and natural gas are the substantial import entries for Turkey and the main reasons of the current account deficit.⁹⁵

Under these circumstances, Turkey is targeting to provide security of energy supply while lessening its dependency on these sources by diversifying its energy production and supporting domestic sources. Therefore, Turkey made regulations to support energy production based on renewable sources and domestic coal as well as began to construct two nuclear energy power plants. Furthermore, Turkey started exploring for shale gas; there might be 13 trillion cubic meters of shale gas reserves, 1.8 trillion cubic meters of which is recoverable in Turkey.⁹⁶ Moreover, Turkey is also aiming to make intergovernmental agreements for pipeline projects due to its geostrategic location between Europe and Asian countries that have rich petroleum resources like Azerbaijan, Turkmenistan, Iraq and Iran.

⁹¹ The Scientific and Technological Research Council of Turkey, expects 80% rise in energy demand in 10 years: <http://www.dunyabulteni.net/?aType=haber&ArticleID=235036> (in Turkish)

⁹² MoENR, Energy Outlook in the World and Turkey, p.58 (in Turkish)

⁹³ *ibid*, p.58

⁹⁴ EMRA Electricity Market Report 2010 p.3 (in Turkish)

⁹⁵ Natural gas is also being used for heating in Turkey.

⁹⁶ Turkish Petroleum Geologist Association, Press release, 20.04.2012 (in Turkish)

In accordance with European Directives Turkey is liberalizing its electricity market and trying to increase energy efficiency. Furthermore, Turkey is aiming to attract foreign investment for big investment projects in the energy field.

As a result of being a highly carbon emitting sector, energy production is related with environmental policies since carbon emission was accepted as the main reason of climate change and the climate change accepted as the biggest environmental problem on the global scale. Turkey has ratified the main legal tools to tackle the problem, UNFCCC in 2003 and the Kyoto Protocol in 2009. Turkey is among the Annex-1 countries in the UNFCCC, but did not make any commitment under the Kyoto Protocol because of the low level of carbon emissions the country had in 1990. However, eventually Turkey is expected to make commitment to reduce its level of GHG emissions. Moreover, Turkey is one of the leading countries in rising of carbon emissions, total GHG emissions in 1990 was 188,43 million tons; in 2011 was 422,42 million tons.⁹⁷ Therefore Turkey should take measures to reduce GHG emissions and in this respect, renewable energy is vitally important for both economic and environmental reasons.

Indeed Turkey instituted some regulations to support renewable energy, particularly the Law on Usage of Renewable Energy Sources for the Electricity Production N. 5346 (adopted in 2005). Turkey's installed capacity in renewable energy is only 9% of the total installed capacity in 2010.⁹⁸ The main renewable energy type is hydropower and the hydropower potential is approximately 36.000 MW. Turkey's installed capacity in hydropower in 2010 is 41% of this potential.⁹⁹ Furthermore, Turkey is targeting to use its whole potential.

Turkey has an EIA regulation, but is lacking a strategic environmental assessment regulation. On the other hand, the country is trying to set a plan against climate change. However, the lack of an overall domestic GHG emissions target in the national climate change action plan has been criticized.¹⁰⁰

⁹⁷ Turkish Statistical Institute online records. (<http://www.turkstat.gov.tr/PreHaberBultenleri.do?id=13482>)

⁹⁸ Deloitte report on Turkey's Renewable Energy Policies and Expectations, 2011, p.18

⁹⁹ Ibid, p.19

¹⁰⁰ European Commission, Turkey Progress Report 2013, p. 70-71

In addition to UNFCCC and the Kyoto Protocol, Turkey has ratified other international and regional agreements in the environmental area: the Convention on the Conservation of European Wildlife and Natural Habitats, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Convention on Wetlands of International Importance, especially as Waterfowl Habitat, the Convention on Biological Diversity, the 1976 Barcelona Convention for Protection against Pollution in the Mediterranean Sea, and the Convention on the Protection of the Black Sea Against Pollution.

3.2.2 HPPs in Turkey

Since water is an essential part of life, the change of utilization or condition of water requires special attention and sensitivity. For this reason in order to make plans about hydropower potential it is necessary to know the current conditions of water resources. Turkey's total stream of surface water changes between 195 billion cubic meters and 65 billion cubic meters and the average total usable annual stream is 123 billion cubic meters.¹⁰¹ Even though average total usable annual stream is 123 billion cubic meters it is important to take into account it may reduce to 65 billion cubic meters while making plans.¹⁰² Furthermore, Turkey's gross per capita water potential was 3000 cubic meters in 2000. This is expected to reduce because of the increasing population which may cause danger of water shortage in the future.¹⁰³

According to EMRA records in 2011¹⁰⁴: Currently there are 212 HPPs in operation; 107 of them have less than 10 MW installed capacity, 62 of them have between 50 and 100 MW installed capacity and 43 of them have more than 100 MW installed capacity. Moreover, 525 HPPs are being constructed; 245 of them have less than 10 MW installed capacity, 211 of them have between 50 and 100 MW installed capacity and 69 of them have more than 100 MW installed capacity. According to these numbers, it is possible to say there will not be any stream without a HPP on it.

¹⁰¹ Turkey's Union of Engineer and Architect Chambers (TMMOB), 2011, HPP Report, p.24 (in Turkish)

¹⁰² *ibid*, p.24

¹⁰³ M. Gökdemir, M. Kömürcü, T. Evcimen, 2012, Outlook of Hydropower in Turkey, p. 19 (in Turkish)

¹⁰⁴ EMRA records 2011, cited in, *ibid*. p.25

Turkey is liberalizing its electricity market and leaving power generation to private actors. Since profit is the main determinant for private entities, regulating their activity carries crucial importance for the environment. Private investors prefer to invest in hydropower more than any other type of power generation in Turkey. After the Electricity Market Law N.4628 (adopted in 2001) state authorities produced 259 HPP projects with 4857 MW total installed capacity whereas private investors produced 1215 projects with 5300 MW total installed capacity.¹⁰⁵ The question ‘Whether Turkey need 1215 HPP projects for 5300 MW power generation?’ is an important question to answer.

Water sources are accepted as state property in Turkish law. In order for a private investor to construct a HPP, it is necessary to sign a Water Usage Agreement (WUA) with the state. WUA is not negotiable, there is a regulation for the agreement and it is an Appendix of the regulation (Appendix – 1). It regulates some obligations of the developer such as minimum water, fishing passages and gauging stations. These issues shall, in accordance with the WUA, be considered in the EIA process. Minimum water refers to water that has to be left to the natural course of the stream and it has to be at least 10% of the average annual stream of the last 10 years.¹⁰⁶

A generation license is needed to be obtained from the EMRA in order to start construction of the HPP. Before starting to construction there are also other permits need to be obtained from state authorities but the most important one is an ‘EIA positive’ or ‘EIA is not required’ decision from the MoEU. In order to apply for other permits it is usually necessary to obtain one of these decisions first. EIA is the fundamental legal procedure for the protection of environment against adverse impacts of HPPs.

Hydropower is a quite contentious issue in Turkey; the economic benefit is indisputable, but the environmental outcomes of these projects are subject to criticism. Numerous environmental groups and local people are fighting against HPPs, Turkish Union of Engineer and Architect Chambers (TMMOB) and the Bar Associations are among them. There is also a serious civil resistance against HPPs especially in the Black Sea Region. By

¹⁰⁵ TMMOB, *ibid*, p.60

¹⁰⁶ Article 4 of the WUA

using physical force in addition to legal struggle, local people are not allowing energy companies to construct HPPs in the region, and this resistance getting support from a large number of people, including scientists and artists. On the other hand, Syria and Iraq have raised concerns over Turkey's water management policy regarding dam projects on transboundary rivers. However, the government is determinant to maintain its hydropower policy whatever the cost is.

3.2.3 Evaluation of Turkey's EIA Regulation for HPPs

3.2.3.1 Important Stages of EIA Process for HPPs

Since Turkey does not have a specific environmental regulation for HPPs, the general EIA regulation is also applied to HPP projects. For this reason, all the strengths and weaknesses analyzed in the 2nd chapter for the EIA process is also valid for HPPs. However, I am going to analyze Turkey's EIA Regulation specifically for HPPs below to point out important aspects of the current system: screening, scoping, mitigation, impartial examination and post decision auditing.

3.2.3.1.1 *Screening*

Turkey is using installed capacity of a HPP project in order to determine whether the project is subjected to EIA. Pursuant to the current regulation in case a HPP project has 25 MW or more installed capacity it is subjected to EIA process.¹⁰⁷ Moreover, in case a HPP project has an installed capacity between 1 and 25 MW it is subjected to selection-elimination criteria.¹⁰⁸ This approach is criticized for being unscientific because environmental impacts of a HPP are not measured by its installed capacity.¹⁰⁹ In German law as an example, there is no differentiation for HPPs based on installed capacity to determine whether an EIA is required or not, competent authority decides whether an EIA

¹⁰⁷ Appendix – 1 of EIA Regulation 2013

¹⁰⁸ Appendix – 2 of EIA Regulation 2013

¹⁰⁹ TMMOB, *ibid*, p.23

is required for all HPP projects regardless of their installed capacity by case-by-case evaluation.¹¹⁰

According to the State Water Management Authority (SWMA) classifications in 726 HPPs, 68 of them have less than 1 MW installed capacity; 398 of them have an installed capacity between 1 and 25 MW.¹¹¹ TMMOB research suggests at least 950 of the 1250 projects produced by private entities have a lower installed capacity than 25 MW.¹¹² Bearing in mind ‘EIA is required’ decision for Appendix – 2 projects is made rarely in Turkey’s practice, these numbers show very high number of HPPs are not subjected to EIA process at all.

For dams there is also a different method in addition to installed capacity: Dams that is constructed to produce electricity with a volume of 10 million cubic meters or more is subjected to EIA.¹¹³ Dams with volume between 5 million and 10 million cubic meters are subjected to selection elimination criteria.¹¹⁴

Exempted projects also should be evaluated under this heading. In addition to vast development projects like the 3rd bridge to Istanbul strait or the 3rd airport to Istanbul other projects take advantage of the provisional articles. Due to the Provisional Article 2 and 3 of the EIA Regulation 2013¹¹⁵ some HPP projects also became exempted from the EIA process, such as the Ilisu Dam Project.

To sum up, as a result of the current screening mechanism in Turkey’s EIA Regulation, for a high number of HPP projects an EIA is not required. In order to suit international standards there is a need for change in the EIA regulation. Firstly, differentiation based on installed capacity should be changed and all HPP projects should be subjected to the EIA. Secondly, the provisional articles that regulate exempted projects should be removed thus

¹¹⁰ See, Article 3c and Appendix – 1 of Gesetz über die Umweltverträglichkeitsprüfung (UVPG) (German Law on Environmental Impact Assessment), 12/02/1990.

¹¹¹ WSMA Records, cited in TMMOB, *ibid*, p.73

¹¹² *ibid.*, p.74

¹¹³ Appendix – 1 of EIA Regulation 2013

¹¹⁴ Appendix – 2 of EIA Regulation 2013

¹¹⁵ See 2nd chapter (2-b-b)

none of the proposed project should be exempted from the EIA process. These changes in law are also necessary for the sustainable development.

3.2.3.1.2 Scoping

As explained in the 2nd chapter (b-2-b-c) the commission determines the scope and special format. A special format is a kind of content list that indicates which issues need to be covered in the EIA report. Almost all EIA Reports of HPPs have the same table of content which means commissions determine similar special formats for the HPP projects. It has 11 chapters, respectively: Definition and purpose of the Project, Location of the Project, Social and Economic Aspects of the Project; Determination of the area that will be Affected from the HPP Project and the Features of the Area, Impacts of the Project on the Area Defined in the 4th Chapter and Mitigation Measures, Post-closedown Impacts and Mitigation Measures, Alternatives of the Project, Monitoring Program, Public Participation, Non-technical Summary, Conclusions. Furthermore, each chapter has numerous subheadings.

After a superficial examination it seems all possible adverse impacts and mitigation measures are taken into consideration. However, in the reports social impacts and relevant mitigation measures are only analyzed in a few pages, which is an evidence of insufficient evaluation. I should point out the fact that resettlement of people as a result of inundation of the reservoir area is regulated in the Law on Expropriation N. 2942 (adopted in 1983) and therefore this issue is not covered in the EIA reports. This is also open to criticism however the more important issue is that social impacts of a HPP, such as considerable losses to downstream fishery production or deteriorated water quality for the agriculture are not covered sufficiently.

The special format for a HPP project lacks the evaluation of cumulative impacts of a series of HPPs on a river system. Turkey has long rivers and there are usually more than one HPP on these rivers in some cases several HPPs respectively exist on one river. In an example, in the Çoruh Valley there is a series of HPP projects, mostly the distance between the end of one dam and the start of other is 150 – 300 meters and that distance is a minimum for the

evacuation of the tail water.¹¹⁶ These adjacent dams look like a whole by bird's eye view and as a result total impacts increase.¹¹⁷ Lack of evaluation of cumulative impacts of a series of HPPs on a river system is a crucial inadequacy since total adverse impacts of a series of HPPs are bigger than independent adverse impacts of each of them. Therefore, it is necessary to evaluate cumulative impacts of proposed projects in a river basin.¹¹⁸

Another important omitted issue is transmission lines. In Turkey transmission lines are not included in HPP projects and for this reason how produced electricity will be connected to the grid is not examined in the EIA.¹¹⁹ Construction of transmission lines may lead to deforestation of vast areas. Therefore, it should be considered in the EIA process.

In conclusion, even though EIA covers many issues for HPP projects insufficient evaluation of social impacts, lack of the cumulative impacts of a series of HPPs on a river system and excluding transmission lines from the EIA process are crucial inadequacies compared to international standards.

3.2.3.1.3 Mitigation measures

EIA reports for HPPs include detailed mitigation measures against possible adverse impacts. Analyzing efficiency of these measures requires comprehensive technical knowledge. However, it is necessary to briefly evaluate the issue of minimum water here.

A HPP requires transfer of water from its natural course to the power plant. Some of the water should be left to the natural course for the continuation of the ecological system and that is called minimum water. There are scientific methods to calculate minimum water such as the Tennant method. However, in Turkish law minimum water is determined without the application of any proper scientific method. There is a need for scientific research for the minimum water requirements of each sub climate zones because Turkey's

¹¹⁶ Ş. Başkaya, Evaluation of Hydropower and Windpower Plants' Environmental Impacts, 3rd National Blacksea Forestry Congress, May 2010 Volume: 2 p: 670 (in Turkish)

¹¹⁷ *ibid*

¹¹⁸ WWF, 2013, Hydropower Plants in 10 Questions, p.9 (in Turkish)

¹¹⁹ O. Kurdođlu, M. Özalp, Evaluation of Run of River Hydropower Plant Investments for the Legal Process, Environmental Impacts and Ecotourism, 3rd National Blacksea Forestry Congress, May 2010 Volume: 2 p: 696 (in Turkish)

geography and climatologic features demonstrate big differences.¹²⁰ It is necessary to determine different proportion of minimum water for each basin and even for sub basins in the big basins.¹²¹ For instance the Eastern Black Sea region, which has internationally recognized high level for the ecosystem quality therefore requires 40 – 60% of minimum water.¹²²

On the other hand, in Turkish law HPP operators are only obliged to leave 10% of the average annual stream of the last 10 years for any basin.¹²³ This is simply not satisfactory for the protection of the aquatic environment in Turkey. Moreover, there is no sufficient scientific data for the calculation of the annual stream of the last 10 years. As an example in Çoruh Basin there are 46 gauging stations however 24 of them are closed for different reasons (in 2010).¹²⁴ Minimum water requirements for each water basin should be taken into consideration during EIA process for the continuation of the ecological system.

Consequently, mitigation measures for minimum water against HPPs are not adequate for the protection of aquatic environment in Turkey and it inevitably leads to relevant ecological and social problems. Therefore it is vitally important for Turkey to make amendments in its EIA law to secure required minimum water for each basin.

3.2.3.1.4 Impartial examination

In the 2nd chapter (b-2) serious concerns related to the impartially examination of the EIA process were analyzed. Similar to the general EIA process, statistical data shows that the impartial examination of the EIA process for HPPs also raises suspicion. According to EIA Administration Office records, 199 HPP projects were subjected to EIA and 198 of them resulted in “EIA positive” decision.¹²⁵ It is possible to say EIA process for HPPs always results in in favor of developer’s interest.

¹²⁰ WWF, *ibid*, p.8

¹²¹ TMMOB, *ibid*, p.69

¹²² O. Kurdoglu, *ibid*, p. 695

¹²³ Article 4 of the WUA

¹²⁴ M. Özalp, O. Kurdoglu, E. Erdoğan Yüksel, S. Yıldırım, Ecological and Social Impacts of Run-of-River HPPs in Artvin, 3rd National Blacksea Forestry Congress, May 2010 Volume: 2 p. 682 (in Turkish)

¹²⁵ EIA Administration Office records (2011) cited in TMMOB, *ibid*, p.72

There are many legal cases against these EIA positive decisions for HPPs. In a panel organized by the Istanbul Bar Association B. Kalın claims that some EIA reports for HPPs are almost the same, only name of places were changed, the rest of the text was copy/pasted. Furthermore, in some cases even names of the streams were remained the same in different EIA reports for completely different HPPs.¹²⁶ It seems EIA reports for HPPs are not prepared in a scrupulous manner moreover the examination of these reports are carelessly carried out.

In another study¹²⁷, which examined 16 EIA reports of run-of- river type HPP projects in the Eastern Black Sea Region, it was determined that in 62.5% of them identification of fish species were only done by review of the literature, no field work were carried out. Furthermore, in all examined EIA reports there was no information on fauna or aquatic ecosystem and in 37.5% there was no fish passage in the plan.

The government's hydropower policy (explained in the 3rd chapter) and the observations in the 2nd chapter that the governmental approach considers EIA as an obstacle to overcome for the economic development causes serious problems in the EIA process for HPPs. In the light of the facts set out above, I think it is reasonable to say the EIA process for HPPs is only a formality in practice and definitely do not suits international standards.

3.2.3.1.5 Post decision auditing

In the 2nd chapter, insufficiency of supervision and control mechanisms for EIA is examined. General insufficiency is also valid for HPPs. First of all there is a problem with the control of minimum water.¹²⁸ There are not sufficient number of units to control whether each HPP leave the minimum water to the natural course or not. There is a need for a control mechanism with the primary duty is to supervise the developer's obligations

¹²⁶ Istanbul Bar Association, 2011, Hydropower Plants: Impacts on Ecosystem and Case Types Panel Notes, p. 48

¹²⁷ M. Aksungur, O. Ak, A. Özdemir, The Effect on Aquatic Ecosystems of River Type Hydroelectric Power Plants: the Case of Trabzon-Turkey, Journal of Fisheries Science.com, 2011, p. 82 (in Turkish)

¹²⁸ TMMOB, *ibid*, p.69

during the operation stage in accordance with the EIA, as well as receive and evaluate the complaints from the people.¹²⁹

In my opinion, in Turkey's socio-cultural environment, and in the absence of an efficient post decision auditing mechanism, developers would not fulfill their obligations in accordance with the EIA. For this reason the efficiency of this mechanism is vitally important. There is especially a need for a more efficient control during the operation process and Turkey should improve its post decision auditing mechanisms in order to suit international standards in this regard.

3.2.3.2 Sample of Ilisu Dam

The Ilisu Dam project is an important example for the topic. I am only going to state the facts in brief to demonstrate the situation in Turkey.

The project is considered crucial for the development of south-eastern Anatolia region. It is currently the biggest uncompleted dam in Turkey. When it is completed it will be the second biggest dam for its volume and the fourth biggest dam for its installed capacity, with 1200 MW in Turkey.¹³⁰ It was designed in 1954 by the State Water Management Authority and included into the investment program in 1988.¹³¹

In 1989 the Middle East Technical University was determined that 40 tumulus including Hasankeyf¹³² would be affected (inundated) from the dam.¹³³ On the other hand, the Dicle (Tigris) River Valley represents the single remaining example of the riverine and canyon ecosystems in South- eastern Turkey after the depletion of similar ecosystems; uniqueness and irreplaceability is largely reflected in rare, vulnerable, migratory and endangered bird species and other biodiversity confined to the river valley.¹³⁴

¹²⁹ TMMOB, *ibid*, p.93

¹³⁰ State Water Management Authority, *Hydropower Report*, p.4 (in Turkish)

¹³¹ U. Akkaya, A. Gültekin, Ç. Dikmen, G. Durmuş, 2009, *The Analysis of Environmental Impacts of Dams and Hydroelectric Power Plants: Sample of Ilisu Dam*, International Advanced Technology Symposium, p. 4 (in Turkish)

¹³² An ancient city and 1st degree archeological protected area.

¹³³ *ibid.*, p.4

¹³⁴ Doğa Derneği, 2006, *Review of the Environmental Impact Assessment Report Submitted for the Ilisu Dam and Hydro-Electric Power Project*, p. 4

Rare, vulnerable, migratory and endangered species threatened by the project are: “*Bonelli’s Eagle (Hieraetus fasciatus), Griffon Vulture (Gyps fulvus), Egyptian Vulture (Neophron percnopterus), Lesser Kestrel (Falco naumanni), Collared Pratincole (Glareola pratincola), Red- wattled Plover (Vanellus indicus), Pied Kingfisher (Ceryle rudis), Eurasian Roller (Coracias garrulus), Little Swift (Apus affinis), Striped Hyena (Hyaena hyaena), Bat species, Euphrates Soft- shelled Turtle (Rafetus euphraticus) and fish species. Key populations of these species will be adversely affected by the project and some are likely to permanently disappear due to the flooding of their nesting sites or due to changes in the water regime after the construction.*”¹³⁵

An international consortium was constituted by Swiss, Austrian, Swedish, Italian and English partners in 1997 and after a Swiss bank, which provided a loan for the project, declared that the ecological and social results are unclear and the project may cause irreversible environmental damage, most of the partners withdrew from the project.¹³⁶ A new consortium was constituted by Turkish, German, Swedish and Austrian companies in 2005.¹³⁷

As introduced in the previous chapter, the Ilisu Dam project is exempted from the EIA process since it was included in the investment program in 1988 (before 1993, adoption of 1st EIA Regulation). Such vast projects are still exempted from the EIA pursuant to current regulation. Nevertheless, in 2005, it was decided that the project should be subjected to the EIA in order to obtain an international loan, and in 2006 the construction started.¹³⁸ However, as a result of public pressure, Swiss, German and Austrian companies have withdrawn from the project and the financial problems are still unresolved.¹³⁹

On the other hand, the prepared EIA report for the project falls short of the following requirements:

¹³⁵ Ibid, p.5 - 6

¹³⁶ U. Akkaya, *ibid.*

¹³⁷ *Ibid.*

¹³⁸ *ibid.*

¹³⁹ *ibid.*

- “1. There are significant gaps in baseline information resulting in the underestimation or improper assessment of impacts. Thus, the mitigation measures proposed are not in a position to compensate the biodiversity loss resulting from the project.*
- 2. The EIAR does not sufficiently offer other alternatives to the project.*
- 3. The EAP has insufficient indication of (i) the level of capacity and commitment of the responsible stakeholders; and (ii) the actual organizational arrangements (coordination, role and responsibilities, including financial responsibilities, of the different parties involved in implementing the EAP), thus, it does not meet the requirements of the OP 4.01.*
- 4. Public consultation and disclosure during and after the EIA process is not as comprehensive as required by the OP 4.01.”¹⁴⁰*

The fact that such a vast project as Ilisu dam can be exempted from the EIA process, firstly demonstrate an important example for the inadequacy of the screening mechanism. Secondly, it is a good example of the governmental approach, considering EIA as an obstacle to overcome for the economic development; even against the threats to the biodiversity and the inundation of a highly important historical site Hasankeyf, the government is still determined to carry out the project. Lastly, it shows the poorness of requirements of the EIA report under Turkish law.

3.2.4 Conclusion

Turkey is targeting an increase in power generation based on domestic sources and one of the policies is using its hydro potential. However Turkey’s per capita water potential should be taken into account for this purpose.

The governmental attitude to EIA is analyzed in the 2nd chapter; results of this attitude can be seen in HPPs’ EIA process. In practice, the EIA process for HPPs usually turns into a formality. Even though the low quality of the EIA process, it practically always ends with an “EIA positive” decision. First of all, the examination of the process should extensively improve in order to reach international standards.

¹⁴⁰ Doğa Derneği, ibid,

The poor screening mechanism of Turkey's EIA Regulation for HPPs, based on installed capacity, does not suit international standards. Bearing in mind very high number of HPPs below 25 MW installed capacity, the current screening mechanism is not sufficient for the environmental protection.

The lack of evaluation of the cumulative impacts of a series of HPPs on a river basin is a crucial inadequacy for the environmental protection especially during the site selection. Furthermore, minimum water regulation is not sufficient for the protection of the aquatic environment; there is a need for a different proportion of minimum water for each basin. Moreover, insufficient evaluation of social impacts and excluding transmission lines from the EIA process are important inadequacies with international standards. Finally, there is need for an effective post decision auditing mechanism especially for the operation process of HPPs. The efficiency of EIA process for HPPs can be increased by amendments that cover these issues in Turkey's EIA Regulation.

In conclusion, EIA process against the adverse impacts of HPP projects is insufficient for the effective protection of environment in Turkey.

4 CONCLUSION

Oil and natural gas are substantial import entries for Turkey and the main reason of the high level of the current account deficit. For this reason Turkey is aiming to increase power generation based on domestic sources. This is the explanation why power generation based on domestic coal and renewable energy are supported at the same time. In other words, the reason behind the Turkey's renewable energy policy is not of environmental, but economic character. Some effects of this mentality were observed in this study.

There is often a contradiction between promoting development and protecting the environment. When faced with this dilemma Turkish governments choose to develop projects in spite of the potential damage it could do to the environment. The result of this attitude is inefficiency of EIA process even though the EIA Regulation suits international standards textually.

The only inadequacies in Turkey's EIA Regulation, from a textual point of view, are the provisional articles that regulate exempted projects and lack of international collaboration. However, it is necessary to point out that after 20 years from the adoption of first EIA Regulation keeping these provisional articles is a crucial inadequacy.

It seems HPPs are not as environmental friendly, as it is said. Among other adverse environmental impacts; HPPs with large reservoir could also cause GHG emissions. On the other hand all types of power generation involve some adverse impacts, consequently, a certain degree of adverse impacts might be tolerated. However, development should not cause catastrophic environmental damage, and therefore an effective EIA process is vitally important.

The screening mechanism of Turkey's EIA Regulation for HPPs is simply insufficient. Determining which HPPs are subjected to EIA based on installed capacity is not a scientific approach. In the light of potential adverse impacts of HPPs, regardless of their installed capacity, all HPP projects should be subjected to EIA process. An improvement is necessary in this area in order to reach international standards for the environmental protection.

In the analysis of a special format for HPPs, lack of evaluation of the cumulative impacts of a series of HPPs on a river basin is conspicuous. It should be taken into consideration in the

EIA process, especially during the site selection. Insufficient evaluation of social impacts and excluding transmission lines from the EIA process are also important inadequacies for the protection of environment. A special format for HPPs should cover these issues.

Minimum water should be determined for the requirements of each basin and mitigation measures should be evaluated in accordance with this requirement. A change in law is required to secure necessary amount of minimum water for each basin in order to protect aquatic environment.

Finally, an efficient supervision mechanism is necessary for the HPPs.

Efficiency of EIA for HPPs needs to be increased by way of these improvements. However there is a more important issue for the efficient EIA process: governmental approach. Since governments consider EIA as an obstacle to overcome for the economic development, EIA process turns into a formality in practice. This is the reason for the low quality of the EIA process and inadequacy of the examination. Until governments internalize the principle of sustainable development, efficient protection of environment against adverse impacts of HPPs or other development projects is unlikely. Civil resistance against HPP projects should be considered under these circumstances.

In conclusion, the environment is not sufficiently protected against the adverse impacts of HPPs and there are some improvements to make in law for a more efficient protection. However, only making these improvements would not be satisfactory for this purpose without the change in governmental attitude.

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