CONTROVERSIAL NATURE OF NUCLEAR ENERGY IN TURKEY: AN EXPLORATORY ANALYSIS

by

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CONTROVERSIAL NATURE OF NUCLEAR ENERGY IN TURKEY: AN EXPLORATORY ANALYSIS

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ABSTRACT

CONTROVERSIAL NATURE OF NUCLEAR ENERGY IN TURKEY: AN EXPLORATORY ANALYSIS

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CONFLICT ANALYSIS & RESOLUTION M.A. THESIS, JULY 2019

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Keywords: nuclear energy, conflict, energy security, civil society

Turkish government advocates to construct nuclear power production facilities to end Turkey's energy dependency, to ensure supply security and achieve development goals. This sparked a severe reaction from the civil society on the grounds of concerns over environmental disruption and nuclear waste. Therefore, nuclear energy has become a matter of political conflict. This thesis analyzes the conflict over nuclear energy based on data obtained by face-to-face interviews, secondary and primary data analyses. The analysis of the conflict revealed that the civil society and the government have a common concern which might provide the way to find an integrative solution to the conflict over nuclear energy. I build on previous critical studies of conflict analysis & resolution by explaining the conflict over nuclear energy in Turkey through stakeholder theory, contact theory, structural violence theory and human needs theory. Human needs theory explains the role of unmet needs in conflict escalation. Structural violence and stakeholder theories explain how deficiencies in decision-making mechanism and regulatory framework escalate the conflict over nuclear energy. Contact theory explains the role of lack of contact between parties in preventing mutual understanding. My analysis, using canonical tools of conflict analysis and resolution, suggests a number of avenues for action to address these conflicts posing a risk of impasse or hardcore policy imposition in carrying nuclear energy policy.

ÖZET

TÜRKİYE'DE NÜKLEER ENERJİNİN TARTIŞMAŞI DOĞASI: KEŞİFSEL BİR ANALİZ

BÜŞRA YEŞİLAĞAÇ

UYUŞMAZLIK ANALİZİ VE ÇÖZÜMÜ YÜKSEK LİSANS TEZİ, TEMMUZ 2019

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Anahtar Kelimeler: nükleer enerji, nükleer atık, uyuşmazlık, enerji güvenliği, sivil toplum,

Türkiye Cumhuriyeti hükümeti, Türkiye'nin enerji bağımlılığını sona erdirmek, arz güvenliği sağlamak ve kalkınma hedeflerine ulaşmak için nükleer enerji üretim tesisleri inşa etmeyi savunuyor. Bu, çevresel bozulma ve nükleer atıklarla ilgili endişeler temelinde sivil toplumdan şiddetli bir tepki doğurdu. Bu nedenle nükleer enerji politik bir çatışma konusu haline geldi. Bu tez, yüz yüze görüşmelerden elde edilen verilere, ikincil ve birincil veri analizlerine dayanarak nükleer enerji konusundaki çatışmayı analiz etmektedir. Çatışmanın analizi sivil toplumun ve hükümetin nükleer enerji konusundaki çatışmaya bütüncül bir çözüm bulmanın yolunu açabilecek ortak bir endişeye sahip olduğunu ortaya koydu. Türkiye'de nükleer enerji konusundaki çatışmayı paydaş teorisi, iletişim teorisi, yapısal şiddet teorisi ve insan ihtiyaçları teorisi ile açıklayarak önceki kritik uyuşmazlık analizi ve çözümü çalışmaları üzerine inşa ediyorum. İnsan ihtiyaçları teorisi, karşılanmayan ihtiyaçların çatışma tırmanışındaki rolünü açıklar. Yapısal şiddet ve paydaş teorileri, karar alma mekanizmasındaki ve düzenleyici çerçevedeki eksikliklerin nükleer enerji konusundaki çatışmayı nasıl tırmandırdığını açıklıyor. Temas teorisi, taraflar arasında iletişim eksikliğinin karşılıklı anlayışı engellemedeki rolünü açıklar. Temel uyuşmazlık analizi ve çözümü araçlarını kullanan analizim, siyasi karar alıcıların nükleer enerji politikasını yürütürken bu konudaki uyuşmazlıkla nasıl başa çıkılabileceğine işaret eden bir takım yollar önermektedir.

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To my family…

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INTRODUCTION

With the splitting of the atom in 1934, nuclear energy became a topical issue on the agenda of policy makers and academics. After the outbreak of the oil crisis in the 1970s, the number of countries benefiting from nuclear energy increased rapidly. After the oil crisis, an average of 25-30 nuclear power plants was built annually. By 1980 "there were 253 operating nuclear power plants with 135 000 MW total capacity in 22 countries" (Char and Csik 1987). A massive number of countries started to utilize nuclear energy to ensure energy supply security and resource diversity. However, the increase in nuclear power plants brought about technical and political debates and conflicts. The debate over the pros and cons of nuclear energy hit the top after the Three Mile Island (TMI) in the U.S. and the Chernobyl accidents. Although concerns about the security of nuclear energy have increased after these incidents, the use of nuclear energy became widespread all over the world. According to the World Nuclear Association, "nuclear energy now provides about 11% of the world's electricity from about 450 power reactors" (World Nuclear Association 2019). Turkey is among the countries that want to benefit from nuclear energy. Turkey put nuclear power production on the agenda to expand the range of energy supply. The Turkish government advocates to construct nuclear power production facilities to end Turkey's energy dependency and ensure supply security and achieve development goals. Turkey took the first step to construct a nuclear power plant in Akkuyu with the intergovernmental agreement signed with Russia in 2010. The Akkuyu Nuclear Power Plant, which consists of four reactors, each with a capacity of 1200 MW, will generate 35 billion kilowatt-hours of electricity annually when it starts to operate at full capacity. However, the agreement sparked a severe reaction from the civil society on the grounds of concerns over environmental disruption and nuclear waste. Therefore, nuclear energy has become a political issue rather than a technical issue. While the civil society has

revealed their negative attitude towards nuclear energy by various protests and demonstrations, the government adopted a determined policy in implementing the Akkuyu NPP project which, in return, brought a political conflict. The parties to the conflict are basically the civil society organizations, government, opposition party members, NGOs and chamber unions.

This thesis aims at answering the following questions:

Why did a conflict emerge between the government and civil society?

The additional research questions are:

What are the parties' needs/interests?

Which factors strengthened the positions of the parties?

What are the communication pathway breakdowns?

Is there any common ground that might provide a room for generating an integrative solution to the conflict?

The thesis is structured as follows: Chapter 1 will provide country experiences of France, Sweden, and the U.S. on nuclear waste. This chapter will constitute a basis for comparative evaluation of the current conflict in Turkey. Under the light of country experiences in this chapter, I will make policy recommendations that might help Turkey to reach an acceptable solution. Chapter 2 will review construction capacities of the planned nuclear power projects and provide a scenario analysis for nuclear waste generation. Chapter 2 will analyze the international regulatory framework and Turkey's national regulatory framework on nuclear energy. Chapter 3 will analyze the conflict over nuclear energy in Turkey tools of conflict analysis. After engaging in the analysis of the conflict, the policy recommendation section at the end of the 3rd chapter will provide some actionable items for each party to the conflict.

Why is nuclear waste a critical topic?

While the problems relating to nuclear energy are multi-dimensional, debates focus on three main drawbacks. These are listed as (1) fuel supply, (2) operational risks and accidents, and (3) nuclear waste. Carbon emission is not among the main drawbacks of nuclear power because unlike carbon emissions venting to the atmosphere from fossil fuels; nuclear power does not produce carbon dioxide. Instead, waste from nuclear facilities requires both

politically and technically acceptable solution. The radioactivity decay time of the high-level nuclear waste is about 50 years, while the low-level or intermediate-level waste requires up to 30 years of storage before final disposal (World Nuclear 2018). Examples from various countries suggest that politics predominantly supersede technological solutions. This explains why the presence of a more suitable or less risky method for waste management does not solve the issue of nuclear waste in many cases. For instance, in Germany, shipments of the wastes were regarded as a suitable technical method to stay away from any leakage risks within the country. Though, there was high contamination during the shipments. Environmentalist, and opposition groups protested the situation and the shipment of the nuclear wastes was stopped in 1998. According to The Irish Times at the time,

"protests against nuclear waste shipments have become an annual ritual in Germany, with thousands of demonstrators battling with a massive police presence each year. The opposition Greens insisted that the government was not aware of the problem and neglecting its duty to protect the public. Opposition politicians accused the government of playing down the dangers of nuclear waste transports for years, to the point where it had lost credibility. Both the opposition Social Democrats and Greens oppose nuclear waste" (Irish Times 1998).

Not surprisingly, the management of nuclear waste remains an unresolved problem in many countries. Nuclear waste management can be implemented only if a consensus is reached between the political will, the local stakeholders, and international society. The issue of nuclear waste has transformed from being a matter of technical problem into "one which requires intervention at both the highest political level (cabinet or executive government) and the lowest (individual or community involvement)" (Blowers 1991). Otherwise, several parties can prevent, individually or in conjunction, a solution to be realized. For instance, in 2016, China mothballed work on nuclear waste processing plant as a result of political protests by locals in Lianyungang city. The suspension is being seen "a setback to China's image as a major power in the civilian nuclear energy business. The decision was taken at a high level in Beijing" (Times of India 2016). Thus, China's image as a major power in the civilian nuclear energy business was outranked by politics over nuclear waste.

Public framing of nuclear waste is one factor that makes reaching a consensus on nuclear waste management even harder. Research on environmental conflicts in the literature also supports this argument. According to environmental conflict researchers, Dietz, Stern, and Rycroft each player in the conflict tend to define nuclear waste management policies in parallel with their values and political interests (Dietz et al. 1989). If the public or other stakeholders do not approve states' nuclear waste management policies, nuclear waste management might be a source of intra-state conflicts. Even a site selection for repository, which is the first step in nuclear waste management, may cause controversy and become a long-delayed process. For instance, in the United States, the site selection process for a long-term nuclear waste storage facility has become a deadlock for many years due to a disagreement between the federal state, residents, and state officials. Although it was decided by the Congress to establish a nuclear waste plant at the Yucca Mountain in Nevada in 1987, this project faced strong local resistance and remained as a matter of conflict (NWPA Amendments Act of 1987). Since there are more than 100 operating reactors in the U. S., the conflict over waste management should be addressed as quickly as possible (US NRC Website). South Korea is another example where a site selection process for nuclear waste storage led to a conflict between government and society. The Government of South Korea considered public discussions in the site selection process nothing more than a formality and did not devote enough time to the public discussions. For this reason, conflict erupted between anti-nuclear environmental organizations- which were already excluded from public discussions- and the South Korean government (Brunnengräber et al. 2015).

The unsettled question of nuclear waste might pose an obstacle to the growth of nuclear power in the long term. According to the World Energy Outlook New Policies Scenario, nuclear energy production is expected to increase by 46% by 2040 (IEA World Energy Outlook 2017). As this increase will also mean an increase in the accumulation of waste, nuclear power production might be reduced if a permanent solution is not found until 2040. The reduction of nuclear power production might also pose a threat to states' sustainable development goals. The transition of countries to clean energy may slow down as there is no solution for nuclear waste. Therefore, there is a need for an immediate nuclear waste management plan that is acceptable both by public and the states. Further, reaching climate

targets of the Paris Agreement without nuclear power production appears to be quite hard. For this reason, increasing nuclear power production capacity may be part of the fight against climate change. According to Article 2 (a) of the Agreement, "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change" (United Nations 2015). As stated in paragraph 4 of Article 4, "developed country Parties should continue taking the lead by undertaking economy-wide absolute emission reduction targets. Developing country Parties should continue enhancing their mitigation efforts and are encouraged to move over time towards economy-wide emission reduction or limitation targets in the light of different national circumstances" (United Nations 2015).

Additionally, business is affected by conflicts over nuclear waste from a revenue perspective. The risk of delay or cancellation of the construction of nuclear waste storage facilities or site selection work, which require a considerable amount of time and investment, causes investors or state-owned business enterprises to take losses. As mentioned above, in China, which aims to become a world leader in nuclear energy, nuclear waste management project was halted due to massive protests against the waste processing facility in Lianyungang city. Hence, the state-owned China National Nuclear Corporation (CNNC) wasted $16 billion during the scientific investigation process. The nuclear waste plant planned to be built on Yucca Mountain in Nevada was canceled during Obama's presidency as a result of the opposition of Nevadans. This cancellation has been very costly for the US because almost 15 billion dollars have been spent on the project since 1983. Besides its high financial cost, the administration walked away from 27 years of research and study by halting Yucca Mountain project.

When the cost of the Yucca Mountain project is taken into consideration, similar problems in Turkey is likely to disrupt nuclear energy projects. Despite the seriousness of the situation, nuclear waste is interestingly an unaddressed topic in Turkey. The nuclear waste issue in Turkey has only raised by the main opposition party and civil society organizations. In the nuclear energy report prepared by the main opposition party, Republican People's Party

(CHP) in 2012, few remarks were made regarding the nuclear waste issue. The report argues that nuclear energy projects are feasible only if there is a safe solution to the nuclear waste problem. In the CHP Energy Policy Report prepared by the CHP Energy Commission in 2014, the high costs of nuclear waste management have been mentioned briefly. More importantly, in Akkuyu nuclear project agreement signed between Turkey and Russia, there is no clear explanation for how to deal with the nuclear waste produced in the nuclear power plant. According to Article 12 of the agreement signed between the governments of Turkey and Russia, Russia is responsible for the management of nuclear waste and may take these wastes back to Russia if Russia wishes to reprocess them (Official Gazette 2010). However, Article 48, section 3 of the Russian federal law on environmental protection reads that nuclear waste of foreign countries cannot remain in Russia (Russian Federal Law 2002). In other words, there is no clear information and decision about how Turkey is going to deal with the waste issue. This situation may deepen the public's concerns over nuclear energy. Thus, the lack of a specific waste management strategy might constrain Turkey's endeavors to begin nuclear power production.

Although not mentioned in the agreement, if Russia does not accept the waste and a consensus on land disposal or storage is not reached, sea dumping might be another alternative. In the case of sea dumping, which is another method for dealing with nuclear waste, international conflicts are likely to emerge. Therefore, the issue of waste management that causes domestic conflicts can gain an international dimension. For example, Britain's sea dumping policy has caused international reactions. During the 1980s, there were several protests in various countries against Britain's policy of sea dumping of the nuclear waste. In the summer of 1983,

> "In Galicia, in northern Spain, Union Jacks were burned. Villagers among Spain's northern coast tossed bottles into the Atlantic with messages such as, 'Let's have a healthy planet for future generations.' In the Hague, demonstrators in radiation suits petitioned the consular-general. In Copenhagen ten people chained themselves to three mock nuclear barrels outside the British Embassy. And in Auckland, New Zealand, the British consulate was blockaded by Greenpeace demonstrators" (Blowers 1991).

In Spain, ecological movement groups utilized brochures to increase public mobilization against Britain's sea dumping. When we evaluate all these examples, we realize that a strategic action plan is needed to solve the problems related to nuclear waste.

1. COUNTRY EXPERIENCES: THE U.S., FRANCE, SWEDEN

Nuclear energy did not cause severe conflicts until the 1960s. Anti-nuclear sentiment grew during "the anti-war, environmental, civil rights and women's rights movements of the 1960s, encouraged by greater government openness" (Meyer 2017). Especially after the Chernobyl and TMI accidents, the negative attitude towards nuclear energy in the world has gradually increased. This negative attitude of the civil society, in turn, made reaching a consensus over nuclear projects even harder. Many projects were cancelled due to serious public reaction like France, Sweden or the United States. Conflicts became more challenging to resolve when environmental concerns were combined with deficiencies in the regulatory frameworks and policy actions. France, the U.S., and Sweden are among the countries that experienced severe difficulties in the implementation of nuclear energy projects. The common factors that hindered the reaching a consensus in these countries include different perceptions of nuclear energy, top-down decision-making, erosion of trust to state institutions, environmental concerns, and regulatory frameworks (Blowers 1991). While some countries such as France, Sweden and the United States saw the rise of strong anti-nuclear movements with mass demonstrations, in other countries opposition was muted. For instance, "the authoritarian regimes of Southern and Communist Eastern Europe thwarted anti-nuclear protest as they did the development of civil society. Protest was strongly connected to a lack of trust in the technology and the state, with lasting consequences" (Meyer 2017). In addition to erosion of trust to the state and technology, perceptions of nuclear energy have also differentiated and fueled the conflict. Since the Atoms for Peace Programme of the 1950s, "the nuclear industry has represented its technology as modern, inexpensive, reliable, safe and even a green way of generating electricity. For politicians, security of energy supply and reducing import dependency mattered a great deal" (Meyer

2017). By contrast, since the 1970s civil society perceived nuclear energy as a potential risk to the environment and democracy. Considering differentiated perceptions and concerns over democracy and environment, it seems that the most promising actions in resolving the conflict on nuclear energy can be communicative, consultative approaches, and participatory decision-making mechanism. The following sections provide us concerning what approaches have been tried in resolving the conflict and what kind of shortcomings in the regulatory framework trigger the conflict in the U.S., France, and Sweden. Besides, this chapter also provides us information on whether the conflicts over nuclear energy have similar patterns with the Turkish case. Therefore, this chapter constitutes the basis for my comparative evaluation.

1.1. The United States

Nuclear energy, nuclear waste management and site selection of waste disposal facilities have been among one of the most controversial issues in the United States regarding nuclear energy. The conflict over nuclear energy in the US was driven by civil society and public debate, different perceptions of nuclear power, and politics over nuclear energy. The U.S.' search for solutions for nuclear waste has been going on for almost 60 years. In this process, many repository projects have been canceled due to wrong attempts at the beginning of repository projects and changing priorities over time. This situation inevitably caused a great economic loss for the country. From the 1960s "citizens, experts, and industry representatives contested nuclear power over questions of siting, safety, and environmental change. Mass protests occurred in California and New Hampshire, to fall quiet after a virtual moratorium on reactor construction in the 1990s" (Meyer 2017). Besides, in Hanford, a 286 million $ waste disposal facility was laid, and the project was subsequently halted due to public concerns in 1989. Moreover, the accident at the Three Mile Island in 1979 and persistent problems at other stations raised questions about industry safety culture and the need to improve regulatory functions for nuclear energy and nuclear waste management (Meyer 2017). However, to date, the U.S. failed to find a permanent solution for the final disposal of

nuclear waste and waste is kept in either temporary storage facilities or geologic repositories. Various governments in the history of the U.S. wanted to change this method for safety reasons and /or for economic burden and public opposition. The most important factor that escalated the conflict over nuclear energy projects in the US is the erosion of trust to state authorities. In order to enhance our understanding of the conflict, starting with the following paragraph I will elaborate on historical developments in the U.S.

In late 1975, the Energy Research and Development Administration (ERDA) announced the establishment of a disposal facility in 6 states for high-level nuclear waste. According to this plan announced by the ERDA, the target of the ERDA was evaluating thirty-six states, and it planned to select thirteen among them for characterization studies for siting a repository. Another institution which formerly had the responsibility and regulatory role for the nuclear industry was the Atomic Energy Commission (AEC). The administers of the ERDA learning from past mistakes of the AEC, tried to solve the image problem of the former agency namely, the AEC (Blowers 1991). Contrary to the Atomic Energy Council's practices in the past, ERDA administrator Robert C. Seamans sent a letter to state governors and legislators of the thirty-six states to follow a more communicative policy in 1975. In his letter to state legislators and governors, he expressed that the ERDA would conduct characterization studies within their borders. Besides, the letter was also promising that ERDA will halt the facility construction at any stage if states do not find technical procedures acceptable (U.S. Congress Report 1985). However, states took stiff measures in response to Seamen's letter. Some states prohibited the ERDA from doing feasibility studies in their territory. Even the states where the letter was not sent took a stand against ERDA. Eighteen states have enacted laws that entirely prohibit the installation of nuclear waste facilities or make the construction of waste facilities almost impossible. California, Maine, and Nevada are among those states aimed at preventing the construction of a nuclear waste repository on their territory through promulgating laws. In return for these hard attempts of states, the ERDA noted: "What began as a new initiative, a fresh start in the area of waste management, soon got mired down in the reluctance of State officials even to contemplate a facility on their soil" (U.S. Congress Report 1985). In 1975, ERDA offered to conduct research for a nuclear waste facility in Michigan State. However, the Michigan governor was reluctant to accept the offer. ERDA's

research plan in Michigan was canceled in a public hearing. In the public hearing, the public expressed their negative attitude towards the ERDA's proposal and in 1977 the governor of Michigan announced that they were to terminate operations of ERDA in Michigan (Blowers 1991). As a result, the ERDA's endeavors towards moving past and non-communicative image of the former nuclear regulatory body have failed. This leads us to conclude that newcomers in nuclear energy should provide enough room for communication.

The conflict over nuclear waste management in the U.S. was not only due to opposition of individual states but also because of different views within the federal government., different views regarding management of nuclear waste existed among the administrators during President Carter's era. A group at the Department of Energy of the U.S. maintained that only salt fields should be considered for the geological repository and in order to accelerate the process, they claimed, no more than three candidates should be chosen for consideration. Another group demanded a slower process with more than three candidate sites and did not want to limit the site selection only with the salt fields. Carter has formed a group called Interagency Review Group (IRG) to end the differing views within the administration. The group consisted of many environmentalists and more than ten government agencies. However, the report of the IRG revealed that they were unable to reach a consensus on all policies (Alley 2013).

Later, in 1980, the Carter administration declared that nuclear waste management would depend on the principles of "concurrence" and "consultation". He underlined that the public and federal states should be involved in all stages related to nuclear waste management. However, the principle of "concurrence" meant that the states that were candidates for the establishment of a nuclear waste facility had the right to veto, and no solution was offered for the deadlock that would emerge when the states use the right of veto. Oregon Senator Mark Hatfield evaluated Carter's policy of concurrence as follows: "Simply allowing the State to Say 'no' inviting nothing but no's" (Alley 2013). Carter administration's policy of concurrence also led to a conflict between the Senate and House. In other words, "the House and Senate was unable to agree on the rights of a State to veto a repository for wastes. Like the Carter administration, nuclear waste policy came to an inglorious end as Congress

adjourned in 1980" (Alley 2013). This case indicates that the lack of a proper mechanism such as an independent dispute settlement mechanism that would move parties to a settlement is likely to drag states into a deadlock.

Reagan administration tried to solve the nuclear waste issue through the Nuclear Waste Policy Act of 1982. According to the Nuclear Waste Policy Act 1982, the president would recommend three sites for disposal repository by 1985. However, the president did not stick to this deadline, and with a delay of two years, he offered only one repository in 1987. The NWPA was amended in 1987. According to the amended Act, the state would focus on one site for waste repository and the repository would be constructed on Yucca Mountain in Nevada. Thus, there would be no need for more characterization studies in other states. This project, which is planned to be built on the Yucca Mountain, is among the most ambitious construction projects in human history. According to Aaltonen et al., "the aim of this project is to store nuclear waste for at least 100,000 years. The technology used in final disposal is mature and technically proven but gaining the diverse stakeholder support and managing stakeholder dynamics has been challenging during the early stages of these projects" (Aaltonen et al. 2015). In other words, having an appropriate technical solution to nuclear waste does not matter unless the stakeholder support is not guaranteed.

The amendment was offered by Senator Bennett Johnston and the process of constructing a waste disposal facility was expected to accelerate as the state had no veto power. According to this amendment, annual compensation of $ 100 million would be made to the host state. The supporters of this change claimed that the Yucca Mountain is one of the most suitable places for the waste plant considering geological assessments. President Reagan signed the amendment in 1987. However, "the prize for the host state had been reduced from 100 million $ to 20 million $ per year, provided the State agreed not to exercise their right to disapprove facilities. Nevada expressed no interest in accepting the 20 million $ per year "bribe" and chose to fight. The "bribe Nevada" plan had now become what is known in Nevada as the "Screw Nevada Bill" or "Johnston Bill" (Alley 2012). After the amendment, Nevada issued a bill prohibiting the establishment of a waste plant on its territory. With this bill, Nevada claimed that it used the veto right granted to the states with the Nuclear Waste Policy Act.

Even though reports of the National Academy of Sciences confirmed the safety of the waste disposal facility, the Nevadans viewed the technical reports "as just the Fed's latest trick in trying to hoodwink the State" (Alley 2012). Further, the U.S. Department of Energy (DOE) scientists issued technical reports to convince the public about the safety of the disposal facility. The policy of informing the public with technical reports was not sufficient to address the concerns of the public. Moreover, the scientists preparing technical reports began to be seen as "hired guns" of the state and the nuclear industry (Alley 2012). These cases are of significance in terms of stressing that the scientific reports do not guarantee public acceptance of nuclear policies. Public acceptance of the scientific reports is not possible in the case of erosion of trust to state bodies.

Besides, the public comment period for these reports was limited. The 6000-page report by the federal government was also open to public comment for only 60 days. After all, The U.S. Department of Energy provided notice of Interpretation of High-Level Radioactive Waste on October 10, 2018. The Department of Energy announced that public comment period is 60 days but after receiving a public request for extending the deadline, the DoE extended the public comment period for 30 days, ending on January 9, 2019. (U.S. Federal Register 2018). Again, this case reveals that devoting enough time to effective communication should not be overlooked.

Other technical reports that inform the public about the safety of the nuclear waste facility when various scenarios occur, and the measures taken against any accidents are Total System Performance Assessments. The detailed assessment reports by Sandia National Laboratories, one of the leading companies in performance assessment, were not enough to convince the society. These reports are subject to rigid barriers, as the public is creating a risk perception based on bad experiences rather than scientific reports. At the same time,

> "people are generally willing to tolerate higher risks from activities managed by an institution they trust. Ironically, with so much invested hardly anyone among the general public had even heard of the Total System Performance Assessment. And if they had, it would not make much difference in winning them over. The public needs more concrete evidence. One place to start is with natural analogues,

> where processes similar to those expected to occur in a nuclear waste repository took place over vast periods of time" (Alley 2012).

In the Bush period, Bush approved the Yucca Mountain project recommended by the Secretary of Energy. In return, Nevada governor vetoed Bush's decision, but the majority of supportive votes in the congress overturned his veto. By 2002, Bush signed the Yucca Mountain Development Act (YMDA). All these cases, which were filed by the state of Nevada were rejected except for the security concerns. In response, the State of Nevada, filed numerous lawsuits against the federal government. All of these lawsuits, which were filed by the State of Nevada, were rejected except the one which is about security concerns. With the entry of the Yucca Mountain Development Act into force, the life of the waste storage facility has been extended from 10,000 years to 1 million years (Inhofe 2006). In response to the Act, Las Vegas banned shipment of radioactive wastes through the city. This case indicates that having a regulatory framework can result in further disagreement unless it addresses the concerns of the public.

The US government launched a new initiative in 2010 as a last resort to find the root causes of the conflict that lasted around six decades. In 2010, Obama halted the Yucca mountain project. The people of Nevada welcomed the cancellation of the Yucca Mountain Project. Obama established the Blue-Ribbon Commission on America's Nuclear Future to examine the reason behind the disarray of the nuclear waste projects and to find a way forward. The Blue-Ribbon Commission, in its report submitted to Secretary of Energy in 2012, made some evaluations about why the nuclear waste policy of the U.S. failed. And the Blue-Ribbon Commission Report acknowledged that "the erosion of trust in the federal government's nuclear waste management program has only made this challenge more difficult" (Blue Ribbon Commission 2012). Besides, the Commission recognized and concluded that a more consent-based policy should be followed to reach a consensus in nuclear waste projects. According to the report, the only way to eliminate the not in my backyard syndrome of the States is to adopt new and more transparent and consent-based policies rather than presenting only technical options. Although the public is aware of the need to find a permanent solution to nuclear waste, political developments have led to various conflicts during the process. In other words, conflict over nuclear energy in the U.S. is a conflict which parties to the conflict

have common goals, but each has different opinions about the ways to reach those goals. Efforts to find a permanent solution for nuclear waste are still ongoing. In the U.S. According to the Department of Energy (DOE), an underground waste repository is planned to start operation by 2048 (DOE 2013).

A review of the historical process of US nuclear waste policy allows us to reach a few fundamental conclusions about the disarray in finding a solution to nuclear waste. Thus, this section will be based on a more analytical model based on descriptive historical background. There are several variables in the United States that have led to several conflicts over nuclear waste projects. However, it seems that the biggest obstacle to consensus is the erosion of trust to the state. The conflict became even more intractable when the trust issue was combined with environmental concerns. All the effort, time and money that the state spent to ensure consensus and persuade the public did not work because of the trust issue. Scientific reports confirming the reliability of the nuclear waste facility were interpreted as a method used by the state to manipulate the public. The U.S. case illustrates that the way to reach a consensus on nuclear projects is closely related to the public trust to the state. Besides, developing a nuclear regulatory framework and supporting decisions with scientific reports do not guarantee public acceptance of nuclear projects.

1.2. Sweden

Sweden has also faced strong opposition during the site selection process that took over 30 years. As it was and still is the case in the United States, municipalities in Sweden have the right to veto the nuclear waste disposal projects. However, Sweden is accepted as one of the countries that are close to finding a solution for the nuclear waste problem. Therefore, the Swedish experience is worth to consider for the countries wishing nuclear power production. In Sweden, “the site searching process for nuclear waste disposal was handled in a very transparent manner, resulting in two municipalities - Östhammar and Oskarshamn - wanting to have the repository. Local organizations following the project received several million

Euro to finance their activities and studies. A citizens' council was established, more than 60 consultation meetings were held" (European Commission 2010). Therefore, Sweden's attempts to solve the nuclear waste issue are promising. Although the Swedish state's steps towards implementing nuclear energy policies were not always acceptable, I will also mention those unsuccessful steps to syllogize which initiatives might pose an impediment to reaching a consensus over nuclear energy projects. In order to get more detail in Sweden's nuclear waste policy, this section will discuss with initiatives aimed at reaching a consensus for nuclear waste management in Sweden.

1.2.1. Reactions Against Non-independent and Quick Decision Making

The absence of independent researchers in Sweden's nuclear waste management projects has sparked reactions of various groups. The Swedish Nuclear Fuel and Waste Management Company (Svensk Kärnbränslehantering AB, SKB) was established in 1980 as required by the nuclear waste legislation in 1977. This legislation required the SKB to conduct research development on nuclear waste management, decide on a waste management strategy, and submit its studies in a report to the government every three years. At the same time, the licensing of nuclear power plants was dependent on SKB's affirmative view in these reports. Besides, SKB report must receive approval of the government. These regulations were not sufficient to make the waste management strategy acceptable to the public since the society needed independent researchers. As the SKB is a state body, it did not convince the society that it was an objective decision-making mechanism. The public expressed this situation as follows: "What are the chances that a government would refuse to approve SKBs R&D program? Minimal" (WISE 1999). This shows that the involvement of independent researchers in nuclear waste projects increases society's belief in the reliability of the project. Other events that confirms the society's need for independent decision-making mechanisms are as follows: on February 1981, a group opposing the test work at Svartboberget closed the road to the construction site of a waste disposal facility for three days and in 1983, the protests tried to stop the drilling work in Klipperås. In both cases, the local people demanded information about the drilling works and demanded an independent geologist to participate

in the drilling works and analyze the results. The SKB did not accept the demand. The locals' unmet demand of an independent geologist led to the interruption of drilling works. In June 1984, "40 meters of drill core weighing several hundred kilos mysteriously disappeared from a locked SKB container at the Klipperås site. There were no signs of violence. An anonymous letter to the local newspapers explained that the core would be examined by an independent geologist and the results published." The environmental groups supported it morally (Åhäll 1998). This case illustrated that the government's unwillingness to meet the needs of the public led to mobilization against nuclear waste management projects. Besides, the public strengthened its position towards the nuclear waste management project.

Another factor that escalated the conflict in Sweden is the government's reluctance to meet the public's need for getting information about the drilling works of a nuclear waste facility. In 1985, the SKB announced its plan to begin test drillings in Almunge, located in the east of Uppsala; the Almunge locals opposed the plan since the SKB did not provide enough information to the public. Speaking to a newspaper, the SKB officials alleged: "We do not have the time to sit in on a series of showy meetings. We consider that the meetings cried for by the public have nothing to do with public information" (Jan van den Berg and Herman 2000). Following the official's statement, "the local group Save Uppsala ("Rädda Uppsala") arranged a 24-hour guard before drilling started. A confrontation took place and the police intervention was covered by a Swedish TV news team" (Åhäll 1998). In short, the State did not make an effort to meet the public 's need for information, which led to the escalation of the conflict.

The rapid decision-making process in nuclear waste management projects was another factor that attracted the reaction of environmental groups. Greenpeace criticized the SKB for acting too fast in the site selection process and pointed out that a safe method for waste management is more important than a quick decision of siting a repository. It also stated: "There is also a risk that a certain prestige is involved: the desire to be the first country in the world to solve the unsolvable could turn our heads." (Jan van den Berg and Herman 2000). In short, unless the need to slower decision making was not provided, the equation of gaining prestige with

finding a solution to the nuclear waste did not guarantee acceptability of decisions related to nuclear waste.

1.2.2. Diversity of the EIAs: The Way to Public Acceptance?

Another highpoint of the nuclear waste issue in Sweden is the diversity of EIA reports. The EIA reports have been prepared not only by governmental organizations but also by an independent company. The Swedish National Council for Nuclear Waste is an independent and scientific board whose mission is to advise the government on issues related to nuclear waste. Each year, the Council annually presents its recent assessment on issues relevant to nuclear power, including final waste disposal projects. The members of the Council are experts, scientists and academics from different disciplines. This is an outstanding quality that may enhance convincingness and credibility of the committee reports. Members of the board are professors of empirical life philosophy studies, environmental impact assessment, economic history, applied nuclear physics, radiation biology, geology, radio physics, history of ideas and sciences, technology and social change, inorganic and physical chemistry, mechanical engineering and an environmental researcher and former general counsel at the Swedish Nuclear Power Inspectorate. (Swedish National Council for Nuclear Waste 2016). Notably, the council consists of an inclusive team that will respond to the need to evaluate the nuclear waste issue from different disciplines and perspectives. Since the nuclear waste final repository planning has a period of 80-100 years considering the operating period and the post-closure period, the committee stressed the importance of embracing people from relevant disciplines. (Swedish National Council for Nuclear Waste 2016). Evaluating the social, economic, and technical aspects of nuclear projects was another pattern in Swedish efforts to reach a consensus over nuclear waste management.

1.2.3. Testing the Public Opinion

Although the unmet needs of the public sometimes led to the rise of the conflict, the state tried to overcome the public's desire to be recognized through testing public opinion. By doing so, the public's view of nuclear energy has become positive. In Sweden, “a final repository for low and intermediate level reactor waste has been constructed at the nuclear power plants in Östhammar. The repository operates under the terms and conditions of an operating license that is issued by the Government; the Swedish Radiation Safety Authority supervises it.” (OECD 2008). However, since the final repository in Östhammar was not a permanent one, the Swedish authorities searched for the ultimate solution to nuclear waste. During this process, according to the World Nuclear Association, “public opinion in Sweden has much been tested” (European Commission 2010). The first point to note is that the 1980 referendum did not canvass any option for continuing Sweden's nuclear power program, only for different ways of shutting it down. Many wished it had a positive option, just to provide a benchmark. Since then however public opinion steadily strengthened in favor of nuclear energy” (World Nuclear Association 2018).

1.2.4. Acknowledging Concerns of the Public

Swedish authorities acknowledged the security concerns associated with the public's need for security. Acknowledgment of the public concerns by relevant authorities might be an important difference that separates Sweden from the U.S. experience. In 1988, The Swedish government formed a consultative body for nuclear waste management called Samradsnamnden för Karnavfallsfrágor (KASAM) which is the Consultative Committee for Nuclear Waste Management. According to its KASAM’s report, “KASAM is a governmental expert committee for advice and consultation on matters concerning nuclear waste and decommissioning of nuclear installations. KASAM reports once a year on state of the art in the field of nuclear waste management” (SKN Report 1988). The report of KASAM, published in 1988, put emphasize on the Commission’s eagerness to shed light on the nuclear waste issue instead of justifying the technical safety of nuclear waste disposal projects with technical assessments. In the report, they claimed that they had “forced to” accept the uncertainty of the projects related to nuclear waste. Therefore, the report is quite different

from the performance evaluation reports in the United States. Furthermore, KASAM did prepared not only annual reports to present the Ministry of Environment and Energy but also arranged several seminars and forums on nuclear waste. For instance, in 1987, KASAM organized a seminar on the ethical aspects of nuclear waste in Stockholm and published a summary of the seminar. The participants of the seminar were not only limited to scientists, but it also embraced those with theology, natural science and humanities background. In the seminar report, the risk factors, ethical dimensions of waste management, and the responsibility to leave a good legacy for future generations were discussed. The report, therefore, acknowledged that nuclear waste management strategies contain risk factors and that the state shares the same concerns with environmental groups and the general public. Rather than dictating or defending certain kind of policy, the report stated that nuclear waste is dangerous, but it exists, and they need to deal with it.

1.2.5. Different Ways of Public Information

Learning from its past mistakes, the Swedish state adopted a more responsive attitude towards meeting the public's need to get information about the nuclear waste management projects. The Swedish Nuclear Fuel and Waste Management Company (SKB) presented a report regarding its activities in 1995. The report stated that they had face-to-face interactions by organizing visits to schools, residents, and trade fairs. In this context, SKB visited 42 schools in 1995 and provided information to 6878 students in 345 classrooms and receive feedback from teachers of those students. SKB also organized exhibitions. Through these exhibitions, as SKB report emphasizes, visitors were informed about waste management strategy. 61.000 people, composed of the general public, local political leaders, school children, and interest groups visited the exhibitions held by SKB (SKB 1995). At the same time, the SKB facility was open to visitors from both Sweden and various countries. SKB's annual report of 1995 also stated that Sweden had a cooperation agreement with the official institutions of Canada, Finland, France, Germany, Japan, Switzerland, UK and the United States in the field of nuclear waste management. Therefore, the SKB was also aimed at multilateral cooperation and information sharing.

1.2.6. Acknowledging Lack of Knowledge

The report of the SKB mentioned above also touches upon the issue of lack of knowledge development. The Committee states that it will overcome this shortcoming with its academicians. Committee report of 2016 asserts that "our academic researchers also have a duty to pursue what is known as public outreach, which involves promoting public awareness and understanding of science and technology. Research is of central importance since it contributes to knowledge development and competence growth" (State of Art Report 2016). Therefore, even though researchers of the Council do not identify themselves as a negotiator between the public and the government, they can be considered as consultants in the process design of nuclear waste management. Therefore, the researchers and academicians in the Committee undertake a more transformative role. Since the report of the committee is presented to the minister and head of the Ministry of the Environment and Energy, the Committee complies with Dukes' definition of process designer. According to Duke, "a number of conflict resolution practitioners identify themselves as consultants in process design. In effect, a process designer consults with an organization about their needs for handling a particular issue or project, but not serve as the actual mediator or facilitator responsible for overseeing the entire project. Consensus building may be a part of the consultative process" (Dukes 1996).

1.2.7. Introduction of the Concept of Voluntariness

After the failure to conduct drilling tests due to loud protests during the 1980s, the SKB presented a new strategy based on voluntariness. In 1992, SKB "invited 280 municipalities to show interest in conducting a feasibility study. It wanted to conduct at least five feasibility studies, after which it will select two sites for test drillings, to start from 2002" (Jan van den Berg and Herman 2000). Six municipalities volunteered for feasibility studies. After the feasibility studies in these municipalities, the number of candidates was narrowed down to two.

According to Claes Thegerstrom, chief executive of the Swedish Nuclear Waste Management Company (SKB), “the industry worked closely with citizens groups, local politicians and civic groups all through the process, listening to their views”. He maintained, “as a private company, we acted on behalf of the nuclear industry and conducted scientific feasibility studies of six sites. By 2002, it had narrowed the search to two municipalities, Oskarshamn (Simpevarp and Laxemar) and Östhammar (Forsmark)” (Roosevelt 2010). Although there was a temporary waste storage facility since 1985 in Östhammar, the SKB has applied for capacity enlargement and establishment of a permanent facility. As a result of an independent survey conducted in two candidate cities, 83% of the residents of Oskarshamn and 77% of Östhammar residents approved the establishment of a nuclear waste facility in their cities (Roosevelt 2010).

Besides, the SKB performed three consultations in 2004, which will be reflected and have an impact on the EIA report. Because the Swedish Environmental Code required SKB to hold consultations with people who might be concerned about nuclear waste. Even though the law did not specify the concerned parties, chapter 1,4, 6, and chapter 10 mentioned including residents around the waste facility and environmental groups to consultations (SFS 1998). In order to comply with the Environmental Code, the SKB held consultations with two local organizations in Östhammar and Oskarshamn and with one environmental organization in Stockholm (Sundstrom 2010).

On 22 April 2004, 5 SKB officers and 23 participants attended the SKB's first meeting in Oskarshamn. The participants were residents, local politicians, and representatives of environmental protection organizations. During the consultation period, the SKB officials informed participants about geological suitability of Oskarshamn for construction of final waste disposal facility, and an official responsible for the EIA report gave information about the purpose of the consultations and encouraged the participants to ask questions. The SKB officials answered various questions of the public during the consultation and engineers of the SKB justified and explained their waste management method (Sundstrom 2010).

On 4 May 2004, SKB held its second consultation with national environmental organizations in Stockholm. At the consultation, "five people from SKB held presentations. In the audience were representatives of Friends of the Earth, the Waste Network (Avfallskedjan), and KASAM, among others. In total 19 people participated" (Anderson 2006). SKB held the third consultation on 13 May 2004 with local and regional organizations in Östhammar. Among 33 participants were representatives from a public opinion and environmental group (OSS, Opinion Group of Safe Final Repository) monitoring SKB's work, a local group aiming at receiving the waste disposal facility (EFÖ, Energy for Östhammar) and were local politicians. Besides, a representative of the public opinion and an environmental group, OSS, was allowed to do a presentation. (SKB 2004). The fact that the OSS was given the right to speak in this consultation is quite remarkable in that it has associated with the Waste Network Association, which had been hostile to the nuclear industry and the SKB during 1990s. Therefore, considering the three consultations held by the SKB, it is possible to argue that Sweden witnessed a transformative process in terms of meeting the public need to getting information and the need to be recognized. Consultations were transformed and a more participatory policy and interactive dialogue was established. These consultations worth to mention since it will enhance our understanding of which strategies moved Sweden closer to the finding a solution for the conflict over nuclear waste management. Besides, detailed information about the consultations might serve as a guide to other countries seeking solutions for waste management and to conflict resolution practitioners devoted themselves to resolutions of conflicts over nuclear waste management.

1.2.8. What is the Recent Situation in Sweden?

Following the consultations, in 2008, six neighboring municipalities around Östhammar and Oskarshamn were surveyed and most of the residents of the neighboring provinces supported the nuclear repository. In June 2009, the SKB announced that it chose Östhammar. In April, SKB "had signed an investment agreement with both volunteer municipalities specifying investment of SKR 2 billion (US$ 245 million) in the two, with the majority going to the unsuccessful bidder, which will thereby be disadvantaged financially" (World Nuclear

Association 2018). In June 2016, The Swedish Radiation Safety Authority (SSM) assessed the potential of SKB's waste disposal plan in Östhammar to comply with the safety requirements. SSM recommended Stockholm Land and Environment Court to grant the necessary permits to SKB. On January 23, 2018, SSM issued a favorable opinion to the government for the construction of SKB's nuclear waste facility, but the Stockholm Land and Environment Court requested a more detailed report on the material in which the nuclear waste will be stored. SSM official Ansi Gerhardsson said, "Our preliminary assessment is that the site selection process, based on its preconditions vis-à-vis volunteering municipalities, has culminated in the most suitable site for a repository of the type planned by SKB" (World Nuclear News 2015). SKB plans to start the construction of the waste disposal plant at the beginning of the 2020s, if the government permits the waste facility but before its final decision, the government will consult to the residents of Östhammar. (World Nuclear Association 2018).

1.3. France

France ranks first among the EU members with 58 nuclear reactors, as well as providing more than 70 percent of its energy consumption with nuclear power. This huge nuclear capacity brings with it the problem of nuclear waste. The total amount of nuclear waste to be stored or disposed of until 2020 is estimated to be 1,006,410 m3 (New Europe 2019). Therefore, the amount of nuclear waste per capita in France is quite high and necessitates an urgent solution to the problem. However, waste is stockpiled since there is no political consensus. The state has made various efforts to solve this problem. The amount of waste inevitably led to the establishment of a state agency responsible for the waste management. For this reason, in 1979, ANDRA, the National Agency for Radioactive Wastes was established. The National Evaluation Commission (CNE) was also established in 1991.

Although more than 60 years have passed since France began its nuclear power production, the country has still not identified a definitive route to deal with the waste problem. As experienced in other countries, France also witnessed major demonstrations against nuclear

plants and nuclear waste disposal projects. The protests in the late 1980s led to the disruption of nuclear waste disposal projects, as faced in the US and Sweden. In 1990, French prime minister Michel Rocard announced that France suspended nuclear waste projects. Rocard "took this decision after having had a meeting with politicians and local opponents from the Maine-et-Loire departement (French for prefecture), where a candidate site was located in Serge/Bourg d'Ire. Also, in the three other candidate sites, public protests arose against the plans" (Jan van den Berg and Herman 2000). But this situation caused concern in the country and "several advisory bodies and ministries were asked how to proceed. The College for the Prevention of Risks urged for a rapid resumption, as otherwise, France would fall behind in the international waste scene" (Jan van den Berg and Herman 2000). In other words, canceling nuclear waste disposal projects because of the public concerns did not provide a solution. Instead, the idea of cancellation generated other concerns and political dispute. This underscores the need for policymakers to develop a detailed strategic action plan while taking steps toward implementing nuclear projects. Following sections will provide how France worked towards resolving the conflict over nuclear waste management.

1.3.1. Efforts to Develop a Nuclear Regulatory Framework

France tried to meet the public's need to participate in nuclear waste decisions through provisions in a regulatory framework. In 1991, the French Parliament adopted the Nuclear Waste Law. This law, also known as the "Bataille law", included articles aimed at elimination of disputes related to nuclear waste management. To reach a consensus or at least to gain the support of a reasonable number of people, the law contains articles about public involvement. Under the Article 6, the Law states: ""Locally elected officials and the population of the affected site shall be involved pursuant to the provisions of a relevant decree before any preliminary site investigation for a proposed underground laboratory shall begin" (The Nuclear Waste Act 1991). In doing so, French authorities assured that the public's participation need will be met before the preliminary site investigation process, not after the project is started. Article 8 also obliged public involvement before granting a license to nuclear waste projects. Article 8 states that license will be granted to nuclear waste facilities

only after certain procedures with the following expression: “pursuant to an environmental impact assessment and the opinions of the affected municipal, general and regional councils, and following a public hearing [enquête publique]” (The Nuclear Waste Act 1991). In this context, France has stated by law that it will meet the need of people to participate in the decision-making process.

1.3.2. Out of Court Conflict Settlement Mechanism: National Negotiator for Nuclear Waste

Considering the experiences in the US and Sweden, an out of court settlement mechanism can be regarded as a unique step in resolving conflicts over nuclear projects. However, this unique mechanism proved that unless such a mechanism does not provide sufficient public involvement, it can even escalate the conflict.

In 1993, the French government decided to appoint a national mediator to search for interested departements for the establishment of an underground laboratory. MP Bataille was appointed as a national negotiator and offered compensation to the departements showing interest in hosting a laboratory. Even though 30 departements displayed interest, 10 of them were geologically suitable. Bataille eventually chose four departaments (Meuse, Haute-Marne, Gard and Vienne). The selection of these four departements was determined not by public approval, but by the views of the departement councils. For this reason, dissenting opinions aroused in these four departements. In 1999, opponents held protests in Meuse, where 5000 people participated. Critics stated that the negotiating mission did not comply with the 1991 Nuclear Waste Law since the community was not directly consulted. They added that the process was not open enough. Public inquiries started after the selection of the four departements. Limited number of representatives from the public and environmental groups were invited to these inquiries, the participants were asked to send their questions on paper not verbally. Therefore, “opponents considered the process as not open enough, and more, as an "alibi" to fulfill legal requirements. Too little possibilities were said to be present to have a real discussion. Critics also stated that the inquiry time was quite short” (Jan van

den Berg and Herman 2000). In other words, the law guaranteed meeting the public's need for participation and a transparent decision-making process but in practice, the public was out of decision-making and encountered a non-transparent process. As a result, the negotiator did not contribute to the existing situation. Therefore, the negotiator power was not operationalized. According to Kim and Fragale, "negotiator power could be operationalized as the amount of value that a negotiator contributes to the present negotiation" (Kim and Fragale 2005). This case illustrates that the out of court settlement mechanism must be responsive to the needs of the public to be effective in resolving the conflicts.

1.3.3. Efforts to Provide Public Information

To meet the public need to be involved and informed, France promulgated the "Transparency and Security in the Nuclear Field" Act, also called as the "TSN Act", on June 13, 2006. According to the TSN Act, departement councils can decide to decommission of a nuclear installation at any stage. Article 4 Decree 3 of the Act defines responsibilities of the National Agency for Radioactive Wastes (ANDRA) to inform the public (French Nuclear Safety Authority 2006).

The public need to information was guaranteed under the Information of the Public as Regards Nuclear Safety chapter. Article 18 states: "The State is responsible for informing the public about the procedures and results of the surveillance of nuclear safety and radiation protection. It supplies the public with information on the consequences, on the national territory, of nuclear activities exercised outside of it, especially in the event of an incident or an accident." (French Nuclear Safety Authority 2006).

The second chapter of the TSN Act states that Local Information Committees could be established for nuclear installations, and the duties, responsibilities and members of the Committees were determined. Article 22 states: "The local information committee comprises; representatives of general councils, of municipal councils or of the deliberating assemblies of groups of communes and of regional councils concerned; members of

Parliament elected in the department; representatives of environmental protection associations of economic interests and of representative trade union organizations of employees and of medical professions; as well as qualified personalities"(French Nuclear Safety Authority 2006). The Act also mentions the role of the committee in case of a nuclear installation containing a waste disposal facility. In this case, according to the Act, the committee will also have a task of monitoring. Chapter 3 requires the creation of a High Committee for Transparency and Information on Nuclear Security. Members of this committee comprised of representatives of local information committees, environmental groups and trade union organizations of employees. The act obligates the committee to be transparent in its operations and to present its activities to the public in an annual report. The act also mentions about obligations of the nuclear installations. In the case of non-transparency in their activities or in case of false statements about their activities, there will be a fine of 7500 euros on licenses of the nuclear facilities. Besides, the Act states, if the nuclear installations responsible for the transportation of radioactive materials do not announce accidents, the person that is responsible for this facility will be sentenced to one-year imprisonment and 15.000 Euro fine will be imposed"(French Nuclear Safety Authority 2006).

1.3.4. Recent Situation of the Conflict in France

In spite of all these laws enacted to ensure public acceptance, there is still a conflict in France regarding nuclear waste disposal. France plans to build an underground nuclear waste repository in Bure. However, locals of the Bure, social movements, trade unions, farmers and citizens are mobilized against the project. According to Environmental Justice Atlas, the reasons that led to the mobilization of these groups can be listed as the criminalization of activists, repression, violent targeting of activists, and criminalization of farmers who support the struggle. In 2017, "a local farmer, J.P. Simon was brought to court for lending a tractor to demonstrators ("militant activists", as newspapers called them)" (Noria 2017). The forms of mobilization are blockades, non-participation in official processes, creation of alternative reports/knowledge, media-based activism and public campaigns. Protesters refuse to

participate in the meetings about the project, claiming that public participation meetings are only for show (Noria 2017). France, which is the biggest nuclear power in Europe, has made great efforts to solve conflicts regarding the nuclear waste problem. Yet the conflict on nuclear waste is still unresolved. This illustrates that the conflicts on nuclear waste cannot be ended by providing a regulatory framework and legal arrangements. The French case points out that the cognitive interpretations of the parties also one of the factors that intensify conflicts.

1.4. Lessons Learned from French, Swedish and the U.S. Experiences

Considering nuclear power capacities of the three countries, Turkey is early in the process of becoming a nuclear power. In this context, French, Swedish and the U.S. experiences is might provide a guideline for policy actions that would move Turkey towards a consensus on nuclear energy. The most challenging issues that escalate the conflict over nuclear energy in these three countries can be listed as i) erosion of trust to state authorities, ii) lack of independent decision-making authorities, and iii) insufficient public information, iv)unmet needs of the public and v) negative cognitive interpretation of the anti-nuclear groups and vi) different perceptions of the nuclear energy and vii) top-down decision making policies. Different perceptions of nuclear energy are a common theme in the conflict in the three countries. Civil society and the public perceived nuclear energy as a danger to the environment and democratic decision-making, while states supported nuclear energy claiming that it ensures energy supply security, opens new business opportunities, and reduces the country's energy dependence. At the same time, state-dependent decision-making mechanisms in nuclear energy have influenced society's support for nuclear energy policies. Civil society and the public regarded technical reports related to nuclear energy projects as documents supporting a certain kind of policy. Empirical evidences of the three countries have shown that it is essential that states implement nuclear energy and nuclear waste policy that will maximize community participation from the outset. Otherwise, states are likely to lose both the trust of the public and the projects canceled due to public opposition may deeply

shake the economy of the countries. In case of cancellation of nuclear projects that require a lot of investment in developing countries such as Turkey may encounter severe reactions from the public. For this reason, it is essential that policymakers in Turkey from the beginning create a regulatory framework which aims to increase the acceptability of the projects. The policymakers might claim that there is no way to find common ground with the anti-nuclear groups or the civil society. Yet, the efficiency of gradually increasing transparency, meeting anti-nuclear demonstrations with tolerance rather than repression attempts to dialogue with the public and the civil society groups are not deniable. Of course, each conflict has a unique nature in the three countries. At the same time, Sweden, the U.S., and France differ from Turkey in many regards such as in terms of GDP, infant mortality rate, GNP or life expectancy which are key development indicators. On the other hand, there are common variables that escalate conflicts related to nuclear energy and nuclear waste. For instance, both the French government and the Turkish government perceives anti-nuclear demonstrations as a threat to the development of the country. This perception causes them to criminalize anti-nuclear groups, and ultimately anti-nuclear groups are increasing their mobilization efforts. Hence, the historical experiences of these countries might provide lessons to be learned by policymakers in Turkey.

2. NUCLEAR ENERGY AND NUCLEAR WASTE IN TURKEY

Nuclear waste constitutes a controversial aspect of nuclear power production in the world. The OECD Nuclear Energy Agency alleges, “one of the key issues that has dominated the nuclear debate in recent years has been the safe management of radioactive wastes… radioactive wastes have caused more public concern than any other type of waste” (OECD 1996). In Turkey, too, concerns have been raised about this stage of nuclear power generation.

Nuclear power generation is one of the most important elements of Turkey's energy policy agenda. For diversification of energy sources and security of supply, the government aims to introduce three nuclear power plants with a total capacity of 15,000 megawatts (MW) by 2023. According to the forecast of the Ministry of Energy and Natural Resources, if the Akkuyu and Sinop nuclear power plants are put into operation by 2023, 20% of Turkey’s current installed power will be generated from these nuclear power plants (ETKB 2012). Therefore, a scenario is needed. Regardless of its size of expansion, any nuclearization scenario will put a significant burden on the nuclear waste policy. This waste, in turn, will lead to international and domestic pressures on the government, and bring in other stakeholders such as NGOs, environmentalists, activists, academics and the public. As such, a nuclearized Turkey is very likely to experience a multitude of conflicts at various levels among these stakeholders regarding nuclear waste.

Despite this imminent challenge, very little description, let alone analyses, have been conducted on what risks map against an effective and socially acceptable policy conduct regarding nuclear waste policy in Turkey. To address this gap, this chapter will build on a

scenario analysis and identify the main actors and their motivations regarding their positions on nuclear power and nuclear waste. In doing so, my analysis will be based on one-to-one interviews as well as primary and secondary resource review. The analysis of this data identifies a number of acute and dormant conflicts that define the current policy environment on nuclear waste.

My analysis, using canonical tools of conflict analysis and resolution, suggests a number of avenues for action to address these conflicts posing a risk of impasse or hardcore policy imposition in carrying nuclear and nuclear waste policies. While these actionable items are discussed in detail below, a common theme emerges is that proactive measures that aim to foster communication between stakeholders early in the process hold the most promise for an effective resolution for the topic at hand.

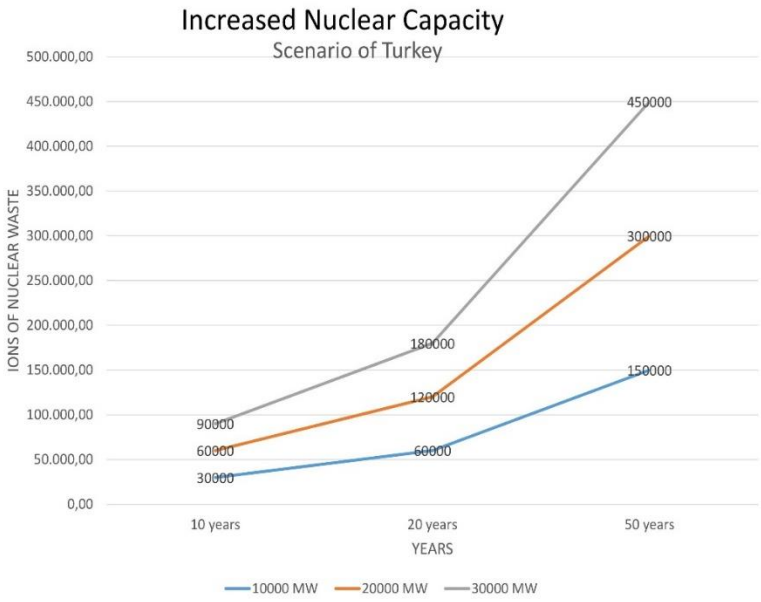
2.1. Turkey and Nuclear Waste: A Scenario Analysis

The environmental impact assessment report prepared for the Akkuyu power plant, which is the first nuclear plant in Turkey, is not publicly available. In this part of the thesis I will estimate the amount of waste that will be produced from the Akkuyu and Sinop nuclear power plants. The basic data I use to estimate the amount of waste is the reactor capacity, namely, the amount of electricity that will be produced from the reactors. The amount of electricity I use for this estimate is based on the information provided by the Turkish Atomic Energy Authority.

According to the IAEA, a typical 1000 MW nuclear power plant produces around 30 tons of nuclear waste per year (Ratin 2014). Akkuyu and Sinop nuclear power plants will have a total installed capacity of 10,000 MW per year and a production capacity of approximately 80 billion kWh (TAEK 2017). In the light of TAEK's data, Turkey's estimated annual production of nuclear waste will be 3,000 tons per annum.

The Figure 1 below displays how much waste will be generated by the current Sinop and Akkuyu nuclear projects within 10 years, 20 years and 50 years in case of full capacity operation. At the same time, the nuclear waste scenario that will arise if the installed nuclear power capacity is doubled and tripled is also shown in Figure1.

Figure 1:Nuclear Waste Scenario of Turkey



The two existing nuclear projects (Akkuyu and Sinop) are projected to produce 150,000 tons of waste which corresponds to 14 Eiffel towers. The accumulation of waste, which will increase dramatically in case of enlarged capacity, accentuates the significance of finding both a lasting and undisputed solution acceptable to all stakeholders. Such a vast amount of nuclear waste requires a both safe and politically acceptable solution, as it will have a significant impact on the people, the environment and the implementation of nuclear energy projects. Further, the chart suggests that if the nuclear waste issue remains unsettled, commercial nuclear power production might be in jeopardy. In the U.S., a lack of a permanent solution for waste facilities costs millions of dollars per year. Because of this gridlock situation, some have considered that construction of new nuclear power plants should be stopped. The most controversial waste disposal facility project in the U.S., the Yucca

Mountain project was canceled by President Obama in 2010 after over 15 billion dollars spent during thirty years of work.

The 2009 Electric Energy Market and Supply Security Strategy Paper of the Ministry of Energy and Natural Sources of Turkey states that, “the efforts launched for using nuclear power plants for electricity generation will be maintained. The share of nuclear power plants in electricity generation is targeted to reach at minimum 5 percent until 2020, and a further increase in the long term” (Undersecretariat of State Planning Organization 2009). Given the nuclear power plant construction, as well as accumulation of wastes, analysis of Turkey’s nuclear waste management strategy and the conflict analysis is worthy of note.

2.2. The Regulatory Framework

In general, legal and regulatory frameworks are among the factors that shape conflicts over the policies of governments. The extent to which states comply with international norms, agreements and regulatory frameworks in energy policies is important in orienting community behavior and position. International regulations can serve as a valuable reference for the public to evaluate the practices of the political authority, especially in nuclear energy projects, which have a direct impact on society and the environment and whose negative effects may last for generations. National legal and regulatory frameworks are also important to show whether political authority has a coherent policy. Furthermore, any shortcoming in the national regulatory framework might also trigger conflicts over energy policies. In this context, the following section presents the international and Turkey’s national regulatory and legal framework regarding nuclear energy.

2.2.1. International Regulations on Nuclear Energy

International regulations and laws offer key standards. These benchmarks give the public the opportunity to assess the policies of the political authorities (Atiyas 2015). These regulations "became primary instruments for orienting and coordinating the behavior first of states and ultimately of enterprises and individuals" (Jacobson and Weiss 1997). Therefore, compliance and non-compliance with international regulations on nuclear energy might alter the orientation of the public opinion towards the national nuclear energy policy of Turkey. In this respect, the next paragraph will elaborate on international regulatory frameworks on nuclear energy and the following paragraph will elaborate on Turkey's national regulatory framework. Then, I will discuss the extent to which Turkey's regulatory framework and laws comply with the requirements of the international regulatory framework. The section about the Turkish national regulatory framework will also help us to understand concerns of the anti-nuclear groups opposing nuclear energy due to deficiencies in the national regulatory framework.

International regulations and benchmarks which might become a source for the development of a national regulatory framework and law on nuclear energy are provided by the following institutions and documents: the Convention on Nuclear Safety (CNS), the Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste ("Joint Convention"), Atomic Energy Agency (IAEA) ve Safety Directive" and "Waste Directive" of the European Union (Atiyas 2015). However, I will only mention benchmarks established by the "Waste Directive" of the European Union since it includes almost all standards established by other institutions and documents mentioned above and since Turkey is an EU candidate country. The Waste Directive necessitates that EU countries should have a national waste policy including a waste disposal policy, and requires the implementation of this policy:

> "Countries should have in place a comprehensive and robust framework and competent and independent regulatory body, public information on radioactive waste and spent fuel and opportunities for public participation are available, countries carry out self-assessments and invite international peer reviews of their national framework, competent authorities and/or national programme at least

every ten years (by August 2023), the export of radioactive waste for disposal in countries outside the EU is allowed only under strict conditions" (EURATOM 2011).

2.2.2. National Regulatory Framework of Turkey

Turkey' national regulatory framework and laws surrounding nuclear energy and nuclear waste is as follows. Turkey has "two basic laws that form the legal framework for nuclear energy. The first, the "Nuclear Law" was enacted in 2007 and the second, the Law on the Turkish Atomic Energy Authority (TAEK, Law No. 2690) was enacted in 1982" (Atiyas 2015). Besides, the Nuclear Regulatory Authority (NDK), was established with the decree dated July 2, 2018, and published in the Official Gazette dated July 9, 2018.

Turkish Atomic Energy Authority (TAEK) is the regulatory and supervisory body on nuclear energy. The TAEK works under the ministry of energy and natural sources and its president is appointed by the joint decision of the political authorities. According to the TAEK Law, the Commission consists of the president of the TAEK, vice-presidents, one member from the Ministries of National Defense, Foreign Affairs, Energy and Natural Resources, and four academicians conducting education, training, and research in the nuclear field. The representatives of the ministries and of higher education institutions are elected by the Prime Minister and appointed for a period of four years. The law also states that TAEK is responsible for informing the public. TAEK's budget is also provided by the prime ministry (Official Gazzete 1982).

The legalization of the necessary safety measures, another important requirement determined by the international regulations, has also been neglected. The Nuclear Law of Turkey is mainly concerned with the rules for selecting investors for the nuclear facility and the creation of a national fund for the waste facility. There is no provision in the law related to nuclear safety. The Nuclear Regulatory Authority (NDK), is a relatively new regulatory and supervisory body on nuclear energy. Eight months after its establishment, executives of the

NDK were appointed with the decision published in the Official Gazette dated February 6, 2019 and its units were started to be established with the Organization Regulation published in the Official Gazette dated April 25, 2019. The Ministry of Energy and Natural Resources said in a statement that NDK was established with the duties of regulation, supervision and licensing of nuclear facilities, radiation facilities, and radioactive waste facilities. The duties and authorities of the Agency include communication and exchange of information and cooperation with public and private institutions, non-governmental organizations and the public (Official Gazzete 2019). One other responsibility of the institution is to inform relevant national or international organizations about extraordinary events. In doing so, in case of an accident or leakage during the storage and transportation of nuclear waste, this will not be hidden from the public and the world public opinion. The board of NDK, except for its power on nuclear waste facilities, may delegate other powers to the chairman of the board. Decisions on nuclear waste cannot be enforced until a consensus is reached in the commission. Article 11 of the regulation, under the Procedure and Voting section, reads that, unless otherwise agreed, the meetings of the Board shall be confidential. Besides, the article states, no one other than the Chairman and the members of the Board of Directors may attend the meetings of the Board. According to Article 11 (2), if the board needs, it may invite the parties, persons or representatives of interested parties or persons from outside of the institution to attend meetings of the Board in order to receive their opinions on matters that require expertise (Official Gazzete 2019). Therefore, the decision regarding the participation of other stakeholders in the decision-making process is subject to the approval of the Board. Furthermore, the Nuclear Law of the law of TAEK and NDK do not provide any information regarding the nuclear waste strategy. However, according to the intergovernmental agreement signed with Russia for the Akkuyu nuclear power plant, the nuclear waste from this power plant can be sent to Russia (Official Gazzete 2010).

The information provided above indicates that Turkey's efforts to create regulatory frameworks and laws related to nuclear energy began from the 1980s and continues today. Although Turkey came a long way in developing a regulatory framework for nuclear energy, there are still serious shortcomings in complying with the requirements of international organizations. First, the existing regulatory and supervisory agencies in Turkey do not

comply with the principle of independence required by the international regulatory framework. As mentioned, the president of TAEK is appointed by political authority. Besides, both TAEK and NDK work under the Ministry of Energy and Natural Sources. At the same time, there is no provision in the legislation of these two institutions that could prevent the removal of the chairman of the board and other officials by the political authority. This leaves the officials of the two institutions vulnerable to political decisions. Besides, according to Atiyas and Sanin, "the TAEK Law is highly deficient in terms of measures that would ensure transparency. The only mention in the law is that TAEK should announce the necessary information to the public. Compared to international best practice, this is extremely vague" (Atiyas and Sanin 2012).

Turkey' s effort to create a regulatory framework that complies with the international requirements is of particular importance not only for addressing the public concerns but also for its foreign policy objectives. Turkey is a candidate country for EU and as stated in the Waste Directive, it is forbidden to export nuclear waste from EU member states to non-EU member states. However, the agreement with Russia states that the nuclear waste from the Akkuyu NPP can be sent to Russia (Official Gazzete 2010). In the case of exporting the nuclear waste to Russia, Turkey will not comply with the Waste Directive of the EU, which in return might negatively affect the current negotiations on the energy chapter. This situation might add a new dimension to the conflict over nuclear energy. It would be fair to say that compliance and non-compliance with the requirements of the international regulatory framework might shape positions of the parties to the conflict over nuclear waste.

3. THE CONFLICT OVER NUCLEAR ENERGY IN TURKEY

Turkey's energy demand is increasing due to population growth and industrialization. Nuclear energy is among the alternatives offered to meet the growing demand for energy. Nuclear energy projects have brought conflicts in its wake. In Turkey, the planned construction of three nuclear power plants, have been subject to criticism both due to environmental concerns and deficiencies in the regulatory framework. Interestingly, there are those who oppose nuclear energy because of diplomatic concerns. Proponents of nuclear energy argue that nuclear power will provide supply security and they also consider it as an important step in Turkey's development.

3.1. Stakeholders in the Conflict

Redefinition of the conflict from the perspectives of different stakeholders, their attitudes, actions, views and expressions about each other is essential to ensure our understanding of the conflict over nuclear energy and nuclear waste management. As our understanding of the conflict deepens, the chance of drawing a roadmap which might provide a lasting resolution increases as well. Within this regard, this section is based on face-to-face interviews, secondary and primary data analyses. Through the analysis of the data, I draw conclusions about parties' definition of the conflict and their positions, attitudes towards each other. But first, I will define the term stakeholder and determine who the stakeholders are in this conflict Stakeholders are defined as groups or individuals who may be affected by a project or strategy. Management scholars defined stakeholders as "persons or

groups with legitimate interests in procedural and/or substantive aspects of corporate activity" (Donaldson and Preston 1995). Grunig, who developed the situational theory of publics, used the term stakeholder "for general categories of people who are affected by the actual or potential consequences of strategic or important organizational decisions. Stakeholders are people who have something at risk when the organization makes decisions" (Grunig 2005). These definitions lead us that stakeholders of the conflict over the nuclear energy in Turkey can be defined as the general public, investors, the government, NGOs, state officials and academicians/researchers. Diagnosis of the interests of stakeholders would help us to understand the conflict over nuclear energy. Specifically, in the case of conflicting interests, the conflict may escalate further. Although conflicting interests of stakeholders do not alone form the basis for the conflict, they would be useful in developing our insight about the conflict over nuclear energy. In order to better analyze the conflict, I conducted an interview and conducted secondary and primary data analysis to learn about stakeholders' interests and positions. By doing so, I have also learned different perceptions of the stakeholders mentioned above.

3.1.1. Definition of The Conflict from The Investor's Perspective

One of the stakeholders in the nuclear power plant project is the investor. The investor's (i) opinion on the policy execution, ii) relations with the political authority, iii) discourses on the regulatory framework and decision-making process of the project may play a role in shaping positions of other stakeholders. For instance, fluidity or stability of relations between the government and investor might deepen or mitigate other stakeholders' problems with nuclear energy. Notably, "people consume information more systematically when they believe that information matches their subjective problems" (Timothy 2011). Namely, if the investor's concerns with the project coincide with the community's concerns about the project, the public opposition to nuclear energy policies might be reinforced. This might have a direct impact on the resolution of the conflict over nuclear energy.

In this context, this paragraph consists of information on investor-political authority relations and analyzes the investor's thoughts, positions, and attitudes towards the project. The consortium of Cengiz-Kolin-Kanyon (CKK), the Turkish investor of the Akkuyu NPP, decided to withdraw from the partnership of Akkuyu NPP Project in 2018. Celal Koloğlu, Member of the Board of Directors of CKK Consortium, stated that there are too many uncertainties and several difficulties in general and that they do not want to be involved in anything that is uncertain. Koloğlu said: "Our share rate would be 49 percent, maybe a minority share, but we have to be involved in the acquisitions. We wanted the decisions to be taken unanimously, and they did not want us to be involved in any way. After Cengiz-Kolin-Kanyon Consortium announced that they had withdrawn from the project, Rosatom CEO, Aleksey Lihaçev, announced that they expect the sale of 49 percent of shares to be realized in 2019. The ongoing search for a new investor for the Akkuyu Nuclear Power Plant is critical since it is planned to start operating in 2023 (Alp 2018). Based on the statements above, it is possible to identify the interests and concerns of the investor about the project. When we consider statements of the investor, it would be fair to argue that the government relations with the investor is fluid. Besides, statements of the Rosatom CEO hints that the investor selection is also fluid. This fluidity in the investor of the project may create the perception that the government's nuclear energy policy has an inconsistent manner. The perception of inconsistency regarding nuclear projects might be one of the factors that complicate reaching a consensus on nuclear policy. As Brehmer argued, "a number of studies have shown that inconsistency in the subjects' policies is a major reason for disagreement in policy conflict" (Brehmer 1974). Additionally, statements of the investor imply that uncertainties in the project were directly related to their withdrawal decision. Such a conflict between the investor and government is quite natural since the consequences of uncertainties might leave a bad legacy for the next generation. Yet, the investor did not specify the uncertainty in the project. Different kind of uncertainties leads to diverse debates, conflicts and disputes; "perceptions of not knowing enough (incomplete knowledge or unpredictability) can trigger disputes about whether there is sufficient knowledge to support decision-making. Different ways of knowing (ambiguity) can trigger disputes around diverging knowledge claims. Ambiguity, however, is frequently not recognized and is often perceived as incomplete knowledge" (Floor 2018). In a nutshell, regardless of its type, any

uncertainty about the NPP project will bring about new debates and conflicts or contribute to the already existing conflicts over the nuclear policy. Additionally, we may conclude from the investor's statement that one of the reasons for withdrawal of the investor is the conflicting interests of the political authority and the investor. While the investor desires to be involved in the decision-making mechanism of the project and wants the decisions to be taken unanimously, the political authority is in favor of excluding the investor from decision making. To put it differently, the political authority carries out a central decision-making policy at the expense of the extension of the project, which will arise from the withdrawal of the investor. Given their different interests in the decision-making mechanism of the project, a conflict inevitably arose between the investor and political authority. This situation is crucial for the evolution of the conflict over nuclear energy since it could potentially reinforce the discourse that the government's nuclear policy is far from being transparent.

3.1.2. Redefinition of the Conflict from NGOs and Environmental Organizations' Perspective

Environmental groups, NGOs and activists are the other significant stakeholders of nuclear energy. Discourses, activities, and behaviors of those groups are vital because they have the potential to mobilize larger groups through lobbying or using "media-generated symbols of environmental catastrophes" (Dunlap et al. 2008). This in return might affect the course of the conflict over nuclear energy. As Li suggests "environmental groups have been especially adept at expanding local disputes into global causes. Greenpeace, for instance, has an e-mail list of over 5,000 activists who are prepared to protest against any number of issues. As one activist proudly declares: We're in the process of building grassroots globalization" (Li 2001). Thus, environmental groups are extremely influential in determining both scope, and direction of the conflict, and their perspectives and interests are worthy of consideration. Hence, I reserved this section to the interests, concerns and perspectives of environmental groups. In order to gain insight about perspectives, concerns and interests of the environmental groups, I reviewed newspapers, organizational websites and video sharing sites that consist statements of these groups on nuclear energy policy of Turkey. This part of

the thesis considers the following NGOs and environmental organizations: Greenpeace, Ecology Collective Association, Aegean Environment and Culture Platform (EGEÇEP) Association, Sinop Friends of the Environment Association, Mersin Environment and Nature Association (MERÇED), Mersin Environment Friends Association (M. ÇEDO) and Tarsus Environmental Protection Culture and Art Center (Tarsus ÇEKSAM), and Turkey Chamber of Mechanical Engineers (TMMOB).

Greenpeace, one of the several environmental organizations that organize protests against nuclear energy has a rigid position towards nuclear energy projects and policies both in Turkey and worldwide. Greenpeace has 63 offices in more than 55 countries worldwide. One of the Greenpeace Mediterranean Office is located in İstanbul. Greenpeace opposes nuclear energy because of the following reasons: nuclear energy is the most dangerous form of energy, there is a risk of unexpected technological and operational errors, the risk of sabotage and non-transparency of the nuclear industry (Greenpeace). Greenpeace expresses its anti-nuclear stance both through protests, visual communication channels, and signature campaigns. In order to get a deeper insight about the position of Greenpeace regarding the conflict over nuclear energy in Turkey, this paragraph addresses statements, concerns, anti-nuclear protests and a signature campaign of Greenpeace against nuclear energy in Turkey. Greenpeace generally uses symbols reminding the nuclear catastrophes. For instance, in its protest against Akkuyu NPP, Greenpeace used tombstones reminding the nuclear accident in Chernobyl. Similarly, the organizational website of Greenpeace Mediterranean contains photographs reminding of the nuclear disaster in Chernobyl. Moreover, Greenpeace organized a protest in 2014 in front of the Ministry of Environment and Urbanization on the grounds of shortcomings in the EIA report on Akkuyu NPP. Greenpeace said in a statement that it is unclear who will take legal and financial responsibility in case of a nuclear accident. In addition, they pointed out problems related to the export of nuclear waste to Russia and the uncertainty over nuclear waste management. The group delivered the signature of 250,000 people who object to the nuclear power plant to the ministry officials (YouTube 2014). In other words, Greenpeace opposes nuclear energy for the following reasons: i)nuclear energy is life-threatening , ii) there are deficiencies in the regulatory framework and uncertainties over waste management.

Ecology Collective Association has a similar concern with Greenpeace. Attorney of the Association, Fevzi Özlüer is concerned about waste disposal. He said that the EIA report does not clarify whether nuclear waste will remain in Turkey or not. Özlüer said that the uncertainty over the nuclear waste disposal was a reason for the cancellation of the NPP, but the court did not consider it as a reason for cancellation. Özlüer emphasized that the uncertainty regarding nuclear waste should be eliminated (Karakaş 2018).

Aegean Environment and Culture Platform (EGEÇEP) Association, Sinop Friends of the Environment Association revealed their stance toward nuclear energy policy by filing an appeal to the Council of State for cancellation of the EIA of Akkuyu NPP. According to Bianet, "in the related request of appeal submitted by the plaintiffs Aegean Environment and Culture Platform (EGEÇEP) Association and Sinop Friends of the Environment Association, a suspension of execution has been demanded on the grounds that the construction of a nuclear power plant in Akkuyu will create irremediable diplomatic and judicial problems and will inflict irrecoverable damage to environment" (Tarcan 2018). Accordingly, the environmentalist groups are not only concerned about the destruction of nature, but also about diplomatic problems that Akkuyu NPP might cause. The diplomatic problems referred by the groups might be pointing to the following ones: i) eruption of a conflict between the EU-Turkey, ii) eruption of a conflict between Turkey and coastal states of Mediterranean and the Aegean Sea. Firstly, as I mentioned under the Regulatory Framework section, the EU Waste Directive states that nuclear waste should not be exported to non-EU countries. However, the agreement with Russia for the Akkuyu NPP, states that nuclear waste can be sent to Russia. Yet, Turkey is an EU candidate country and exporting the nuclear waste to Russia, which is a non-EU country, might adversely affect the EU candidacy process of Turkey. The concern over the outbreak of a diplomatic problem might also refer to potential conflicts that might erupt between Turkey and coastal states in case of shipment of the nuclear waste to Russia. The group might be right in its expectation of diplomatic problem. Because previously diplomatic problems arose between states due to shipment of nuclear waste. For example, a shipment of nuclear waste from France to Japan was "openly opposed by governments in the Caribbean and the Pacific. A diplomatic problem occurred regardless of the approval obtained from the French and Japanese governments and the International

Atomic Energy Agency In addition to government opposition, the shipment was actively opposed by the Washington, D.C" (O'Neill 1999). Other reasons for objection "have been listed as follows: Ruling in favor of a [legal] relation is against the principle of the natural judge; the expert opinion does not have sufficient content for judgment; painful experience has proven that nuclear power plants are dangerous" (Tarcan 2018). Natural judgement here refers to procedural fairness of the EIA process. Therefore, EGEÇEP Association and Sinop Friends of the Environment Association are opposing nuclear energy for the following reasons: the way the EIA is being executed by the relevant governmental bodies is insufficient and nuclear energy endangers human life and NPPs might create diplomatic problems.

As mentioned above, the EIA process and the way it is being executed has been one of the factors that trigger anti-nuclear movements in Turkey. The stakeholders who object to the EIA process include, Turkey Chamber of Mechanical Engineers (TMMOB), Mersin Environment and Nature Association (MERÇED), Mersin Environment Friends Association (M. ÇEDO) and Tarsus Environmental Protection Culture and Art Center (Tarsus ÇEKSAM). As I mentioned before, the public participation meeting of the EIA prepared for the Akkuyu NPP could not be completed due to intense protests. The EIA report was prepared without a public participation meeting. For this reason, the groups mentioned above sued for the stay of execution of "EIA Positive" decision which would clear the way for construction of the Akkuyu NPP. Representatives of those groups expressed that the EIA process is carried out in an illegal and anti-democratic way and objections of the public were not taken into consideration. However, the Council of State 14th Chamber rejected the lawsuit, arguing that the "EIA Positive" decision did not violate the law (Uludağ 2018). Namely, a lack of public involvement in decisions/assessments related to nuclear energy is one of the determinants of the parties' attitudes towards nuclear energy. Thus, eliminating the question marks related to the EIA process of NPP projects seems essential to reach a consensus on nuclear policies.
Recently, in April 2019, Turkey Chamber of Mechanical Engineers (TMMOB) sued the Ministry of Environment and Urbanization for fraudulent signature in the EIA report related to Akkuyu. Ankara 3th Administrative Court rejected the case on the grounds that the EIA does not violate the legitimate, current and direct interest of TMMOB. According to the

lawyers of TMMOB, political pressures played a role in court decisions (Yeşil Gazete 2019). Therefore, the court decision has led the TMMOB group to think that decisions of the judiciary related to nuclear projects are open to political manipulations. In this regard, the group lost its trust to state bodies which in return might pose an impediment to any compromising attempts by the government.

3.1.3. Redefinition of the Conflict from the State and Government Officials

Government is the other stakeholder of nuclear energy. Considering that it has the upper hand in the conflict, their positions, discourses, interests, and needs related to nuclear energy may escalate or de-escalate the conflict. As mentioned under the regulatory framework section, Ministry of Energy and Natural Resources of Turkey (MENR) is the responsible state body for executing nuclear energy policies and the minister works under the government. In order to gain insight about positions, interests and needs of the government, I did an interview with a senior official of the MENR. Besides, I also used secondary data to learn about government officials' positions, interests and needs. The emerging conclusion is that full opposition of the anti-nuclear groups moves the state away from getting into contact with these groups. Secondly, the government has a negative cognitive interpretation of the anti-nuclear groups which further escalates the conflict over nuclear energy.

Discourses of the government officials, redefinition of the conflict from their perspective and how they perceive opposing groups gives us some clue about attitudes, perceptions, positions, interests and needs of the government. To learn about the government perception of the other parties to the conflict, I reviewed news covering President Erdoğan's statements about the opponents of nuclear energy. Considering that the media can manipulate the news because of its ideological views, I chose three newspapers with different ideologies: Cumhuriyet, Sabah and Radikal newspapers. Cumhuriyet is more leftist and has anti-government attitude, Sabah is known by its pro-government rhetoric and Radikal has a more neutral approach. Through this analysis, I gained deeper insight about whether the position and discourses of the president escalates or de-escalates the conflict and whether the

government’s interests’ conflicts with the interests of environmental groups. According to Radikal, a Greenpeace representative opened an anti-nuclear banner writing “Mersin, Sinop do not want nuclear” in AK Party group meeting. Erdogan described the banner opened by the activist as "rag" and he said we will not allow those aimed at sabotaging Turkey's developmental goal (Radikal 2010). In short, Erdogan blamed anti-nuclear groups for targeting development goals of Turkey. The tendency to blame anti-nuclear protestors might further escalate the conflict and prevents constructive and effective communication between the parties. As theorists of the intergroup conflict suggest, the tendency to blame other side discourages parties from getting beyond defending their position and prevents their understanding of concerns and interests of the other side. Therefore, parties to the conflict miss the opportunity to identify common goals and interests (Pruitt and Robin 1986). Erdogan's description of the banner as “rag” drew a reaction from opponents of nuclear energy. Following Erdogan's statement, Greenpeace Mediterranean and Mersin Anti-Nuclear Platform organized anti-nuclear activities such as press conferences and rallies in regions such as Tarsus, Akkuyu and Aydincik to draw attention to the dangers posed by the nuclear power plant. The public showed great interest in Greenpeace’s signature campaign started in the city center of Mersin. Within half an hour, more than 300 anti-nuclear signatures were collected. Greenpeace Mediterranean Energy and Climate Campaign Officer Hilal Atıcı stated that they visited the city in solidarity with the people of Mersin who reacted to the establishment of nuclear power plants in their cities. She stated: “Everyone living here deserves a better future without nuclear. Let Erdogan label the rightful demand of the people of Mersin as "rag", we know that Mersin will never accept the Chernobyl technology reactors to be brought from Russia. It is time for Erdogan to learn to listen” (NTV 2010). Statements of Greenpeace representative indicates that Erdoğan’s statements about the protest increased anti-nuclear mobilization efforts of Greenpeace. In cooperation with other antinuclear groups, Greenpeace has increased its efforts to reach out to a wider audience through various activities. Also, the expression: "It is time for Erdogan to learn to listen" tells us that they desire from the political authorities a real opportunity to speak and to be heard. Therefore, is seems that lack of effective communication and real contact between parties is another factor complicates settlement of the conflict over nuclear energy.

According to Cumhuriyet, Erdogan described anti-nuclear groups as 'puppets' of the global powers. Erdoğan said: “The events we have witnessed have shown us that institutions with green, environmental and nature titles are actually public inducement companies. For this reason, we are not looking at masks anymore, but at the real faces hidden under those masks. They are not concerned about the tree or the environment. It is clear that they are nothing other than legions who attack other countries for the interests of those who try to control the global economy” (Cumhuriyet 2018). These statements reveal the government’s negative cognitive interpretation of the conflict over nuclear energy. According to conflict theorists, “conflict situations elicit a well-defined cognitive structure based on past experiences with conflict as well as present concerns and interests. These cognitive structures or interpretations of conflict may then guide disputant behavior, strategy selection, outcome concerns, and evaluations of the other party” (Pinkley 1990). Erdoğan interpreted the conflict as an ideological conflict between the “pawns” of global powers and Turkey. From his perspective, the global powers conspire to weaken Turkey. This, therefore, moved the government to choose to fight against anti-nuclear movements, communication breakdowns with anti-nuclear groups and evaluation of anti-nuclear groups as nothing other than legions who attack other countries for the interests of those who try to control the global economy. Considering that the conflict will escalate due to negative cognitive interpretations, possible ways to deal with the negative cognitive interpretation will be covered under the policy recommendation section.

There is other news reflecting the government's cognitive interpretation of conflict and of environmental organizations. According to Sabah, President Erdoğan argued, it is not possible for anyone defending the independence of our country to oppose energy investments. Those who served to the putschists back in history, today became the pawn of those who want to undermine Turkey's energy investments (Sabah 2017). Again, the conflict is interpreted as an ideological with the ones that do not want Turkey’s becoming independent rather than a conflict arising from environmental concerns of anti-nuclear and environmental groups. Conflict theorists suggest, in such cases, "disputants typically assume that they are in a fixed-pie, zero-sum situation (Bazerman and Neale 1983), whereas, in actuality, many negotiations allow for integrative solutions that expand the pie and yield

higher joint outcomes" (Fisher and Ury 1981). Thus, Erdoğan's statement confirms the current literature on conflict analysis and resolution. Erdoğan assumes that they are in a zero-sum situation with the ones opposing nuclear energy. For Erdoğan, if the opposing groups prevent nuclear energy investments then Turkey will lose. This situation further strengthens antagonistic views and negative and rigid stance towards anti-nuclear groups. In that case, the government would not move towards or be willing to explore pareto optimal solutions for resolution of the conflict. The assumption of the zero-sum game "can quickly turn an interaction into an adversarial contest and can constrain the parties' ability to explore creative ways of satisfying their interests" (Fein 2006). Besides, a day before the Akkuyu NGS hearings at the 14th Chamber of the Council of State, President Recep Tayyip Erdoğan asserted that the nuclear power disturbs someone. He said: "No matter if you are uncomfortable or not, we will implement nuclear power production (Sabah 2017). Government framing of the conflict as a zero-sum game further enhanced government reluctance to communicate with antinuclear groups in decision-making about nuclear energy. Such framing prevented the search for a joint solution with anti-nuclear groups and increased its determination to implement nuclear projects. As he stated the ones with opposing views on nuclear energy would not be considered. The conflict framing of the government therefore drove its procedural choices on the implementation of nuclear policies. This statement of Erdogan also triggered the erosion of trust in state institutions. CHP Mersin deputy Hüseyin Çamak conveyed that Erdoğan's statement before the hearing, might be considered as an instruction to the court board (CNN 2017).

Moreover, the perception of the zero-sum game might also stem from the adversarial characteristic of the regulatory framework. As noted by Marcus et al. "the regulatory process encourages each party, from the start to express its own self-interest as forcefully and skillfully as possible. As a result, some of the most desirable policy options are not explored, end the process encourages mutually antagonistic coalitions to develop. The opposing coalitions tend to view communication as a sign of weakness" (Marcus et.al 1984.) In other words, the regulatory framework that mentioned earlier might be another factor escalating the conflict with reduced communication and coordination disruptions. This poses an obstacle for effective cooperation and negotiation. Thus, actionable items that might

overcome the perception of a zero-sum game will be discussed in detail under the policy recommendation section.

3.1.4. Any Step towards Easing the Tension?

The parties to the conflict, mainly the government and some of the anti-nuclear groups have made various attempts that might ease the tension from time to time. These initiatives are important for the analysis and resolution of the conflict in terms of guiding us to identify walk-away points of the parties or to determine at which points the parties are open to communication or compromise. Therefore, the next paragraph presents the parties' steps and discourses that might provide an opportunity to find common ground.

In conflicts, having common concerns and interests might open the way of discovering common ground. Having common concerns might lead parties to with each other. For this reason, statements of the government officials signaling that they share similar concerns with the environmentalists might mitigate the conflict over nuclear energy. Thus, Erdoğan's statements emphasizing his environmental sensitivity is of significance. Communication pathways could be built upon the common interests. The following statements of Erdoğan therefore might help parties to expand the pie and might open channels of communication. Regarding nuclear energy projects, Erdoğan said: "We will make our facilities without disturbing, polluting, destroying our natural richness" (Akkuyu Nuclear 2011). This statement implies the government shares the same environmental concerns with the environmentalists. If the government emphasizes its environmental concerns this might help parties to move towards an integrative solution. Besides, zero-sum thinking and negative cognitive interpretation of the government will also disappear.

TMMOB, one of the groups against the government's nuclear policy, has not always followed a confrontational attitude. The group has made several recommendations on the conditions under which the government can reduce tensions between the groups. Therefore, this paragraph will elaborate on compromising efforts of TMMOB and the government's attitude

towards these efforts. As mentioned earlier, TMMOB has been one of the parties that took a hard stance against the nuclear energy. Yet, the statements of the group went beyond the full opposition and give the hope that the conflict between the government and NGOs is not intractable. The interview given by the chairman of the TMMOB Energy Working Group, Oğuz Türkyılmaz, to Birgün newspaper indicates that implementation of certain policies might decrease TMMOB's concern on nuclear energy and, consequently their opposition towards the nuclear waste management. In his interview, Türkyılmaz pointed out that the waste problem is still unresolved, and the way the EIA process has been executed by the government is illegal. However, Türkyılmaz hinted that they are open to compromise under certain circumstances and made recommendations to solve this illegality. In case of the complete elimination of risk and complete solution of the waste problem, he said, Turkey could benefit from nuclear energy. He recommended preparation and implementation of National Nuclear Technology and Nuclear Energy Strategy Paper and Action Plan with the participation of all interested parties with a transparent understanding. He offered that scientific and academic studies conducted in the fields of nuclear technology and energy should be done according to the objectives and principles set out in the Strategy Paper and Action Plan (Birgün, 2019). As a result, these proposals of Türkyılmaz signaled TMMOB is ready to cooperate and communicate with the government under certain circumstances. Namely, his statement implied that negotiation routes are not blocked, and they can move towards resolution if the government compromises at certain stages. However, as a result of my interview with the ministry official, I learned that the TMMOB group's desire to prepare a strategy document would not be reciprocated. In the interview, the official said: "The constitution is Turkey's strategy paper." In other words, the ministry seems to be indifferent to the request of the TMMOB group to create a strategy document which TMMOB deemed necessary for the cooperation. In addition, the official said co-operation with NGOs on nuclear waste is not foreseen since nuclear opposition became the discourse of the NGOs. From the perspective of the official anti-nuclear group's sight is "precluded, and they reject listening to and understanding the other" (Udum 2010). Therefore, the possibility of the government to getting to contact with the NGOs and environmental groups depends on the willingness of these groups to get beyond full opposition to nuclear energy. Therefore, the

pure anti-nuclear discourse of NGOs and environmental organizations is one of the factors leading communication breakdown in the conflict over nuclear energy.

My interview with a senior official of the Ministry of Energy and Natural Sources of Turkey helped me to discover what the government does towards de-escalating the conflict. As a result of the interview, I learned that the government is taking steps to address the security, and environmental concerns of the local people regarding the nuclear project. The general director of nuclear energy said the ministry organized visit programs to France for citizens living in and around Akkuyu, various profession groups including doctors, farmers, grocers, teachers, university students and local media representatives. During the visit programs these groups visited residential areas around nuclear waste disposal facilities and were informed about the waste management methods that Turkey might adopt. After a few rounds of visits, the director general asserted, concerns of the group related to nuclear waste management disappeared. In this context, it is possible to say that the government attaches importance to address public concerns on the safety of nuclear energy. Although no information was given about the number of participants, the official stated that a reasonable majority was informed about waste management. The official stated since it is more important to eliminate concerns of the local people about nuclear energy these trips were organized only for the residents around Akkuyu. Thus, increasing information sharing about waste management is not only the desire of NGOs or environmental organizations but are also among the ministry's objectives. Besides, within the scope of the 2015-2019 Strategic Plan of the Ministry, good governance and stakeholder interaction theme is included. Under the theme of good governance and stakeholder interaction, the Ministry of Energy underlined that in order to acquire participatory management, the efficacy of the Ministry and sectoral development of the projects, external stakeholders, NGOs, and universities are viewed as significant subjects. The public is required to be informed clearly about the activities of the Ministry (MENR 2015). Considering the initiative of the government we can argue that the visit programs are insufficient in scope but are promising steps to achieve the stakeholder interaction objective of the strategic plan. Achievement of the target of stakeholder interaction in return might ease the tension between anti-nuclear groups and the government.

Some other steps taken towards achieving the target of stakeholder interaction are as follows: opening two information centers about the Akkuyu NPP and a public participation meeting. On March 2012, “the Ministry of Environment and Urbanization of the Republic of Turkey held public participation meeting of the EIA of the Akkuyu NPP in the region of construction of Akkuyu NPP and opened two Public Information Centers of Akkuyu NPP in Buyukeceli (the closest settlement to the project implementation site) in Mersin” (Akkuyu Nükleer). Approximately 300 people, including residents of Büyükeceli, members of Istanbul Anti-Nuclear Platform, TMMOB and members of various environmental and non-governmental organizations attended to the hearing. But, the hearing could not be completed because of the protests (TMMOB 2013). Again, the unwillingness of the NGOs and environmental organizations to get beyond full opposition led to communication breakdown. Besides, regarding the public participation meeting, TMMOB representatives stated that although the government holds these hearings, it sticks to its own way (TMMOB 2013). Briefly, information sharing policies of the government does not satisfy the interests of the NGOs. The opposing groups do not only want to be heard but also to be taken into consideration. This means, in case of continuing predetermined policies, the NGOs and environmental organizations are not likely to change their positions towards nuclear energy. Hence, predetermined policies regarding the EIA reports would be the walkaway points of the anti-nuclear groups. If the government insists on predetermined policies this might, therefore, slow down the process of conflict resolution (Ann and Bretherton 2001).

The policy on nuclear waste management can be another obstacle to conflict resolution as it is predetermined. The official I interviewed expressed that the ministry determined its nuclear waste management strategy and according to this strategy nuclear waste will be held in geological repositories near the nuclear facilities. However, according to the intergovernmental agreement with Russia on Akkuyu, wastes can be transported to Russia. When asked about this subject, the official said neither the ministry nor Russia will accept such kind of decision, but wastes can be sent to Russia for reprocessing and then send back to Turkey. The legal ground for sending back the final nuclear waste to Turkey after reprocessing is provided by the Decree Law No.702. The problem with the decree law is that "decree Law is an order which is enforceable by law and issued by the cabinet" (U.S. Legal).

Therefore, this might again, one other factor that triggers concerns about non-independent policymaking over nuclear energy. Besides, first two paragraphs of Article 6 of the Decree Law No. 702 allow export of the nuclear waste to Russia. The first paragraph of the Article reads that radioactive waste, which emerged a result of operations carried out outside the territory of the Republic of Turkey cannot be brought into the territory of Republic of Turkey (Official Gazzete 2018). Even if the first paragraph of the Article may seem as if it opposes nuclear waste to be brought to Turkey, the second paragraph of the same Article puts an exception. The second paragraph reads that the first paragraph shall not apply to the wastes produced within the borders of the Republic of Turkey and exported to the country of origin and to the transit of this kind of radioactive wastes. The meaning of this article is that the used fuel rods-like plutonium that might be used in the production of nuclear weapons- which are removed from the power plant will be kept in cooling pools in Akkuyu. Then, they will be transported to Russia and after freeing from substances that can be used to make nuclear weapons, the waste will be sent back to Turkey and will be stored in Turkey for thousands of years. Therefore, the decision on the transportation of waste was taken with the Decree Law and with no public involvement. Decree-Law 702 has been criticized as it was implemented with insufficient discussion and participation (Algedik 2019). Therefore, the rapid decision-making process and the fait accompli policy drew a reaction from the opposing groups.

3.1.5. What are the Other Issues with Nuclear Waste Management?

For a long time, nuclear waste policies have been focused on technical and political aspects rather than societal needs and non-transparent procedures (Kunreuther and Easterling 1996). Apart from technical and safety concerns, site selection for geologic repository might be another component of the conflict over nuclear waste. The officials in the UK for instance chose Elstow as a site for geologic repository without consulting public and suffered from conflicts arising from this decision. In the UK, “the absence of a publicly debated site selection process was a powerful weapon for the government’s opponents and the opposition’s general case against the disposal strategy was reinforced by its case against the

specific site selection" (Blowers 2017). The Turkish case can learn from the case previously experienced by the UK that lack of publicly debated waste management strategy gives greater power to anti-nuclear groups. The government's decision to choose Elstow "gave specific focus to the criticisms of a centralized, closed and incremental decision making for nuclear waste management. The claim that Elstow was a promising candidate proved hard to justify publicly based on limited and general assertations" (Blowers 2017). As a result of my interview with the Ministry official, I perceived that we are facing a similar situation to that of England. As he stated, there will be geologic waste storage near the Akkuyu nuclear power plant. It is quite common that there is a waste facility near nuclear power plants. But when I asked about the stages of the site selection process, I learned that this was a top-down decision and that site selection was done without consulting the public and stakeholders. The state just chose Akkuyu as the place for geologic repository instead of presenting to the public short-listed candidate cities to choose among them. This might put the state and government officials and Ministry of Energy and Natural sources under pressure to justify choosing Akkuyu as a site for a geologic repository. The residents around Akkuyu might not want to take the double burden of nuclear power. For instance, in the UK, the government's decision to choose the Elstow city for a nuclear waste repository plant without presenting an alternative list of candidates led to public indignation. Even if some state officials recommended NIREX to publish short-listed candidates for repository in an outline, the state was reluctant and "the reluctance to name sites despite pressure to do so played into opponents' hands. They were able to argue that NIREX had something to hide. Either NIREX had failed to undertake a rational process of site selection, or worse had predetermined the selection of Elstow and were using siting criteria as a method of post hoc rationalization. In either case, the lack of a comprehensive strategy for nuclear waste management was exposed" (Blowers 2017). If we take a lesson from this example, the state should convince the public why it is more suitable to establish a waste repository in Akkuyu rather than other candidate cities. In this way, the state will show its willingness to address citizen's concerns and will demonstrate its good-will. Otherwise, the public might think that the state has something to hide which in turn would further feed the loss of trust to the state policies and state accountability. Thus, the existing situation in other countries suggests that the

government, aiming to boost its nuclear capacity, should take necessary precautions to avoid non-inclusive and pre-determined policies about nuclear waste management.

Transportation of nuclear waste to Russia might be another dimension of the conflict over nuclear waste management. As experienced in Germany, "the nuclear planners were challenged by the anti-nuclear opposition over transport plans. Anti-nuclear opposition groups organized effective blockades of road routes to facilities such as the Gorleben store to highlight transport risks" (Blowers 1991). In addition to this blockade, an accident in Kwartmeechelen during the transport of nuclear waste revealed a serious mismanagement problem related to the cross-border transport of nuclear waste. This accident caused the European Commission to investigate the regulatory framework of Germany's nuclear waste and the commission concluded that Germany was inadequate in managing its nuclear waste resulting in serious external pressure on the government to regulate its waste management" (Blowers 1991). This case in Germany demonstrates that any administrative and regulatory shortcomings occur during the transportation of nuclear waste might add a new dimension to the nuclear waste conflict in Turkey. Such an external pressure insisting on regulatory reforms is likely to tarnish Turkey's international image and strengthen the hands of anti-nuclear groups.

Besides, when we examine the decisions regarding nuclear waste, we see that there is no justification provided for waste disposal method of Turkey. During the 1980s, a similar situation was the case in the UK and paved the way for public opposition against decisions of the Department of Energy on nuclear waste strategy. The UK Nuclear Industry Radioactive Waste Executive (Nirex) decided to build a geological repository for Nuclear Waste. However, reports of the NIREX "argued strongly the case for further generic and site-specific research and stressed the research should not be applied directly to make decisions on the acceptability of any specific burial site or facility design" (Blowers 1991). The 1982 report of Nirex concluded that "emplacement in an engineered facility at shallow depth in clay strata could be a radiologically acceptable option" (NRPB 1982). According to the scholars, "there is a little hint of qualification in the claims of the NIREX" (Blowers 1991). Scholars criticized NRPB reports since they do not "provide the unequivocal evidence for

such sanguine pronouncements" (Blowers 2017). The nuclear waste management model of Turkey seems quite similar to the UK's strategy in the 1980s since the conclusions reached were not supported by the evidence. Political conflict can also be exacerbated by a scientific disagreement about the safety of nuclear waste management. One might argue that officials supported their decision by the Environmental Impact Assessment (EIA) which elaborates environmental effects of construction and safety of a nuclear power plant and in Akkuyu. However, according to the chamber of environmental engineers in İstanbul who had a chance to access the EIA report, it does not include details on the safety of radioactive waste management. The report only states that radioactive waste should be managed in a way that would not leave a negative legacy for future generations (Chamber of Environmental Engineers Report on Nuclear Power Plant in Akkuyu 2014). Therefore, the lack of detailed information and scientific justification of the waste management strategy might be another dimension of the political conflict over nuclear waste.

When each fragment of Turkey's nuclear waste management is examined, it is possible to claim that the decision-makers do not necessarily consider reaching a political consensus. Geological repository for nuclear waste has been declared without any other alternative options. The case experienced in the UK was similar to the current case in Turkey. In the UK "the safety case rested on controversial theoretical assumptions rather than empirical evidence. On each component of the strategy of the UK, there was considerable room for scientific, technical and political disagreement." (Blowers 2017). As the scientific disagreements will deepen the political conflict over nuclear waste management, justification of technical methods is crucial in terms of mitigating the conflict. Besides, the government should be responsive to expert/elite opinion when they make decisions about waste management. For instance, in the UK, "the lack of an elite consensus on the issues related the waste management was a factor in encouraging political conflict" (Blowers 2017). Thus, a lack of elite consensus over the nuclear energy might deepen the political conflict.

Given the details above, main points of the tension are (i) lack of a comprehensive regulatory framework, (ii)negative cognitive interpretation of anti-nuclear attitude, (iii)lack of an independent supervisory body, (iv)erosion of trust to governmental bodies, (v)full opposition

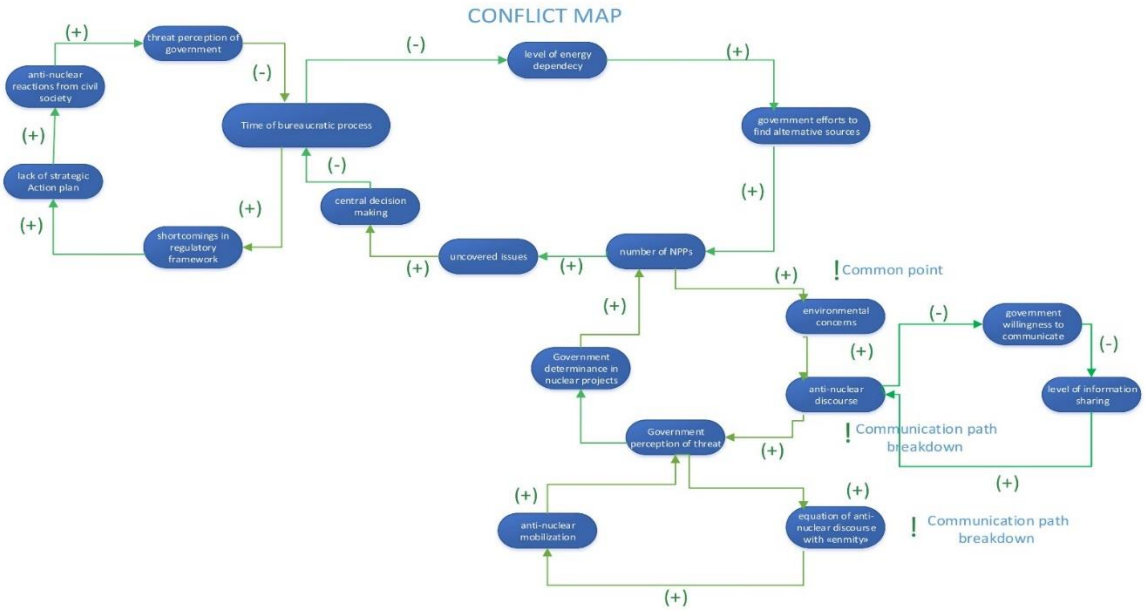
to nuclear energy and (vi)the uncertainty over the waste management and (vii) top-down decision making policy. The actionable items towards easing the tension will be discussed in detail under the policy recommendation section.

3.1.6. Conflict Mapping

There are various conflict analysis tools to better understand different dynamics of political and social conflicts and to develop more efficient strategies for solving these conflicts. In this part of the thesis, conflict mapping and the onion model will be used to analyze the conflict over nuclear energy in Turkey. The conflict map illustrates the conflict between the government and environmental groups/NGOs. It is a useful technique which ensures our understanding of the relationship between parties. Besides, the conflict map shows conflict resolution practitioners appropriate times to intervene.

The figure below provides a map of conflict over the nuclear energy in Turkey. The map shows what kind of policy actions escalated the conflict in Turkey. We can also see from the map that under which circumstances communication pathway breakdowns emerge. As illustrated in the map, anti-nuclear discourses of the NGOs and environmental groups keeps the government away from getting into contact with these groups. Another communication breakdown emerges when the government equates anti-nuclear position with enmity. Common concerns of the parties, which can be an opportunity for increased intergroup communication, is also shown on the map. As shown on the map, both sides have environmental sensitivity. Having identified common concerns help conflict resolution practitioners or the government to explore possible areas of cooperation. Under the policy recommendations section, the possible cooperation areas between the government and NGOs / environmental organizations will be explained in detail.

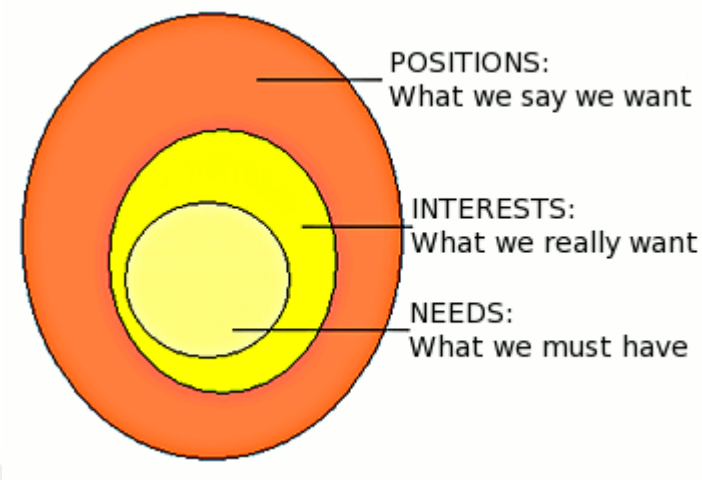
Figure 2: Map of the Conflict over Nuclear Energy in Turkey



3.1.7. Delving Deeper: The Onion Model

The onion model is another conflict analysis tool that will deepen our understanding of the conflicts. The figure below represents the onion and its layers. As Fisher concludes, “the outer layer contains the positions that we take publicly, for all to see and hear. Underlying these are our interests- what we want to achieve from a particular situation. Finally, at the core are the most important needs we require to be satisfied. It is useful to carry out this Onion analysis for each of the parties involved” (Fisher 2000). According to the onion model, if the relations between parties are stable, the parties do not hesitate to disclose motivations underlying their behavior. In other words, parties to the conflict are willing to express their needs directly if there is no erosion of trust between parties. However, if there is a trust issue between parties, they are more likely to hide their basic needs from each other. Therefore, in the onion model, the parties to the conflict do not want to reveal their vulnerable sides since they are afraid of excessive use of power by their opponent. (Fisher 2000).

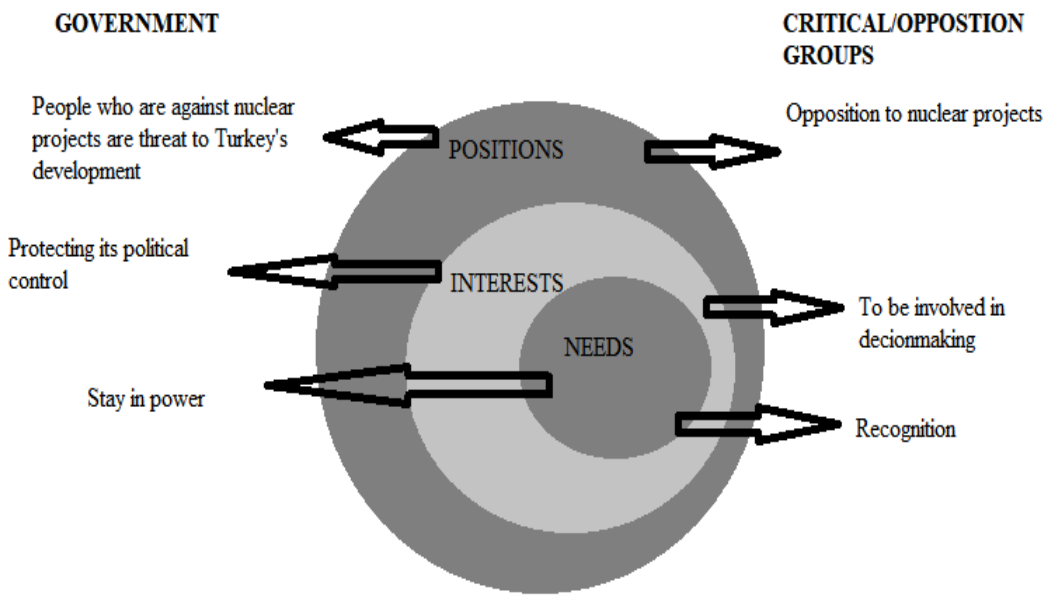
Figure 3: The Onion Model



There are many dynamics involved in the conflict over nuclear energy in Turkey. As we delve deeper, we discover that there is an underlying interest and need that lies behind the positions of the parties appearing on the surface. The parties of the conflict are basically the government, and NGOs/environmentalist groups are on the other side. Most of the NGOs and environmental groups mentioned above such as Greenpeace, TMMOB, Ecology Collective Association, Aegean Environment and Culture Platform (EGEÇEP) Association, Sinop Friends of the Environment Association, Mersin Environment and Nature Association (MERÇED), Mersin Environment Friends Association (M. ÇEDO) and Tarsus Environmental Protection Culture and Art Center (Tarsus ÇEKSAM), publicly express that they are against nuclear energy for environmental safety reasons but indeed there is an underlying reason that lies behind their opposition. What the NGOs and environmental organizations disclose is their anti-nuclear position. These groups opposing nuclear energy often state that they are excluded from the decision-making process related to nuclear waste. Notably, when we peel of the layers of the onion, we can argue that the interest of NGOs and environmental groups is to be involved in the decision-making process. When the government officials utilize top-down decision making without asking these groups, they generally defend their anti-nuclear rhetoric and strengthens their anti-nuclear positions rather than expressing their needs and interest. Since the relation between the NGOs/environmental organizations and the government can be characterized as an unstable one, NGOs and

environmental organizations do not reveal their needs such as to be recognized by the political authority, having transparent decision-making, and trust in state bodies.

Figure 4: Onion model of the conflict over nuclear energy in Turkey



When we need to build an onion model from the perspective of the Turkish government, we can conclude that the government has a need to fulfill its promises to end Turkey's energy dependency in order to gain the public support which will enable them to stay in power. Therefore, the government, in order to stay in power, needs to protect its power by insisting on top-down decision-making policies regarding nuclear energy. The interest of the government is to protect its political control over nuclear energy projects without any interruption. The political authority and state officials generally disclose that the NGOs/environmentalist organizations are the ones who want to prevent Turkey's development. Since the government authorities cannot publicly disclose their need to stay in power, they orient their positions in a way that will meet their interests and needs.

Thus, the onion model enables us to realize how parties to the conflict that are "locked into defending their positions will find it very difficult to find common ground. This might, then, mean that their actual needs are not met, and are unlikely to be met in the future" (Fisher 2000). Besides, the aim of the onion model is to illustrate graphically the underlying reasons behind the conflict and therefore to increase inter-group empathy. Given the situation in Turkey, this conflict analysis would be useful when preparing a roadmap for the conflict resolution.

3.1.8. Theoretical Implications for My Findings

Given the details about the regulatory framework, government policies, positions, and interests of the parties the conflict style we have in Turkey is open conflict. Open conflicts are described as "both deep-rooted and very visible and may require actions that address both the root causes and the visible effects" (Fisher 2000). It is possible to describe the conflict over nuclear energy in Turkey as a deep-rooted one. Although nuclear energy policies do not have a deep-rooted history in Turkey, in general, the climate of decision making has historically been top-down and non-transparent. Thus, the general characteristic of policymaking in Turkey can be regarded as the root cause and its visible effects can be identified when examining the conflict over nuclear energy. In Turkey, the top-down and non-transparent tradition of decision-making mechanism is also reflected upon decisions over judiciary, education, and economy. Recently, the Turkish government has introduced judicial, educational and economic reforms addressing the root causes of conflict over judiciary, education and economic system. For instance, in the recent judicial reform, strengthening judicial ethics has been identified as one of the main objectives in order to develop the principles of independence, impartiality, and transparency as an ethos (Ministry of Justice 2019). In this context, these reforms might be promising in terms of the possibility of evolving the general tradition of decision-making mechanism. Because the reforms indicate that the demands of the people are taken into consideration.

At the same time, the conflict over nuclear energy in Turkey can be characterized as a high-intensity conflict. In this type of conflicts, parties have incompatible goals and behaviors and they engage in a power struggle with each other. Both parties feel that their needs, such as securing their power, and recognition, which they see as vital, are threatened by the other party. For example, while civil society groups want to be involved in decision-making, the government follows a more centralized decision-making policy on nuclear energy. In this case, it is possible to mention that the parties have incompatible goals. Conflicts over the general characteristic of policymaking in Turkey and, specifically the conflict over nuclear energy, can be explained by contact theory, stakeholder theory, structural violence theory, human needs theory. Next sections will explain how these theories can be applied to the conflict over nuclear energy in Turkey.

3.1.8.1. Human needs theory

According to human needs theory, the basis of the conflicts between people lies in the failure to meet basic human needs. In other words, human needs theory assumes that "deep-rooted conflict is caused by unmet or frustrated basic human needs- physical, psychological and social. Security, recognition and participation are often cited" (Fisher 2000). A permanent solution cannot be achieved unless these basic human needs are met. When we consider the conflict in Turkey, needs of the civil society are frustrated by the regulatory framework and the government policies based on this framework. For instance, the need for recognition of the TMMOB was frustrated when the Administrative Court rejected the case on the grounds that TMMOB was not capable of filing a lawsuit. In other words, the court did not consider TMMOB as an institution with the right to sue. Thus, the NGOs interest to be heard and its need to be recognized by was violated. Besides, the investor's withdrawal from the project stems from the state failure to meet the need of recognition and participation the investor. Besides, the government also ignored the investor's interest which is to be involved in decision making process. As the government ignored meeting interests and needs of the civil society the conflict further escalated.

According to Burton, “human needs must be met to ensure harmony and development of societies. Otherwise; protest movements, incidents of violence at the social level, opposing views, strikes, and riots will emerge as symptoms of unresolved needs” (1984). As discussed above, the need of the investor to participate in the decision-making process was not met and this eventually led to the withdrawal of the investor from the project. In this case, the search for a new investor has started for the continuation of the project. In other words, the unmet needs of the investor risked completion of the construction of the nuclear power plant and waste facility, at the scheduled time. Hence, the unmet need of the investor not only paved the way for the investor reaction, but it also posed a threat to the government's development goals.

3.1.8.2. Structural violence theory

As discussed above, the NGOs and environmental organizations’ need to be recognized and participate in decision making contradicts with the government’s need to maintain its power. The government, in order to maintain its existence and security, blocked various initiatives that will pose a threat to its existence and security through various institutions and acts. From this perspective, it is possible to claim that the government has implemented structural violence. Johan Galtung coined the term “structural violence” in 1969. Galtung emphasizes that “structural violence, as opposed to personal or direct violence, is indirect in that there may not be any person who directly harms another person in the structure. The violence is built into the structure and shows up as unequal power and consequently as unequal life chances” (Galtung 1969). There is no person that directly harms NGOs and environmental organizations opposing the government's nuclear energy policies. Rather it is the structure of the regulatory framework that perpetuates unequal opportunities. The regulatory framework systematically disadvantages NGOs and environmental organizations. Due to the regulatory framework, the needs of these stakeholders are met well below the required level. Stakeholders do not have access to decision making that state and government officials enjoy. Thus, the inequality in decision making power about nuclear waste can be regarded as an example of structural violence. Paul Farmer further expounds Galtung’s design of structural

violence. Farmer emphasizes that “structural violence is not the result of an accident or a force majeure; they are the consequence, direct or indirect, of human agency. Specifically, this human agency is implicated through structures that reflect an unequal distribution of power” (Farmer 2005). The human agency mentioned here corresponds to the government. The structure of the regulatory framework prepared by the government authorities reflects the unequal distribution of power. For example, the regulatory framework of the Nuclear Regulatory Agency reflects an unequal distribution of power. The regulatory framework gives the board the ultimate authority to decide whether to invite other stakeholders to the meetings of the Agency. The regulation of the NDK reads that unless otherwise agreed, the meetings of the Board shall be confidential. Besides, the article states, no one other than the Chairman and the members of the Board of Directors may attend the meetings of the Board (Official Gazzete 2019). In this case, the institution has more power than other relevant stakeholders. Thus, structural violence provides explanations for the conflict over nuclear energy. Structural violence, as this study has shown, "exists when there is an avoidable gap between actual and potential abilities to meet human needs" (Hoo 2007). This framework is applicable to the conflict over nuclear energy as it explains how a regulatory framework disadvantages the involvement of NGOs and environmental organizations in decision making mechanism.

3.1.8.3. Contact theory

Intergroup contact theory is proposed by social scientist seeking to explain the role of inter-group contact in shaping attitudes of the parties to the conflict. Intergroup contact theorists suggest that “actual intergroup contact and also providing contact opportunities between members of different groups, may induce more favorable intergroup attitudes” (Schlueter and Scheepers 2010). In this context, the intergroup contact theory would be useful in explaining the conflict over nuclear energy in Turkey. As discussed above discourses of the government officials led us to conclude that they are unwilling to involve anti-nuclear groups in decision-making process and that they avoid getting into contact with them because of

their full opposition. In short, it is highly likely that the government will not seek to discover contact opportunities with the anti-nuclear groups unless there is positive contact.

Early studies on this theory have argued that intergroup contact can be key to conflict resolution only under favorable conditions that are, if there are common goals, equal distribution of power, and authority support (Allport 1954 and Pettigrew 1998). But my research indicates that the government has the upper hand and does not always support contact with anti-nuclear groups. Therefore, the power relations between the government and NGOs and environmental groups and chamber unions are unequal. Besides, the parties to the conflict have diversified goals. While the government aims to boost nuclear energy production as quickly as possible through top-down decisions, anti-nuclear groups desire to be involved in decision-making process. Yet, recent studies on contact theory suggest, even in the absence of the favorable conditions, inter group contact can change the attitude of groups towards each other (Pettigrew and Tropp 2008). Although intergroup contact does not always guarantee positive intergroup attitude, "meta-analyses of conflict resolution and prejudice reduction programs generally support this theory: intergroup contact is effective in reducing intergroup hostility and negative stereo-types" (Pettigrew and Tropp 2006). Therefore, contact theory leads us to conclude that the conflict over nuclear energy will stretch unless the level of contact increases between civil society and the government.

Furthermore, research shows that intergroup contact functions in numerous ways. One of them is that intergroup contact creates a change in the threat perception of the groups and therefore affects the attitude of the groups. Accordingly, as the frequency of intergroup contact increases, intergroup threat perception decreases. These groups, in my study, correspond to the civil society and the state. My research points out that government officials do not include anti-nuclear groups in decision-making since they perceive them a threat to the implementation of nuclear energy projects. Ultimately, the government establishes a regulatory framework that minimizes stakeholder participation and hence contacts with stakeholders. The government avoidance to contact with the stakeholders leads further mobilization of anti-nuclear groups.

3.1.8.4. Stakeholder theory

Stakeholder theory is another theory that would enhance our understanding of the conflict over nuclear energy in Turkey. Stakeholder theory suggests that traditional decision-making methods are no longer functional. As a result of my analysis, I concluded that one of the factors escalating the conflict is the traditional top-down decision-making mechanism. NGOs and environmental groups opposed nuclear energy policies as they dictate certain kind of policy. As the government dictated a certain kind of policies, civil society reinforces their anti-nuclear position. For instance, civil society often criticized and sued files against the EIAs related to Akkuyu NPP. The reason for the conflict was dissatisfaction of the NGOs and environmental organizations from certain kind of policies. According to Freeman "administrators must formulate and implement processes which satisfy all and only those groups who have a stake in the business. The main task in this process is to manage and integrate the relationships and interests of shareholders, employees, customers, suppliers, communities and other groups in a way that guarantees the long-term success of the institution" (Freeman 1984). The success of the nuclear policy of the government in Turkey seems dependent on integrative solutions that would serve the interests of the stakeholders. For example, after Erdogan called the banner of Greenpeace protestor as "rag", Greenpeace increased its mobilization efforts in Mersin and started a signature campaign against the Akkuyu NPP. Greenpeace also held press conferences and rallies against nuclear energy following Erdoğan's statements. Considering its global network, non-integrative approaches of the government might negatively affect its nuclear policy in the long-term. In other words, if the government maintains its reluctance to exclude NGOs and environmental organizations from decision-making mechanism and ignore integrating its interests with interests of NGOs and environmental organizations, it could not guarantee long-term success in nuclear energy projects.

3.2. Policy Recommendation: What Turkey did Wrong?

After successfully engaged in the analysis of the conflict over nuclear energy in Turkey, I identified some actionable items that might help parties to move towards a settlement and resolution. Thus, this section identifies actionable items that each important group can undertake to resolve some of the issues I mentioned above. The historical overview section related to nuclear energy policies of France, Sweden and the U.S. helped me to understand what kind of policies and actions are likely to move parties towards a solution. In this context, analysis of the three countries provided the basis for my comparative evaluation. Considering the U.S., French and Swedish experience in nuclear energy, the factors that increase the tension between the government and NGOs/environmental organizations can be listed as follows:

- **Erosion of trust to state bodies**: Anti-nuclear groups believe that political pressures played a role in court decisions. Lawsuits regarding nuclear energy projects should be ruled and examined by an independent out of court settlement mechanism.

- **Negative Cognitive Interpretation**: Anti-nuclear groups are being criminalized by the government authorities. They were interpreted as the ones aimed at preventing Turkey's development. The French experience illustrated that criminalizing anti-nuclear groups further strengthened their anti-nuclear position and moved those groups towards mobilization. Rather than expressing negative views about anti-nuclear groups, the government officials should emphasize their environmental sensitivity and their eagerness to leave a good legacy for future generations.

- **Non-transparency**: The newly emerged regulatory, the Nuclear Regulatory Commission (NDK) violates the principle of transparency. The regulation of the NDK reads that unless otherwise agreed, the meetings of the Board shall be confidential. Besides, the article states, no one other than the Chairman and the members of the Board of Directors may attend the meetings of the Board (Official Gazzete 2019). This might further strengthen the positions of the anti-nuclear groups. Therefore, an independent committee for transparency and information on nuclear energy might be acceptable to anti-nuclear groups. Members of the committee should involve representatives from the government, independent researchers,

NGOs, activists, environmental organizations and the public. As the contact between parties increases, the possibility of finding a permanent solution increases as well.

- **Lack of a comprehensive regulatory framework**: Turkey has only two laws (Law No 5710: Law on Construction and Operation of Nuclear Power Plants and Energy Sale/ TAEK Law) and two institutions regulating nuclear energy (Nuclear Regulatory Commission and TAEK). Besides, "the scope of the laws is inadequate and there are uncertainties regarding insurance, decommissioning and fuel cycle. These uncertainties are also claimed to be the main reasons that led to the withdrawal of the investor from the Akkuyu NPP project" (Sirin 2009). Further, considering the Waste Directive of the EU, lack of a comprehensive regulatory framework on nuclear energy is not only a matter of an intergroup conflict but a potential threat against foreign policy objectives of Turkey. Therefore, Turkey should develop a comprehensive nuclear regulatory framework on nuclear energy.

- **EIA process is problematic**: EIAs are prepared by companies chosen by the governmental bodies. The U.S. case indicated that having these assessments does not solve the conflict if there is a trust issue between the NGOs/environmental organizations and the government. EIAs might be regarded as scientific reports supporting certain kind of politics (Pamuk 2019). Besides, the EIAs are not publicly available. Therefore, legislation on EIAs should change. The legislation should necessitate government funding for civil society to receive assistance from independent experts.

- **Lack of justification for waste management strategies**: The senior official of the MENR stated that the ministry chose waste management strategy. He noted that nuclear wastes will be disposed of in an underground facility. However, the justification of the waste management strategy is not provided so far. The government should justify its waste management strategy. Besides, the Swedish case indicated that testing public opinion matters in orienting the public reaction towards nuclear energy projects. Therefore, the MENR should test public opinion regarding the waste management strategy.

- **Limited time for public hearings**: The government should devote more time to public hearings. Civil society should present their opinions in these sessions and the public hearings should go beyond being merely a public information session.

- **Insisting on anti-nuclear discourse**: Anti-nuclear groups should emphasize their principles and possible ways of cooperation on how to preserve nature rather than their positions and demands about nuclear energy.

- **Acknowledging Lack of Knowledge:** The investor of the Akkuyu NPP is planning to send 600 graduate and undergraduate students by 2023 to Moscow for nuclear engineering program (Akkuyu Nuclear 2018)**.** Thus, developing human resources for nuclear energy will not be a problem. However, this human resource development should not be under the initiative of the investor. Laws should include provisions necessitating training of domestic experts on nuclear energy by the investors of NPP projects.

- **Common ground:** The analysis of the conflict revealed that the civil society and the government have a common concern which might provide the way to find an integrative solution to the conflict over nuclear energy. Both the government and anti-nuclear groups have environmental concerns. Having a common concern might provide a room for an integrative solution to the conflict. The government and the civil society may work together on how to build the nuclear power production facility without damaging the environment. Therefore, as the contact increases between the government and civil society, favorable intergroup attitudes might emerge as well.

CONCLUSION

This thesis finds that the variables that led to the conflict over nuclear energy in Turkey are i) the regulatory framework, ii) negative cognitive interpretation of anti-nuclear attitude, iii) erosion of trust to state bodies iv) equation of a certain prestige/development with nuclear energy projects and v) anti-nuclear discourses and (vii) the top-down decisionmaking policy. These variables are closely interrelated with each other, although each of them leads to the conflict for different reasons.

Some of these variables are similar to those that escalate conflicts over nuclear energy in France and the United States. For instance, in the United States, one of the variables that escalated the conflict over nuclear energy is erosion of trust to the government. This situation was identified in the report prepared by a governmental commission. The commission stated that "the erosion of trust in the federal government has only made this challenge more difficult" (Blue Ribbon Commission 2012). The "challenge" here refers finding a solution acceptable to all parties for nuclear waste. Besides, Nevadans viewed the technical reports guaranteeing safety of the waste management facility as "just the Fed's latest trick in trying to hoodwink the State" and concessions of the government was not reciprocated by Nevadans. Therefore, the trust issue made the conflict intractable. In Turkey, the TMMOB group stated, political pressures played a role in court decisions regarding the Akkuyu NPP. The TMMOB group reinforced their anti-nuclear mobilization efforts through publishing reports against the Akkuyu NPP.

The common variable that escalated the conflict both in France and in Turkey is the negative cognitive interpretation of pro-nuclear groups. In France, anti-nuclear groups were

criminilized and being called as “militant activists” which in return, ended in further mobilization of the anti-nuclear groups in forms of blockades, creation of alternative reports/knowledge, media-based activism and public campaigns (Noria 2017). In Turkey, Erdoğan stated: “Those who served to the putschists back in the history, today became the pawn of those who want to undermine Turkey's energy investments” (Sabah 2017). This negative cognitive interpretation moved the government away from getting into contact with the anti-nuclear groups.

The third variable that escalated the conflict in Turkey is the regulatory framework of nuclear energy. According to the Akkuyu NPP Agreement Article 11: “Used nuclear fuel **can** be recycled in the Russian Federation”. On the other hand, Russian Federal Law 2002 Article 48 section 3 states that nuclear waste of foreign countries cannot remain in Russia. The uncertainty increases the environmental concerns of the anti-nuclear groups. Ecology Collective Association asserted: “The uncertainty over the nuclear waste disposal was a reason for the cancellation of the Akkuyu NPP” (Karakaş 2018). In short, the uncertainty over the nuclear waste lead anti-nuclear groups to insist on their position.

The fourth variable that escalated the conflict is equation of a certain prestige/development with nuclear energy projects. After Erdogan described the banner opened by the activist as "rag" and said that “we will not allow those aimed at sabotaging Turkey's developmental goals”, Greenpeace reinforced its mobilization efforts. Greenpeace Mediterranean Energy and Climate Campaign Officer stated: “Everyone living here deserves a better future without nuclear. Mersin will never accept the Chernobyl technology reactors to be brought from Russia. It is time for Erdogan to learn to listen” (NTV 2010). Greenpeace, in conjunction with a local environmental group, started a signature campaign against the Akkuyu NPP. They received 300 signatures in half an hour.

The fifth variable is the anti-nuclear discourses of the civil society. Greenpeace Mediterranean Energy and Climate Campaign Officer sates: “Mersin will never accept the Chernobyl technology reactors to be brought from Russia. (NTV 2010). These anti-nuclear discourses have led to the unwillingness of the MENR Turkey to contact with these groups.

The senior official of the MENR stated: “Co-operation with the NGOs and environmental organizations on nuclear energy is not foreseen since nuclear opposition became discourse of the NGOs.”

The sixth variable that made the conflict intractable is the top-down decision-making policy of the state bodies on nuclear energy. While the TMMOB group asserted that they are ready to compromise if the state accepts preparing an action plan, and a strategy paper for nuclear energy with participation of the all relevant parties, the MENR official stated: “Constitution is our strategy paper and we are not planning to prepare a strategy paper”. Therefore, the top-down decision-making policy prevented any possible contact between the civil society and the government. This, according to the contact theory, prevents the parties from changing their attitudes towards each other.

I build on previous critical studies of conflict analysis&resolution by explaining the conflict over nuclear energy in Turkey through stakeholder theory, contact theory, structural violence theory and human needs theory. Human needs theory explains the role of unmet needs in conflict escalation. Structural violence and stakeholder theories explain how shortcomings in decision-making mechanism and regulatory framework escalate the conflict over nuclear energy. Contact theory explains the role of lack of contact between parties in preventing mutual understanding. Limitations of this study are as follows: (i) I did not examine how government officials define anti-nuclear groups in election manifestos and (ii) the number of NGOs and environmental groups that I took into consideration was narrow, therefore, my findings are not generalizable.

As a result, nuclear energy appears to be a promising source of energy for Turkey to achieve its development goals. However, nuclear energy has a controversial nature in Turkey as well as in Sweden, France, and the U.S. The government's success in implementing nuclear energy policies depends on its way of managing the controversies over nuclear energy. The Swedish, French, and the U.S. experiences indicate that wrong attempts at the early stages of nuclear energy projects could negatively affect the long-term success of nuclear energy policies. Within this context, it is critical for Turkey to develop a comprehensive regulatory

framework, establish relations with anti-nuclear groups based on trust, and making regulations on decision-making mechanism on nuclear energy. Under the light of Swedish, French and U.S. experiences, we can conclude that the only way that would help Turkey to avoid the future burden of the conflicts is to take appropriate steps early in the process.

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