

**REGIONAL POWERS AND THEIR EFFECTIVENESS ON CLIMATE
CHANGE- RELATED POLICIES. A CASE STUDY ON BERLIN
MUNICIPALITY AND IZMIR METROPOLITAN MUNICIPALITY**

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Abstract

Climate Change is now an escalating problem in the world. Many states and heads of governments are trying to act towards tackling this problem but the actions, which are taken at a state-level governance, are not effective as expected. On the other hand, there are several examples that the regional powers, especially municipalities, have more impact on society when it comes to the implementation of their action plans and Climate Change related policies. This research aims to prove that regional level governance on Climate Change related policies is more effective than a state-level governance by using a comparison by differences between two cases-study. Berlin Municipality and Izmir Metropolitan Municipality will be analyzed to show the impacts and effectiveness of municipalities and their progress over the Climate Change issue. This will also entail a comparison between a European Union (EU) member state and a non-European Union state, to help the non-EU state to develop their policies according to European standards.

Key words: regional level governance, climate change, climate change implementation plans and action plans

Introduction

From 1880¹ to now, the world has been trying to fight climate change and try to adapt to it (UN, 2020). Between the years 1880 and 2012, the average global temperature increased by 0.85°C and the global average sea level rose by 19cm between 1901-2010 (UN, 2020). These percentages gave us only one thing: Climate is changing, and the world is warming. According to the Intergovernmental Panel on Climate Change (IPCC), Climate Change and Global Warming have different definitions. Global Warming is the estimated increase in global mean surface temperature (GMST) averaged over a 30-year period, or the 30-year period centered on a particular decade, expressed relative to pre-industrial levels unless otherwise specified (IPCC, 2018) which leads to Climate Change. In 1992, by United Nations Framework Convention on Climate Change (UNFCCC), climate change was defined as a change of climate which attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed overtime periods (UNFCCC, 1992). After 26 years, in Intergovernmental Panel on Climate Change report, climate change was defined as “...change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decade or longer.” (IPCC, 2018). As said by UNFCCC, Climate Change happened because of direct or indirect human activities and the world is going to need other human activities to fight it. The first action to fight Climate Change in a global sense started in November 1988, when IPCC was established, and continued in November 1990 Second World Climate Conference Call for Global Treaty. In December 1990, UN General Assembly gathered an Intergovernmental Negotiating Committee (INC) for a Framework Convention on Climate Change (UNFCCC, 2021). In 1992, as mentioned before, the UNFCCC text was adopted by UN member states and after the adoption of the text, UNFCCC entered into force on 21 March 1994. In April 1995 by the presidency of the German environment minister, Angela Merkel, The Berlin Mandate came in force to help developed countries to contribute to the environment and climate change. This mandate became the first steps for the Kyoto Protocol. On 11 December 1997, Kyoto Protocol was signed and became the first greenhouse gas reduction treaty. In 2005, two important step have been taken by states. The first one was

¹ Peter Jackson, *From Stockholm to Kyoto: A Brief History of Climate Change*, United Nations, 2020

the EU's Emission Trading Scheme, which defined the EU's climate policy for the following years and the second step was the Kyoto Protocol's entering into force. After a decade, in December 2015, the Paris Agreement came into the picture which brought a common cause on their common, current, and future responsibilities to nations for climate (UNFCCC, 2021). When the Paris Agreement was on the agenda, all nations had their own responsibilities and targets to reduce their emissions. Germany is one of the countries that signed and ratified the Paris Agreement to act towards Climate Change.

After mentioning the Paris Agreement and countries' contributions, which will be examined with more details in the devoted chapters, there are targets that both countries want to achieve to tackle Climate Change. Even though both countries have national aims, this paper is more focused on regional and regional governments' aims and achievements over time. In this research, the main objective is to understand how regional governments, especially municipalities, are effective when it comes to deal with Climate Change and how much they are successful when it comes to implementing Climate Change related policies. Berlin Municipality (MB) and Izmir Metropolitan Municipality (IMM) will be examined more in detail and prove that municipalities have a greater impact when it comes to implementing Climate Change related policies. According to many databases like Carbon Disclosure Project, The Global Covenant of Mayors, and scholars like Harriet Bulkeley, Pim Bendt, and Kristine Kern, Germany has been one of the leading countries that fight Climate Change, and it has become an example for most of the countries who are trying to structure Climate Change related policies. According to German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), Germany has made considerable progress in combating Climate Change since the 1990s and it was measured that Germany has exceeded its reduction target committed in the Kyoto Protocol between 2008 to 2012 (BMU, 2021). The main reason why Germany is a leading country on climate change is their targets are determined by their municipalities.

When we look at the IMM, even though Turkey did not sign the Paris Agreement or have strong Climate Change policies, IMM is the leading municipality in Turkey, which tries to fight Climate Change and turn Izmir into a green and climate-neutral city in Turkey. IMM is one of the Turkish municipalities that qualify to earn grants, for more than one project, to fight Climate Change, and to develop the city. Izmir has strong

relations with international actors like the EU and NGOs like WWF and Greenpeace to create climate-neutral projects.

Both cities are determined and successful in their Climate Change related aims and policies. This paper will examine the differences between the two cities, and their plans to tackle climate change. Even though they are two very different cities by political, economic, and societal perspectives, they are both successful in achieving their climate-related aims and their increasing progress in the field of Climate Change.

Literature Review

To analyze the regional governance impact on Climate Change related policies, there will be literature for both case studies and other case studies, mainly in northern Europe, to justify the argument. Even though there are several studies on regional level governance on Climate Change related policies, there is no specific and detailed literature for Berlin and Izmir. Nevertheless, Professor Harriet Bulkeley's studies on the topic of regional-level governance on climate and environment-related policies and their implementation process will be used as a guide. Besides, journal articles and government documents are used.

In examining Berlin Municipality's action plans and the effectiveness of the Climate Change related policies, government documents will be the first literature that would be considered. To start with, over the years, the BM took many actions to fight climate change. In 2016, with the Berlin Energy Turnaround Act and in two years, the Berlin Energy and Climate Programme 2030 was published. Berlin Energy and Climate Programme 2030 will be the main document to analyze Berlin's regional targets and plans for the future. This document emphasizes that "Major cities such as Berlin have a special responsibility with regard to climate protection." (Senate Department for the Environment, Transport and Climate Protection Public Relations, 2019) and they also emphasize that cities can be the institution where stakeholders can gather to find a comprehensive solution. The second government document that will be used in this research is the "Adapting to the Impacts of Climate Change in Berlin-AFOK" which was published July 2016, after the legalization of the Berlin Energy Turnaround. This document provides a framework for Berlin to create a climate adaptation strategy and examines the vulnerabilities that the community can face because of the climate change effects (Senate Department for Urban Development and the Environment, 2016). The third and the last main government literature that will be examined is the "Climate-Neutral Berlin 2050, Recommendations for a Berlin Energy and Climate Protection Programme (BEK)" where the Berlin Municipality explains their targets by 2050 and underlines that Berlin is to become climate neutral. That is the goal that the governing coalition in Berlin agreed to in 2011. It emerged clearly from the 2014 feasibility study 'Climate-Neutral Berlin 2050' that the capital city can indeed achieve this goal." (Senate Department for Urban Development and the Environment, 2016). The argument and

targets that the Berlin Municipality selected will be collected from this source and this document will be considered as a starting point for Berlin's process on Climate Change.

When defining regional governance and cities' responsibilities for climate change, the "Cities and Climate Change, Urban sustainability and global environmental governance" will be used and because the publishing date is too early for this research, this literature will be only used for the fundamental and absolute information. Bulkeley and Betsill argue that cities are the significant arena to address climate change (Bulkeley & Betsill, 2003) for four reasons. First, they claim that cities are the representatives of high energy consumption areas and waste production; secondly, municipalities engage with sustainable development issues and searching for a way to have implications for the mitigation of climate change; third, they are able to facilitate actions by lobbying national governments and lastly, regional governments are more experienced in addressing environmental impacts (Bulkeley & Betsill, 2003). Furthermore, there is also another case study, written by Bulkeley in 2006 which argues that the MB's energy-related policies were a big step to fight climate change (Bulkeley & Kern, 2006).

There are many Northern European countries like Denmark and the Netherlands who can be considered as an example while talking about the effectiveness of the municipalities. In another article concentrated on Netherlands' regional governments, highlighted the importance of regional governments and society's response to regional government actions (Hoppe et al, 2014). Thomas Hoppe and his colleagues also support that regional governments are the key factor when it comes to transferring for a more sustainable society. In another article, written by Jens Hoff and Bjarne W. Strobel, they underlined that many individuals and organizations started to make investments in regional politics and regional governments' development projects to cope with climate change (Hoff et al, 2014). Many scholars from Northern Europe and from other locations believe, supports, and justifies that regional level governance and municipalities have more effect on the implementation process of climate-related policies. The section of the literature review will be the references and literature that will be used for the Izmir case.

During the examination of Izmir Metropolitan Municipality, as in Berlin Municipality, government and official documents will be analyzed. To start with, in November 2020, the IMM and European Bank of Reconstruction and Development published the "Izmir Green City Action Plan" which aims to identify and prioritize the

environmental challenges and create a green future for Izmir (Izmir Metropolitan Municipality, 2020). This plan gives information about the city's characteristics, legislative procedures relevant to GCAP and focuses on the implementation part. Most of the information, when referring to Izmir, will be taken from this action plan. There are also several additional government documents like "Izmir Metropolitan Municipality 2015-2019 Strategic Plan", "Izmir Sustainable Energy Climate Action Plan", "A framework for Resilient Cities to Climate Change: Green Revision Guidebook" and lastly "Kentimde İklim Değişikliğine Uyum Eğitim Kitapçığı" (Adaptation to Climate Change in My City Training Manual). Because the last literature, "Kentimde İklim Değişikliğine Uyum Eğitim Kitapçığı", has no English version there will be additional explanation while using it. In general, the government documents will be the guide for IMM in this research paper. These documents will explain how Izmir developed its governance and effectiveness through years about climate change-related policies and what are their action plans and projects to tackle climate change.

Moreover, while mentioning IMM and its effectiveness a lot of journal articles will be used. To start with, an article was written by Bahar Gedikli, and Osman Balaban underlines the main targets of Turkey's intended nationally determined contribution (NDCs) according to the Paris Agreement. They aim to point out the achievements of Turkish metropolitan municipalities related to climate policy-making processes. They mention new strategies to overcome climate change and how the governance strategies have shifted through time. Even though this literature is not focused specifically on Izmir, Balaban and Gedikli have quantitative data proof that the Turkish metropolitan municipalities have also made some progress to fight climate change. After the mid-2000s, the number of municipalities increased to take action towards climate & environment but rather than being systematic and structural, municipalities are mostly taking stand-alone actions in related sectors (Gedikli & Balaban, 2017). Through this paper, it will be possible to see also the challenges and the obstacles that the Turkish government and Turkish metropolitan municipalities have faced during the process. But there are also success stories from other metropolitan municipalities, including Izmir. Tonyaloğlu's article brings out a success story which was achieved by the IMM, in one of Izmir's sub-regions; Bornova. To fight climate change and create a solution for the environmental problem, there should be public awareness and greening and this paper

talks about the increase of green spaces in the Bornova region led by the IMM-led public awareness to tackle climate change (Tonyaloğlu, 2020).

Many projects were led by IMM, which are still ongoing and most of the projects are done with the European Union (EU) support. Moreover, this paper aims to show the effort of a non-European country's municipality to become a European country's municipality in climate-related topics. The main ongoing project that is focused on climate, with the EU, is Urban GreenUp which concentrates on sustainable development inside the cities. Another example can be Energy Efficiency Through Behavior Change Transition Strategies (ENCHANT), which focuses on green energy in Izmir (Izmir Metropolitan Municipality, 2020). Meanwhile, when there should be statistical information about both cities, government statistical institutions, and other international databases, like Our World Data or International Energy Agency, will be used. As a final observation, there are several articles focused on regional governance and municipality effectiveness on climate issues but there is no specific article about Berlin Municipality or neither about IMM and hopefully, this research will be a start for both cities that are strongly fighting climate change.

The following methodology will be used in this paper: comparison by difference. There will be two case studies as mentioned before and overall, even though Berlin-Germany and Izmir-Turkey have different types of political structures, economic positions, and different implementation processes, in the end, both regional governments are successful when it comes to implementation of climate policies. Comparison by difference methodology will help this research to underline the differences of the cases but show that the outcome despite these differences is close to each other.

Why Izmir Metropolitan Municipality and Berlin Municipality?

To be discussed in the future chapters, Berlin and Izmir are the two cities that were chosen for this research. These cities were chosen because of the differences among them. Berlin and Izmir are two different cities from each other and yet they are similar in their climate change adaptation efforts. Berlin is under a federal state, where Izmir is under a unitary state. Berlin is part of an EU country, where Izmir is not. Germany is one of the countries that signed and ratified the Paris Agreement, where Turkey did not sign or ratified. However, both cities are effective when it comes to climate change policies and actions. Both cities, which will be explained in the political structure sub-chapters, are governed by mayors who are in the opposite party of the ruling party of the country. These two cities were the perfect example to show, even though there are many differences, and many conflicts were both successful in developing their climate change plans and creating an impact on the society to be aware of a global problem. Both cities are creating and implementing projects for a green transition in their province and trying to contribute to the system to tackle climate change. In the following chapters, cities will be examined in detail and the differences between them will be underlined for the sake of the research.

Chapter 1: Berlin Municipality

1.1. Historical and Political Structure of Berlin Municipality

1.1.1. Historical Structure

From the 20th century, Berlin has been a very important region in world politics and in world history. Since the beginning of the 1900s, Berlin has faced many wars, governments, and historical events which are still talked about. By former name, Great Berlin was established in 1920 with seven districts, 59 country communities and 27 landed estates.² As will be mentioned in the political structure part, Berlin was and still is an autonomous city in Germany. In 1918, Berlin became the first capital city of the German republic.³ On 31st January 1933, Adolf Hitler became the chancellor, and then with the Reichstag majority, he earned full power of Germany. After the defeat of Hitler and at the end of World War II (WWII) in 1945, Berlin was divided into four parts by the winners of WWII: the United States of America (USA), Great Britain (UK), France, and the Soviet Union. On 28th March 1948, Western powers, USA & UK & France, decided to unite their zones into a single economic unit.⁴ With this action of the Western powers, Soviet Union withdrew from the Allied Control Council which was established after the division of Germany and the Soviets launched the blockade of West Berlin. The division of Berlin was completed when a separate municipal government was established in East Berlin in 1948. During the 1950s, Berlin and East Germany were faced with extreme pressure by the Soviet government and failed rebellions towards Soviets. At the beginning of the 1960s, 1961, the Wall of Berlin (Berliner Mauer) was built by the Soviet Union to isolate East from West Berlin. During the 1970s, with the Four-Power Agreement of 1971, the relationship between the parties' ease and movement among the two regions started. In the late 1980s, 1989, German Democratic Republic (GDR) declared the collapse of communist rule and after almost 28 years of division, Berlin was reunified. The Berlin Wall was officially removed in the summer of 1991, and it was a new era for the Berlin citizens. After the reunification of Germany on 3rd October 1990, the Federal Republic of Germany was established and today Germany that the world knows was created.

² Reuter R. Lutz et al., *Berlin*, Encyclopedia Britannica, 2021

³ Reuter R. Lutz et al., *Berlin*, Encyclopedia Britannica, 2021

⁴ Reuter R. Lutz et al., *Berlin*, Encyclopedia Britannica, 2021

1.1.2. Political Structure

As we turn to Berlin, it is a federal parliamentary and a democratic state which has 12 district governments with a mayor. The first united Berlin elections were held in the 1990s and governed by a coalition by Christian Democratic Union (CDU) and the Social Democratic Party (SPD). This coalition continued for almost 10 years and in 2001 SPD's democrat Klaus Wowereit became the mayor of the city. With the rising socialism, SPD was pushed to create a coalition with the Party of Democratic Socialism (PDS) and Socialist Unity Party in the same year. In the 2006 elections, SPD and PDS continued their coalition in Berlin and Wowereit continued his office. One year after the 2006 elections, PDS and Labour and Social Justice- The Electoral Alternative (WASG) merged and created "The Left". In 2011, even though Wowereit continued its office, there were ideological changes in Berlin's state elections. PDS and The Left started to lose voters where the CDU started to gain voters. In this period, The Greens came into the picture where they gained 30 seats where the Free Democratic Party (FPD) lost all its seats in the government. In the end, SPD was again forged to build a coalition with The Greens and with CDU. In 2014, Michael Müller took Wowereit's incumbent in the middle of its office and won the 2016 elections under SPD. After his victory, Müller created a coalition with CDU and formed a government with The Left and The Greens.

When we look at the federal elections in 2002, there were the 15th Bundestag elections in which SPD won and became the party with the largest number of seats in the Bundestag. In the 2005 Bundestag elections, SPD and The Greens entered the race together against the CDU and Christian Social Union of Bavaria (CSU) coalition. SPD and CDU/CSU shared the victory and created a coalition alongside Angela Merkel's victory as the Chancellor of Bundestag. In the 2009 elections, CDU/CSU and the FDP won the elections and formed a new government with the continuing office of Merkel. In the 18th federal election, Merkel's party, CDU/CSU won the election again where their coalition partner, FDP, failed and only got 5% of the votes where CDU/CSU won by 42% and created a coalition with SPD. The same victory of Merkel continued in the 2017 elections, where she won the highest percentage in the election which was 33%. The SPD faced their worst results in the same election and won only 21% of the votes but at the end of the negotiations, CDU/CSU and SDP

decided to create a coalition and took office in 2018. The next federal elections will be held in September 2021 where the Berlin state elections will also be held. In the following elections CDU/CSU, SPD, and Alternative for Germany (AfD) will be the possible three strong parties. In the Berlin state elections, Müller, from SPD, stated that he will not run for re-election as the Mayor of Berlin, but Franziska Giffey will run as the Mayor of Berlin from SPD. In the same elections, CDU and The Left will also run their candidates to become the next mayor of Berlin.

To conclude this subchapter, even though Christian democrats, who are more conservative in the political arena, are a trend in the German federal elections and in Bundestag, Berlin stands as a social democrat according to their election results. For the last 6 years, social democrats were in office in Berlin where Christian democrats have more seats in the Bundestag, and being a mayor from the opposite party of the government can create some obstacles when it comes to implementing new initiatives. Moreover, Green parties in Germany, especially in Berlin are becoming more important and trustable, we can see the shift in Berlin politics towards the climate. In Germany and Berlin's case, this was not a huge problem because of the coalition of the parties but in the Izmir-Turkey case, it will be an obstacle for the mayor in office.

1.2.Legislative Procedure and Competences of Berlin Municipality

The political structure and authority of German governments are explained and derived from the Grundgesetz which is known as the Basic Law of Germany and went into force on 23 May 1949. In the same year, Berlin became Germany's capital, and it is still a city and a federal state (Land). In Germany's Constitution, Germany established a parliamentary system like the British system but since the Grundgesetz was created, Germany became a federal state unlike the United Kingdom and unlike the Republic of Turkey. Germany's political structure became more like the United States and other federal states. The formal chief of state of Germany is the president and the president is chosen for a five-year term by a special assembly. The president has the competencies to nominate the federal chancellor and the chancellor's cabinet appointments, but he/she cannot dismiss the federal chancellor or the Bundestag (Federal Assembly). The chancellor of the government is elected by the majority vote of the Bundestag with the nomination of the president. Looking at the regional and regional governance in Germany, even though Germany is a federal state there are some attempts to take unitary action inside the country. Some functions are the responsibilities of the states like education, law enforcement, urban development. Today, there are 16 states under the Federal State of Germany and in 13 states all the heads of states have cabinets, ministers, and their own parliamentary body under their structure. In city-states like Hamburg, Berlin, and Bremen the mayor serves as the head of city and state government which gives him/her more competencies. In city-states like Berlin, the municipal senates also serve as provincial parliaments and municipal offices serve as provincial ministers. Berlin also has a Constitution of its own written in 1995 and amended in 2016.⁵ In the Constitution, the municipality and the mayor's competencies have been identified in nine sections. For the sake of this research, Section IV, V and VII will be explained to understand how the Berlin government works. The first section that will be examined is Section IV: The Government. In Article 55, Section IV, it is underlined that the government shall be exercised by the Senate. This Senate will include a Governing Mayor and a maximum of ten other members in its structure. The Governing Mayor will be elected by an absolute majority of the members of the House of Representatives. In the same section, in Article 57, the Governing Mayor must require the confidence of the

⁵Berlin Municipality-The Governing Mayor Senate Chancellery, *The Constitution of Berlin*,2016

House of Representatives and the House of Representatives will have the competencies to withdraw its confidence from the Governing Mayor. In Article 58, it was determined that the mayor will represent Berlin externally and determine government policy guidelines. The mayor is responsible for monitoring the process of the policy guidelines, where each member of the Senate shall run their own department independently. The policy implications and actions plans are decided and prepared by the Senate members rather than the Governing Mayor itself. Today, Senate Department for the Environment, Transport and Climate Protection and as well as the Senate Department for Urban Development and the Environment are responsible for the climate change-related policies in Berlin and under the Senate, for the Environment, Transport and Climate Protection there is a subdivision called Division Climate Protection and Adaptation for the existing climate change crisis. As we return to the Constitution of Berlin, the second section that would be examined is Section V: Legislation. In Article 59, Draft Bills, plans and actions, must be presented to the members of the House of Representatives by the Senate and the proposal must be released to the citizens. Every proposal should be reviewed in the House of Representatives at least two times and handed over to the president of the House of Representatives or the president of the Senate. If the proposal passes with a simple majority of the House of Representatives, the Bill/proposal will be declared by the Governing Mayor to the public. Lastly, Section VIII: Finance, will be one of the most important competencies that have to be examined when it comes to policy implementation. In the Constitution, it was stated that all the basis for administration of revenues and expenditures should be based on The Budget Act. That means that every expenditure should be aligned with the Budget Act, which is under the control of the Bundestag, and the budget management of Berlin must be based on a five-year financial plan which will be submitted to the House of Representatives. If there will be a reduction of revenue or an increase in the expenditures on bills and motions, this decision will be taken by the Houses of Representative.

1.3.Vulnerabilities of the City of Berlin towards Climate Change

As a general definition climate change vulnerability was defined by the 3rd IPCC report as “The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.”⁶ The IPCC also underlined that climate vulnerability can be seen in different categories as economic, socioeconomic, and geographic vulnerability. In this part of the chapter, the climate change vulnerability of the city of Berlin will be examined to identify the possible future scenarios that can occur from the climate change and what are their climate vulnerability geographically.

As mentioned before, the city of Berlin was defined as one of the developed regions towards climate change, but it does not mean that Berlin will not have vulnerabilities in the future caused by climate change. In 2016, the Berlin Municipality has published “Adapting to the Impacts of Climate Change in Berlin-AFOK” to define what is the vulnerabilities that can affect Berlin and how the Berlin Municipality will overcome the impacts. In this report, the assessment of Berlin’s vulnerability is presented in four fields: fields of action, exposition, sensitivity, and adaptive capacity in multiple sectors. But before entering into more detail, in the same report, scientists have pointed out that there will be indirect effects of climate change on Berlin. Even though Berlin will not be affected directly by climate change, it has to take action to prevent the possible indirect damages. The first vulnerability which was observed as climate vulnerability is environmental and climate refugees. In 2019, Germany welcomed over 1 million refugees⁷ in its territory and it’s still increasing. From another report from European Asylum Support Office, it was highlighted that over 1.2 million in Afghanistan has fled out of their countries because of natural and environmental crisis, especially from drought and floods.⁸ Many of the refugees have traveled to Europe to find settlement and Germany is one of these stable countries. In the same report, it was stated that Europe and Berlin are becoming and will be a target area for climate refugees. The second vulnerability that was defined was foreign trade. Climate change does not show its effects only on the environment but also on the economy and 50% of Berlin’s industry is dependent on export

⁶ IPCC, *Annex I: Glossary*, 2018

⁷ The World Bank, *Refugee population by country or territory of asylum- Germany*, 2021

⁸ Camilla Schloss, *Climate migrants- How German courts take the environment into account when considering non-refoulment*, 2021

and trade relations with countries like United States, Russia, Turkey, and other Asia-Pacific countries.⁹ This trade relationship will be affected whether Berlin is affected directly or indirectly by climate change. Germany's trade partners who are facing climate change vulnerabilities will not be able to produce as they did once and this change in production will create a negative impact on Berlin's markets and supply change. The third vulnerability will be the risk in the tourism sector. Berlin is one of the top European destinations and today it attracts almost 5 million visitors to its hotels or houses. But as in the Covid-19 pandemic, people can carry diseases very easily to another destination. Because of climate change, many African and Asian countries will face drought and when there is no water there could not be hygiene. According to World Health Organization (WHO), "Given the clear evidence that many health outcomes are highly sensitive to climate variations, it is inevitable that long-term climate change will have some effect on global population health."¹⁰ and these effects on global health will also create problems in the tourism sector of Berlin. Tourists who are coming from the more climate-vulnerable countries could carry diseases and chronic illnesses in the future. The fourth vulnerability was identified as transportation. Because of the possible extreme weather events, Berlin's transportation infrastructure will face storms, heatwaves, or heavy rain which can create destructions. The last vulnerability that was taken into consideration is the power supplies. Even though Berlin's 60% of power grid is underground, the rest 40% of its power grid will be vulnerable to extreme weather events in the future which could also impact European grids overall.

Before going into the action plans of Berlin Municipality to decrease their vulnerability to climate change, we must underline that adoption assessments and plans can be the only solution to reduce the vulnerabilities towards climate change. As Berlin Municipality officials stated, "If urban structures, buildings, organizational routines, and individual behavior are attuned to changing boundary conditions, their adaptative capacity will increase and their vulnerability decreases."¹¹ In the following part of the research, there will be a detailed examination of the actions and future of Berlin Municipality for climate change and for a green Berlin.

⁹ Senate Department for Urban Development and the Environment, *Adapting to the Impacts of Climate Change in Berlin- AFOK*, 2016

¹⁰ D.H. Campbell-Lendrum et al., *How much disease could climate change cause?*, 2018

¹¹ AFOK, 2016

1.4. Actions and Plans of Berlin Municipality towards Climate Change

Since the end, 1980s Germany is actively fighting and adapting to the climate change crisis in the international arena.¹² The journey officially started with the Intergovernmental Panel on Climate Change (IPCC) in 1988, established by the UN. Germany was a member state of the panel and climate change was officially accepted by the international system. After the IPCC, Germany and especially the cities of Germany started to do scientific research on the topic. In 1997, Kyoto Protocol to the United Nations Framework Convention on Climate Change was prepared as an international treaty to fight against climate change. This treaty was prepared in December 1997 and Germany was one of the first countries who signed, which was in the following April. Meanwhile, IPCC published five assessment reports for the crisis. After the 5th Assessment Report of the IPCC was published UN prepared another international treaty that was legally binding for the countries who ratified. This treaty, today, is known as the Paris Agreement. Germany was again one of the countries that signed and ratified immediately after the convention. With the support of the German government, Berlin Municipality was also aware of its responsibility to implement the Paris Agreement standards to its citizens.

Today, Berlin Municipality has a department for the environment and climate protection as mentioned before. Under this department, their studies, research, and plans were divided into four main subjects.¹³ Environment, Nature and Green, Traffic and Climate Protection. These subjects were identified as the most urgent issues for the Senate Department for the Environment, Transport and Climate Protection. The Berlin Municipality was active in its region since the beginning of the 21st century and over the past ten years, they have an adaptation plan and two other plans for climate-neutral Berlin and climate protection for 2030.¹⁴ In this subchapter, the plans and reports will be considered in the same order as the department's order.

Under the Environment department, Berlin Municipality has two main projects to tackle climate change: Low-emission Zone and Sustainability projects.¹⁵ The policies to

¹² Federal Ministry for the Environment, *Nature Conservation and Nuclear Safety, The Intergovernmental Panel on Climate Change (IPPC)*, 2019

¹³ Berlin.de, 2021

¹⁴ Berlin.de, 2021

¹⁵ Berlin.de, 2021

decrease GHG emissions are active since the 1st of January 2020 and implemented successfully to the Berlin residents. “The low emission zone is an area, where only vehicles are allowed, which comply with certain emission standards.” (Berlin.de, 2021) If a car does not comply with the defined emission standards it cannot enter the zone or get a fine if they enter the zone. The emission groups of cars were identified in the table

Emission group	1	2	3	4
Stickers	no sticker			 Space for car registration number
Requierevements for diesel engines	Euro 1 or worse	Euro 2 or Euro 1 + particulate filter	Euro 3 or Euro 2 + particulate filter	Euro 4, 5, 6 or Euro 3 + particulate filter
Requierevements for petrol engines	Without 3-way cat. acc. to Ann. XXIII StVZO			With 3-way cat. acc. to Ann. XXIII StVZO and Euro 1 or better

Figure 1 Berlin Low-emission zone, emission groups for car, 2021

below.

With this categorization, every vehicle that enters the zone must be marked with a green sticker. The sticker system is also valid for the other low-emissions zone in Germany and as mentioned before, there is an 80 Euro fine if a vehicle who does not carry a green sticker while entering any of the low-emission zones in the country. The categorization for the vehicles and their emissions were updated back in 2007 and they are still valid today. In this system, the car types were taking into consideration with the WHO clean air standard and measured by the PM levels. With this climate policy, Berlin municipality is trying to create the entire Berlin as a Low-emission zone and decrease GHG emitted by transportation in the region. The second project area for the Berlin Municipality is sustainability. Under this area, there are two main actions: UN SDGs in Berlin and Environmental Justice. Berlin Municipality is determined to implement SDGs for 2030 in its urban policy, aligned with the National Sustainable Development Strategy. In 2015, UN SDGs were released to the international arena to be achieved until 2030 and the same year Berlin Senate and Federal Government implemented a Coalition Agreement to achieve those goals.¹⁶ However, the actions of the Berlin Municipality have started before the 2030 Agenda. The first Core Indicator Report was published in 2012 and the second was published in 2014 by the Berlin Senate for the Environment and Urban Planning.

¹⁶ The Federal Government of Germany, 2021

This report was based on Berlin's sustainable future and how to achieve sustainable development in the following years. In this report the Berlin Municipality was able to do an inventory counting, examining the government policies and identifying stakeholders to participate in their cause. After the Core Indicator Report, a Sustainable Development Profile for Berlin was published in 2016. "Equally, a Sustainable Development Profile was drawn up for Berlin with the involvement of diverse interest groups, in which numerous areas and specific projects are described, which contribute to a continuous improvement." (Berlin.de, 2021) Today, Berlin Municipality contributed to the German Sustainable Development Strategy, published in 2016, and implements the federal strategy to its existing strategies.¹⁷ Moreover, Berlin Municipality is a member of the Regional Hubs for Sustainability Strategies, so-called RENN hubs, to create a regional network for sustainable actions, societal transformation for a green region, and develop sustainability actions on a national, federal, and municipal level in Germany.¹⁸ With the help of "Berlin21", which is a non-governmental organization, Berlin Municipality increased the implementation of the German Sustainable Development Strategy to its citizens. One of the projects that the Berlin21 and the Berlin Municipality are still working on is the "Berlin Sustainability Forums with Berlin21".¹⁹ This initiative started in 2017 and aims to finish in 2022. The main topics of this forum were Berlin energy and climate policies and create awareness for the existing problems. With this coalition, Berlin Municipality and Berlin21 also created extra-curricular educations for a sustainable Berlin. Another topic under sustainability is environmental justice. According to US Environmental Protection Agency, environmental justice was defined as, "Environmental justice (EJ) is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulation and policies" (EPA, 2021) By meaning fair treatment, no human being should bear a disproportionate share of negative environmental consequences because of industries, government policies or operations.²⁰ Berlin Municipality takes the concept of environmental justice very carefully and acts accordingly to create justice for its own citizens. Because Berlin is a metropolitan city,

¹⁷ The Federal Government, *German Sustainable Development Strategy*, 2021

¹⁸ Regionale Netzstellen Nachhaltigkeitsstrategien, 2021

¹⁹ Berlin21, *Projekte*, 2021

²⁰ United States Environmental Protection Agency, *Learn about Environmental Justice*, 2021

they categorize the needs of the citizens as, traffic noise, air pollutants, insufficient availability of green spaces, and bioclimatic impacts. These categories were measured under environmental justice in the region. The environmental justice concept was also taken into consideration under climate change and its impacts on society. “As the first metropolitan area in Germany, to do so, the City of Berlin has drawn up the Berlin Environmental Justice Concept, in order to strengthen administrative action based on social spaces in some parts of the capital and to provide the fundamentals for reframing the environmental policy.” (berlin.de, 2021) This initiative was created to analyze the policies and integrate the policies with society. With the wide range of research and data collection, Berlin Municipality created a platform to map the environmental justice in Berlin and the quality of life in the region.

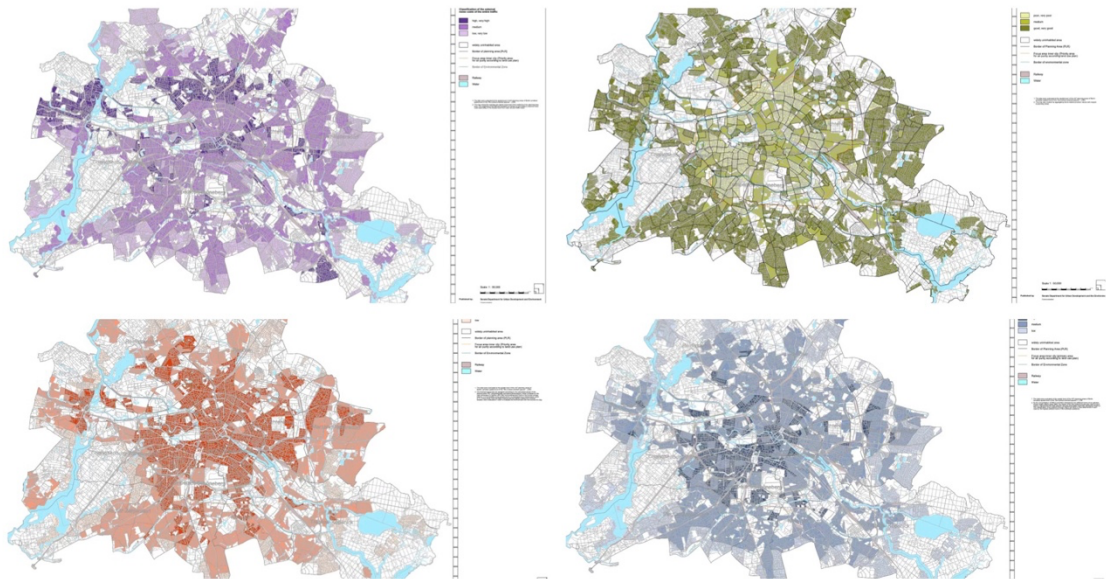


Figure 2, Berlin Environmental Justice Maps: Noise Pollution (2012), Availability of Green Spaces (2012), Bio-Climate (2011), Air Pollution (2009)

With the scientific data and detailed examinations, the Berlin environmental justice concept was created as an oriented framework for a concept of action in this topic. With this report, the municipality aimed to provide a regional statement on the living and environmental quality in the capital and enabled a transparent overview of the standards in the neighborhood. To monitor the future actions of this initiative, Berlin Municipality

developed the fundamentals for inter-agency environmental justice monitoring, with core and supplementary indicators to identify the impacts of the environment.²¹

The second department is Nature and Green under the Senate. This department is more focused on urban planning and green spaces in the province. The first initiative that the Berlin Municipality established is the planning of landscapes in the region. The history of Berlin and landscape planning started in the 19th century but for the sake of the research, post-1990s will be examined. In 1994, after the reunification, The Landscape Programme including Nature Conservation was approved by the Senate of Berlin and the House of Representatives to implement development goals and provisions of the district. In 2000, because of the financial crises, a new agenda become a must. The Urban Development Concept was created with three interconnected actions: The General Urban Mitigation Plan in 2004, closing the gaps in Berlin's 20 major green routes, and strategies for interim "green" usage.²² For landscape planning, Berlin Municipality initiates the 20 Green Walks project to create routes for walking and hiking for its residence in the city. Today, in total, Berlin has 20 different routes to stay away from the traffic and make sure people have enough space to walk. For urban green spaces, the municipality is working with multiple subjects to increase the number of green spaces. Public parks, children's playgrounds, city trees, and allotment gardens are some of them. To monitor and be more effective in the region, the Senate Department for Environment, Transport and Climate Protection produced the Green-Space Information System (GRIS). "The GRIS is on the one hand designed to make the control of green-space care and maintenance more effective from a business-management point of view, and on the other, it simplifies information processing for planning information purposes within the Berlin administration and to the public." (Berlin.de, 2021) With their own system and aim to increase the green spaces in the province are still monitored and controlled.

The third department is Traffic. Transportation and traffic are some of the biggest indicators for GHG emissions and pollution. With the traffic policies of the municipality, Berlin aims to become more mobile and more climate-friendly with the Berlin Municipality projects.²³ Berlin Mobility Act was created in 2017 to strengthen the

²¹ Berlin.de, Senate Department for the Environment, Transport and Climate Protection, 2021

²² Berlin.de, Senate Department for the Environment, Transport and Climate Protection, 2021

²³ Berlin.de, Senate Department for the Environment, Transport and Climate Protection, 2021

mobility services of the municipality. This act was established to become an example for Germany and all its provinces. The Berlin Mobility Act also aims to improve the efficiency of transportation and plans to achieve climate-neutral traffic by 2050. The work started in 2018 and the committee that looks after the Berlin Mobility Act created the first draft of the “pedestrian traffic dialogue” law in 2020. Another project that the municipality is working on is cycling roads. Today there 9 different projects on cycling to increase the usage of bicycles to decrease the pollution in the region.²⁴ In 2020, the Berlin Senate approved over 30 million Euros of investment to improve the quality of cycling infrastructure in the city.

The fourth and one of the most important departments under the Senate is Climate Protection Department. This department is responsible for the climate change policy implementation in Berlin. The action plan which is the cutting edge for Berlin’s climate change actions is the Climate-Neutral Berlin 2050. As mentioned before, Berlin is one of the most climate-friendly cities in Germany and according to Berlin Municipality data, Berlin has cut their GHG emissions by about one-third when compared to 1990 emissions. Another data also shows that in 2015, Berlin’s emission per capita, which is 4.7 tonnes, was under the national average, which was 9.6 tonnes.²⁵ Furthermore, Berlin aims to decrease that number even more by 2050. The Berlin Energy Turnaround Act, which was started in 2016 made Berlin’s climate-neutral policies legally binding for its residents. Year by year Berlin Municipality defined targets to achieve to reduce its GHG emission. By 2020 carbon dioxide emissions will be reduced by 40%, by 2030 the emissions will be reduced by 60%, and by 2050 the emission will be reduced by 85%, compared to the 1990 emissions of the city. To achieve these targets, the Berlin House of Representatives approved the Berlin Energy and Climate Programme 2030 to set suitable measures to reduce carbon emission, track and create a roadmap for climate neutrality. Furthermore under the 2050 climate-neutrality initiative, today, the Senate of Berlin is working to phase out coal-based power and heat generation by 2030. In 2014, for 2050 targets, a public energy utility (Berliner Stadtwerke) was founded to develop renewable energy systems and to generate electricity for Berlin with a climate-friendly production process. To create awareness for the issue, Berlin Municipality organizes the Berlin Energy Days

²⁴ Berlin.de, Senate Department for the Environment, Transport and Climate Protection, 2021

²⁵ Berlin.de, Senate Department for the Environment, Transport and Climate Protection, 2021

every year for the people. There are also competitions like “Berlin Saves Energy Action Week” and the “Berlin Energy Savings Champion” for the people to participate in Berlin Municipality’s effort to green transition. In addition, Berlin Municipality and the European Union gathered under the Berlin Programme for Sustainable Development (BENE) project, which was financed by the European Regional Development Fund (ERDF).²⁶ BENE is funded also by the Berlin branch of a regional public broadcaster, Rundfunk Berlin-Brandenburg (rbb), and its inaction since 2018. Since 2018, with the BENE project, the region has reduced its CO₂ emissions by 3,000 tons per year.²⁷ After Climate-neutral by 2050 initiative, this paper will continue examining the Berlin Energy and Climate Protection Programme 2030 (BEK 2030), which was underlined before.

BEK 2030 was adopted in 2018 to support the 2050 targets of Berlin, set strategies and measures for mitigation and adaptation to climate change in the city. This program will be updated every five years to understand the success of the municipality. BEK promotes roughly 100 measures to protect the climate and tackle climate change in its structure. The objectives that were defined in BEK 2030, the Berlin Municipality identified two potential CO₂ cutback fields: “Energy Supply” and “Buildings and Urban Development”. According to 2012 data of Berlin Municipality, buildings and urban areas were responsible for 59% of all energy consumption in the city, and after that, the field was marked as a major potential for energy savings. Using renewable energy in the city became a trend among government officials and citizens. The first actions were already taken by the Berlin government by the transition to using brown coal in 2017 and today they are still working on transforming the rest power station to green. Another plan of the Berlin government is the development of a “Masterplan Solarcity”. This plan aims to increase the role of solar power in the city to produce clean energy. Under this plan, the state-owned buildings will generate their own energy from solar panels until 2030 and will be an example for the rest of the buildings. Moreover, the Berlin Municipality established an agreement between them and companies who are willing to tackle climate change. This agreement was successful in the area of waste management of the city. In 2017, Berlin’s waste management agency, Berliner Stadtreinigungsbetriebe (BSR),

²⁶ European Commission, *German broadcast Rundfunk Berlin-Brandenburg’s new energy centre helps environment*, 2020

²⁷ Senate Department for the Environment, Transport and Climate Protection, *Berlin Energy and Climate Protection Programme 2030- BEK 2030*, 2019

recycled almost 76,000 tons of organic waste, and 69,000 tons of this waste were converted to biogas for BSR's vehicles.²⁸ Recycling this amount of waste cut CO₂ emissions by more than 9,000 tons in 2017 and it is still contributing to Berlin's reducing target for 2050. Lastly, Berlin Municipality continues to raise awareness internally and externally about climate change and climate protection. Berlin Municipality believes that climate protection and climate change must be mandatory classes in their curriculum. The city administration funds school projects on climate projects and establishes competitions to integrate children into the issue. "Berliner Klima Schulen" (Berlin Climate Schools) is one of the famous competitions that many schools join and make climate protection activities for primary education. One of the elementary schools, Mühlenau elementary school, is rewarded multiple times since 2012 for their climate protection classes and activities to increase the contribution to the contest. In the international arena, Berlin has also a key role. Berlin is a member of many international organizations that works on climate change like the C40 Cities Climate Leadership Group, Covenant of Mayors for Climate and Energy, ICLEI, the Climate Alliance, and Eurocities²⁹.

Berlin Municipality is an active player in the field of climate change domestically and internationally. Berlin has many initiatives and policies which are active, and which are going to be active in the near future. With the action plans and policies, Berlin started to contribute to the global climate change issue and scientifically they are moving accordingly to their plans. The Senate highlights every current issue and establishes detailed plans to overcome the possible impacts of climate change. Today Berlin Municipality is working both on mitigation and adaptation to climate change and became an example for the other municipalities in the world.

²⁸ BEK 2030, 2019

²⁹ BEK 2030, 2019

1.5.Outcome

In this chapter, the case study of Berlin was examined in multiple subjects. Berlin and the Berlin Municipality was taken under consideration with its history, political structure, legislative structure, it's climate vulnerabilities, and their actions towards climate change. With its complicated history and the wavey politics, Berlin Municipality was able to be successful to implement its climate change policies and actions to its citizens. Today, Berlin is one of the “green cities” in the world and aims to create an international network with multiple organizations to give a common voice to cities when it comes to climate policy implementation and climate protection. With the projects and policy implementations, the GHG emission in Berlin reduced and sustainable transitioning became more feasible for the near future. Even though Berlin Municipality and the Mayor of Berlin have different ideological perspectives, Christian Democrat and Social Democrats, the government supports the city of Berlin during its climate policies and actions. One of the important factors that helped Berlin's development in climate issues was the policies that the government has embraced in the international arena. This support and dedication will not be the case for Izmir Metropolitan Municipality.

Chapter 2: Izmir Metropolitan Municipality

2.1. Historical and Political Structure of Izmir Metropolitan Municipality

2.1.1. Historical Structure

The city of Izmir, also known as Smyrna, has a long past in world history. From about 1000 BCE the land of Izmir was used by the ancient Greek communities and seized by Ionians in history.³⁰ For the sake of this paper, the time period that will be considered to analyze the history of Izmir is the 20th century. For centuries Izmir has been the port of Anatolia and the Ottoman Empire, and it was one of the trade centers of Anatolia lands. After the loss of World War I, Turkey was subject to foreign control by the victors of the war and Western Turkey was controlled by Greek forces which included Izmir. In 1919, Izmir was occupied by the Greek forces and on the 8th of October 1922, the Greek forces left the land and Turkish forces regained their power in the region on the 9th of October 1922. After three days of Turkey's recapturing Izmir, there was a big fire in the city which is still known as one of the biggest disasters in the city.³¹ Regaining power in the region also officially ended the Greco-Turkish War. When the war was officially finished, there were negotiations about a systematic evacuation of Greeks from Turkey and Turks from Greece. On the 30th of January 1923, after the Lausanne was signed, almost 1 million people, officially 350.000 Muslim Turks and 200.000 Christian Greeks³², had been displaced from their homes. After the establishment of the Turkish Republic on 29th October 1923, reconstruction of Izmir was begun under the presidency of Mustafa Kemal Atatürk. After World War II, the city of Izmir grew rapidly and become the second industrial city after Istanbul. Today according to the IMM database³³, the city of Izmir has 30 districts in its body, and they are all gathered under IMM. Lastly, Izmir is an important factor in international trade and a landmark for ancient history. Izmir has a high rate of the agriculture sector, and it is one of the most touristic places in Turkey. Today Izmir is one of the metropolitan cities of Turkey and a host for almost 4,400 million citizens.

³⁰ The Editors of Encyclopedia, *Izmir*, Encyclopedia Britannica, 2017

³¹ Britannica, 2017

³² Yücel Bozdağhoğlu, *Türk-Yunan Nüfus Mübadelesi ve Sonuçları*, 2014

³³ Britannica, 2017

2.1.2. Political Structure

The Republic of Turkey is a unitary state that is based on a parliamentary system. The Republic of Turkey is the official name which is used in the Constitution of 1982. This Constitution is the fundamental law of the government, and it underlines the separation of powers in the government: executive, legislative and judicial. In 2017, the referendum introduced the presidential system. After the changes in the government system, Parliament's power was decreased where the Presidents were increased. The President of the Government became the executive branch of the system and limit many other branches in the government. Municipalities and opposite-party municipalities faced obstacles along the way. For example, in 2021, one of the famous newspapers in Turkey, Sözcü Newspaper³⁴, has underlined that the President of Turkey, Recep Tayyip Erdogan, has cut the funds for water sanitation and other two subjects to limit their jurisdictions in the region.

Between the years of 1923 and 1943, The Republican Party (CHP), which was a social democrat party, founded by Mustafa Kemal Atatürk was the only party in Turkey. In the 1946 elections, The Democrat Party (DP), a right-wing party, came into the picture and won 62 seats in the Parliament. After this election, there was a shift in Turkey's ideology; citizens of Turkey were leaning more toward right-wing parties rather than left-wing parties. For three terms, DP won the highest seats in Parliament where CHP votes declined rapidly. Meanwhile, there was the 1960 Turkish coup d'état, which was the first coup that the Republic of Turkey has faced and ended in the same year. The main reason for the coup was the totalitarian rule of the DP. 37 army officers from the Turkish Armed Forces acted to topple the DP government and annul the Constitution and the Parliament. At the end of 1960, the commander of the Turkish Armed Forces arrested the 37 army officers and finished the coup of 1960. In the 1961 elections, CHP won the highest number of seats and in the following elections, the Justice Party (AP) joined the race. In 1980, Turkey faced another coup which was ended in 1982 when the Constitution of 1982 was established. The coup of 1980 is known as the 12 September Operation. This coup was done under the chain of command, and it was the third coup done against the Turkish Government by the army. Army officers who done the coup established the National Security Council. This council included the commander of the Turkish Army Forces,

³⁴ Görkem Ulu, *Izmir Büyükşehir'den Erdoğan'a Yanıt*, 2021

commanders of the Turkish land, naval, air, and gendarmerie forces. The main reasons for this coup were the left-right conflict, political assassinations, presidential elections, and the economic crises in the country.³⁵ The first memo that was given to the radio by the National Security Council said that “The purpose of the operation; to protect the integrity of the country, to ensure national unity and solidarity, to prevent a possible civil war and fraternal quarrel, to re-establish the authority and the existence of the state, and to eliminate the reasons that prevent the democratic order from functioning.” After the coup, the presidency of Süleyman Demirel ended, and the authoritarianism period started. The commander of Turkish Army Forces, Kenan Evren entered politics, and all political parties were abolished. The 1961 Constitution was annulled, and the new 1982 Constitution was prepared. On 7 November 1982, the new Constitution and the presidency of Kenan Evren were presented to the public and accepted with 91,37% of the votes. The coup ended on 7 December 1983 and was put on trial in 2010. The first elections after the coup were done on 6 November 1983 but none of the abolished parties were able to enter the election. Anavatan Partisi (Motherland Party) which was a center-right party, won the election.

With the unstable political structure, Turkey was governed by both left-wing and right-wing parties until the 2000s. In the 2002 elections, The Justice and Development Party (AKP) won the elections and continued their victory until today.

As we look to municipal mayor elections, Izmir had also an unstable political ideology accordingly to the elected mayors’ political parties. Even though between 1984-1989 and 1994-1999 right-wing mayors were elected in Izmir, in the following years there was heavy support for the left-wing and liberal parties. There were always differences between Izmir’s governing mayor and the elected party to govern Turkey. In recent years, the majority of Izmir’s citizens voted for CHP where the ruling party was AKP. These ideological differences created some problems during the actions of the municipality which also affected the policies that the municipality wanted to implement. Since 2019, Tunç Soyer is the mayor of Izmir under CHP, who tries to work despite the ideological differences.

Even though the Izmir Metropolitan Municipality is facing these kinds of political fights, they are still an active actor in the field of environment and climate. To understand

³⁵ Tanju Özkaya, *Kanlı 12 Eylül darbesinin üzerinden 40 yıl geçti*, 2020

the relationship between the municipalities and the government of Turkey we must examine the legislative procedures and municipalities' competencies in the following sub-chapter.

2.2. Legislative Procedure and Competences of Izmir Metropolitan Municipality

Izmir Metropolitan Municipality's competencies and legislative powers were defined in Municipal Law written by the Turkish Parliament on 24 December 2004. In the Municipal Law, the parliament defined three types of regional governments: special provincial administrations, municipalities, and villages. Special provincial administrations continue working until 2005 and after the new Municipal Law was established and in 2014 turned into metropolitan cities.³⁶ Today 23% of the total population is governed by the special provincial administrations, which is equal to 51 cities out of 81. "Municipalities had organizations, functions and responsibilities governed by a law enacted in 1930." (Union of Municipalities of Turkey). Between the years 1930 and 2005, municipalities were established in every small settlement. After the sharp increase and the inefficiency of the municipalities, town municipalities merged in 2008 to a district or provincial municipality to create a more effective regional government. In 2013, the government declared 14 more provinces as metropolitan municipalities and in total, today, there is 30 metropolitan municipality in Turkey. Town municipalities were abolished from the system and the municipal system was changed after a long period of time. According to the Union of Municipalities of Turkey, 93% of the population is now living under municipality boundaries and 78% of them are in metropolitan municipality boundaries.³⁷ By the order İstanbul, Ankara, and Izmir are the crowded municipalities in Turkey.

The birth of metropolitan municipalities' was in 1984 with İstanbul, Ankara and Izmir. Today, in addition to municipalities power on urban boundaries, metropolitan municipalities are responsible also for rural administrations. When we look at the obligatory functions of municipalities, as in the Berlin case, land development, transportation, infrastructure, water and sewer, waste management, firefighting is the main subjects that are under the municipalities. The mayor of the metropolitan municipalities has more responsibilities during their time. For five years, mayors are responsible for/prepare high scale land development plans, approve the implementation plans which are prepared by the districts, supervise and monitor the land development plans, produce land lots and housing, build infrastructure for industry and

³⁶ Union of Municipalities of Turkey (TBB), *Types of Regional Governments*, 2021

³⁷ TBB, 2021

trade, protect and develop the environment, agricultural land and water basins of the city, recycle and store waste, build regional parks, cemeteries and food markets and lastly to provide the city with fire-fighting officials. Furthermore, the mayor of a metropolitan municipality is responsible for legal duties, create a union among district municipalities, and budgetary decisions.

There are three main organs in municipalities: Municipal Council, Municipal Executive Committee, and the mayor. Municipal Council is the main decision-making body of the municipalities, except for metropolitan municipalities. There are no special elections done for the metropolitan municipalities and the councilors who get the highest vote in the election directly become a member of the metropolitan council. The mayor of the province is directly counted as a member of the council, and he/she is the representative of the council. Furthermore, district mayors are also natural members of the metropolitan council, and the metropolitan mayor is the representative of the metropolitan council. The municipal council serves to approve the municipality's strategic plan, budget, work program, and investment program. They also must approve the revenues and expenditures of the present and the last year. The land development plan which was prepared by the mayor also must be approved by the council. The granting concessions and the establishment of enterprises, companies, and allowance for sales companies are also in the supervision of the council. Moreover, the council allows or rejects the land that the municipality wants to borrow, sell, or purchase. In general, the municipal council and the metropolitan council, are both responsible for the organization of the municipality. The second organ of the municipality is the Municipal Executive Committee. They are responsible for the implementation process. The committee is obliged to implement the council decisions and resolutions. The committee is a mixed commission with a mixture of members. Half of the committee is elected by the mayor and the other half is elected by the council.

Overall, the budgetary and policy decisions of the municipalities are under the municipal council, which is elected by the people, but the council is also responsible to take approval from the parliament for their final decisions. The activities of the mayors and municipalities are under the government even though it is not the case.

2.3. Vulnerabilities of the City of Izmir Towards Climate Change

The city of Izmir is one of the developed cities when it comes to identifying the current risks and vulnerabilities when it is compared with the other cities in Turkey. According to scientific journals, two possible main climate vulnerabilities were identified³⁸: drought and sea-level rise. These two climate vulnerabilities will negatively affect the region in the future. In İsmail Dabanlı's research on drought hazards in Turkey, Izmir was identified as one of the riskiest places in Turkey to face drought in the close future.³⁹ In this research, he underlined droughts will pose significant risks to agriculture in the Anatolia region of Turkey. "Socioeconomic aspects usually involve factors like damage lost, population density, agricultural land, access to domestic water, etc." (Dabanlı, 2018)

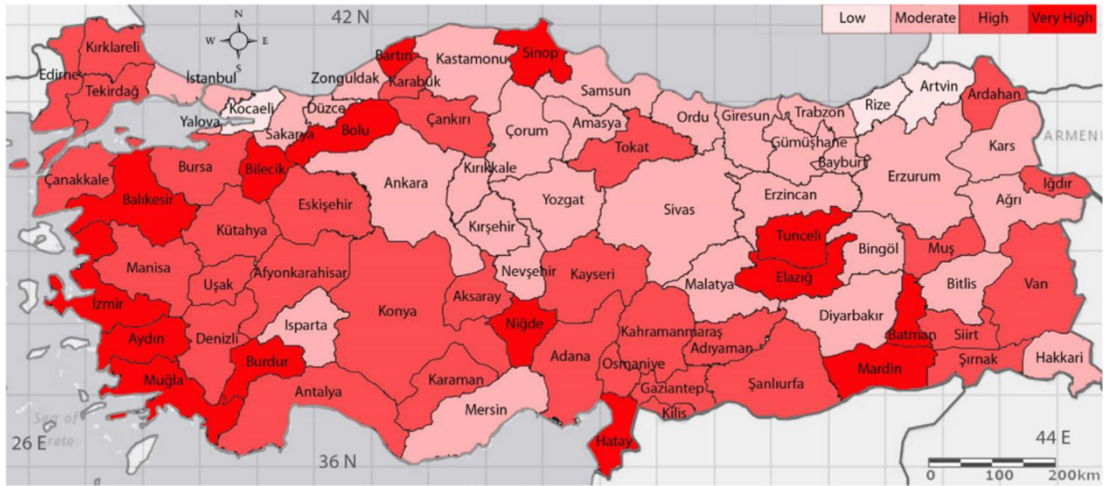


Figure 3: Drought Hazard Map of Turkey by DHI

Izmir according to the drought hazard map created by the Drought Hazard Index⁴⁰ data has a high percentage of risk and vulnerability to drought. Izmir, Adana, and İstanbul again were identified as high vulnerability provinces because of the dense population in the region. With the expected drought, there will be a big loss in the agricultural land of Izmir and with its economy. Izmir is the 3rd city in Turkey that produces the highest amount of vegetables and the 4th city that produces the highest amount of fruit.⁴¹ Lastly, Izmir is the leader when it comes to olive production. It covers 13% of the entire production of olive

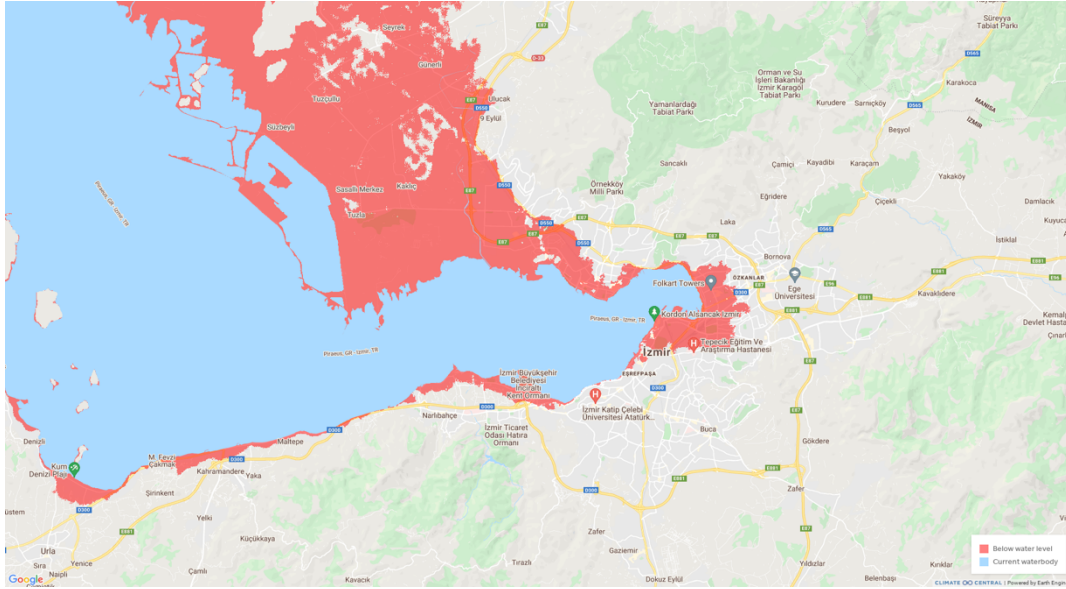
³⁸ Hıfzı Aksoy et al, *Exploring possible impacts of sea-level rise: the case of Izmir, Turkey*, 2017

³⁹ İsmail Dabanlı, *Drought, hazard, vulnerability, and risk assessment in Turkey*, 2018

⁴⁰ Dabanlı, 2018

⁴¹ Izmir Ticaret Odası, *Agriculture*, 2021 DHI

in the Aegean region.⁴² With the climate change vulnerabilities, it is a clear fact that Izmir will lose its agricultural power over the country. The second and the most present climate vulnerability that Izmir is facing today is the sea level rise. Izmir has a very rich biodiversity, in terms of forest, underwater, natural areas, and archeological sites. Furthermore, over 90% of all export goods and 20% of Turkey's total exports are shipped via the Izmir Port.⁴³ When we consider tourism in 2019, Izmir hosted near 2 million tourists in its province. With the possible sea-level rise and climate change vulnerabilities, it was foreseen that these numbers will decrease sharply if there will be no adaptation to the future vulnerabilities. In research conducted by Aksoy et al. if there will be no protection or adaptation measures for the possible risk, 18.04% of Izmir Bay will be inundated if the water rises 1 meter.⁴⁴ According to Climate Central scenarios if the water



risers 5 meters

in the next 30 years, most of the land of Izmir will be underwater because of the sea level rise in the region.

Overall, Izmir as a region must create climate change adaptation and implementation plans to overcome the possible climate vulnerabilities in the future. There are some effective action plans and research by the municipality on the topic which will be mentioned in the next chapter.

⁴² Zeytin Dostu Derneği, Türkiye’de Zeytincilik, 2021

⁴³ Aksoy et al, 2017

⁴⁴ Aksoy et al, 2017

2.4. Actions & Plans of Izmir Metropolitan Municipality towards Climate Change

Over the years Izmir Municipality was not an active municipality until the 2000s when it comes to climate change. However, today, Izmir plays an important role in tackling climate change in Turkey. The actions of Izmir Municipality started in the early 2000s but became significant during 2013. In the following year, Izmir Development Agency (IZKA) published a regional plan for the city to underline important subjects.⁴⁵ There were three main chapters in the plan: Strong Economy, High Quality of Living, and Strong Society. Under these three chapters, sustainable supply of production and services, innovation, quality of the environment, sustainable environment, and green transportation were taken into consideration to help the environment. According to Climate Change 2018 report, the plan of 2013-2014 helped Izmir to win the “İstanbul Prize for Environmentally Friendly Cities” in 2017 which was under the “Mediterranean Strategy for Sustainable Development (MSSD) 2015-2016”. Izmir became a member of the MSSD framework to act aligned with the UN SDGs 2030. With the participation of

MSSD Objectives	SDGs		
1. Ensuring sustainable development in marine and coastal areas			
2. Promoting resource management, food production and food security through sustainable forms of rural development			
3. Planning and managing sustainable Mediterranean cities			
4. Addressing climate change as a priority			
5. Transition towards a green and blue economy			
6. Improving governance in support of sustainable development			

Figure 5 MSSD Objectives that are aligned with UN SDGs 2030

Izmir to the project, the city showed its dedication to the UN SDGs and started work on them to be successful.

⁴⁵ Izmir Development Agency (IZKA), *Izmir Regional Plan 2013-2014*, 2015

In the same report, 2014 was the base year for Izmir's data about GHG emissions and for the rest. In 2014, transportation in Izmir was responsible for almost 54% of GHG emissions in the city. After the city and the municipality realized how much transportation emits GHG, in 2015 the municipality started taking ambitious actions to change that fact. Most of the funds for Izmir Municipality were gathered by the EU or funded by the European Bank of Reconstruction and Development (EBRD).⁴⁶ In 2018, under EBRD's "Green Cities" program, the Izmir Metropolitan Municipality has funded almost 80 million Euros for a new metro line to decrease the GHG emissions and invite people to use public transportation. Meanwhile, the studies were started on the Green City Action Plan of the Izmir Municipality which was also supported by the EBRD for a more sustainable and climate-friendly city in the Mediterranean. After the support of the EU, Izmir Municipality started an initiative called BISIM which was a Rent-a-Bicycle system in the city. The bicycle road today is almost 90 km, and with the length of the road, Izmir was able to participate in the European Cycling Challenge back in 2016. Another topic that the Izmir Municipality is focusing on is the energy policies. The transition of energy policies in Izmir started way back in the 1990s. Since the 1990s, Izmir was working on renewable energy policies and trying to implement their policies towards different sectors in the industry.⁴⁷ A policy that was embraced by the Turkish Government in 2016 was a big step for the transition to renewable energy in Turkey.⁴⁸ This initiative enabled Izmir to promote its renewable energy infrastructure and Izmir aimed to increase its geothermal and wind power plants in the region. In 2017, the overall wind energy production of Izmir was equal to one out of six of the national wind energy production. After the progress of the Izmir Municipality on the energy policies, Izmir became one of the regions that have

⁴⁶ Climate Change.org, *2018 Annual Report: Turkey-Izmir*, 2018

⁴⁷ Climate Change.org, 2018

⁴⁸ Zeynel Tunç et al, *Electricity regulation in Turkey: overview*, 2019

a huge potential for renewable energy production.

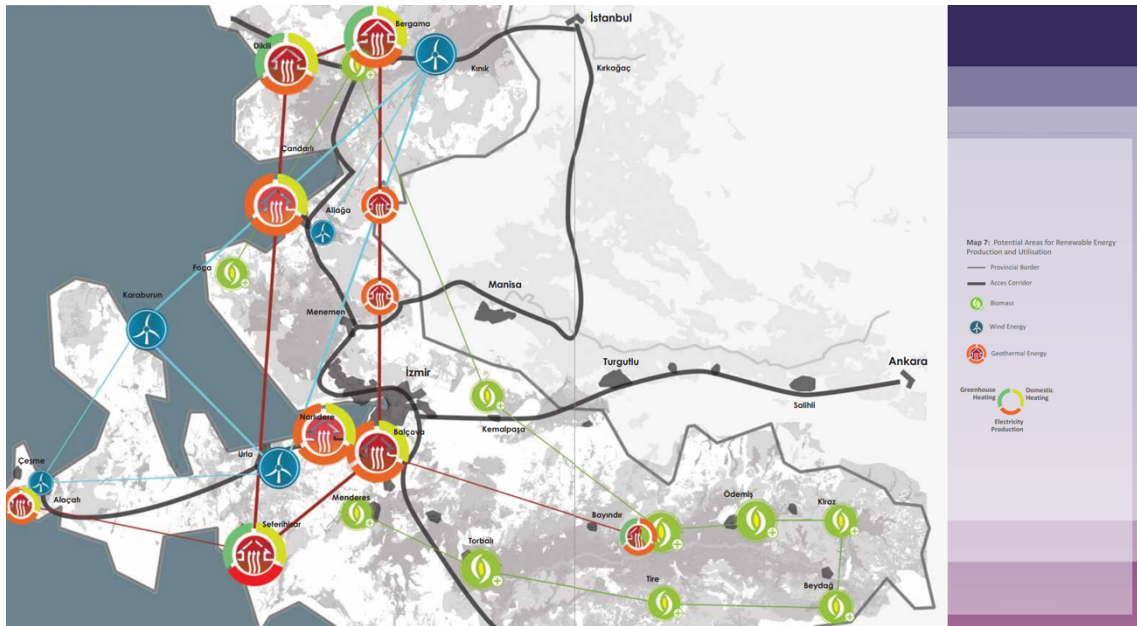


Figure 6: Potential areas for Renewable Energy Production in Izmir, 2013

Furthermore, again, in 2017 Izmir Municipality published a Sustainability Action Plan (SEAP) for Izmir, to write adaptation policies for the future. This action plan was the root for Izmir's Green City Action Plan which was published in 2020. The target for the Izmir Municipality to achieve in this action plan was to reduce GHG emissions by 20% until 2020. To achieve those goals and create awareness in the region, the Izmir Municipality completed several projects. The first project is the "Green Re-vision: A Framework for Resilient Cities" in 2019. The main aim of this project is to create a resilient urban area for the future climate vulnerabilities of the region. Green infrastructure was the main focus of this project and Izmir Municipality was responsible for data gathering, field observations, and awareness-raising activities. Another project for which Izmir Municipality was an applicant for the "Establishment of Photovoltaic Power System in Ekrem Akurgal Life Park Sports Hall and Parking Area". This project was about the transition to more climate-neutral energy production in the region and outsource the dependency on fossil fuel. There are also several EU-supported projects like "Action Network on Sustainable Urban Mobility" and "Mediterranean Network for the Promotion of Sustainable Development Strategies and three new Urban Development Strategies" which were supported by the European Neighborhood and Partnership Instrument (ENPI). Moreover, there are some projects which are still ongoing and under Horizon 2020 that Izmir Municipality is a partner. ENCHANT (Energy Efficiency

Through Behavior Change Transition Strategies) is one of the most recent ones to enhance the awareness of policymakers, NGOs, municipalities, and energy providers for the possible scenarios in the future.

The most present action and publication that the Izmir Municipality has done is the Green City Action Plan. This action plan is structured accordingly to the 2020-2024 targets of Izmir Municipality. When it comes to energy supplies and energy production, Izmir Municipality has installed solar panels of Bergama Slaughterhouse, Aliğa Fire Station, Uzundere Multi-Purpose Hall, and some family centers which will reduce 140 tonnes of CO₂ emission per year and generate 280,000 kW/hour of electricity for the region.⁴⁹ The Izmir Municipality also embraced low-zero carbon technologies to reduce the GHG emissions in the region and it was proven by scientific data that the impacts were high. The progress of Izmir Municipality can also be seen in the transportation transition. With the project of ESHOT (Electric, Coal Gas, Buses, Trolley Buses), the number of electric and hybrid vehicles increased 90% between 2015 and 2018.⁵⁰ Today there are 46 electric vehicle charging stations in Izmir and the participation of the public transport bus company, ESHOT, Izmir continues to increase the number of electric buses every year.

With Izmir Metropolitan Municipality's sustainability, energy transition, waste management, and new transportation systems, Izmir are one of the leaders when it comes to climate change policies. Even though the mayor of Izmir and the government are from different political ideologies Izmir Municipality is developing governance when it comes to climate change policies. As it can be seen from the examples, most of the projects that Izmir is a member of are usually supported by the international actors and NGOs since there are no specific funds for the Izmir climate change actions. Today, Turkey has a National Climate Change Action Plan published in 2012 by the Ministry of Environment and Urbanization⁵¹ but there are no specific examinations for cities.

⁴⁹ AECOM, *Izmir Green City Action Plan*, 2020

⁵⁰ ESHOT General Directorate, 2021

⁵¹ Republic of Turkey, *Climate Change Action Plan 2011-2023*, 2012

2.5. Outcome

In this chapter, the case study of Izmir was examined in multiple subjects. Izmir and the Izmir Metropolitan Municipality were taken under consideration with its history, political structure, legislative structure, its climate vulnerabilities, and their actions towards climate change. With Izmir's unstable history and political conflicts with the ruling government, Izmir Municipality was able to develop its climate change policies and projects despite the government's stance. Today, which was underlined before, Turkey is not a signatory party of the Paris Agreement, and it does not have an obligation to tackle climate change in the international arena. But, as an applicant of a "green city", Izmir, started working on their mitigation measurement, possible future risks and create a network with multiple stakeholders in the province to tackle climate change in a holistic approach. Tunç Soyer, the current mayor of Izmir Municipality, has also started new initiatives on sustainable agriculture⁵² during his office and he aims to increase the number of projects for a climate-neutral Izmir.

⁵² Izmir Metropolitan Municipality, *Tunç Soyer and Climate Change*, 2021

Chapter 3: Comparison of the Findings & Analysis

In the last chapter of the research, Berlin and Izmir will be compared to one another and achieve the outcome that regional governance, in any circumstances, is more effective when it comes to the implementation of climate change-related policies. Over the years we can see that Berlin is one of the oldest municipalities which put an effort to tackle climate change in its regions. Despite the Christian Democrats, Social Democrats, and Green Parties' conflicts and differences, the Berlin Municipality was able to create an adaptation plan for its citizens. However, Izmir had different circumstances than Berlin. Excluding the wavey history of both cities, Izmir has almost 4 and a half million of a population where Berlin has 3 and a half million, manages to get into the successful cities for fighting climate challenge in the world. Another difference is that Berlin has an adaptation plan which puts them in a more developed position since adaptation plans are based on continuous data gathering and analyzing, where Izmir only has an action plan. Berlin Municipality is under a federal state, which gives them more competencies where Izmir is under a unitary state with more limitations. Izmir is geographically placed near a sea with drought and sea-level rise vulnerabilities where Berlin is with hot weather waves and different vulnerabilities. Izmir and overall Turkey have no obligation to follow climate change policies or initiatives in the international arena where Berlin and overall Germany are obligated to follow the Paris Agreement and the EU Green Deal policies. Moreover, even though Izmir does not have an advanced data collecting and analyzing system like Berlin, with the support and the awards that they receive we can understand they are successful in this area.

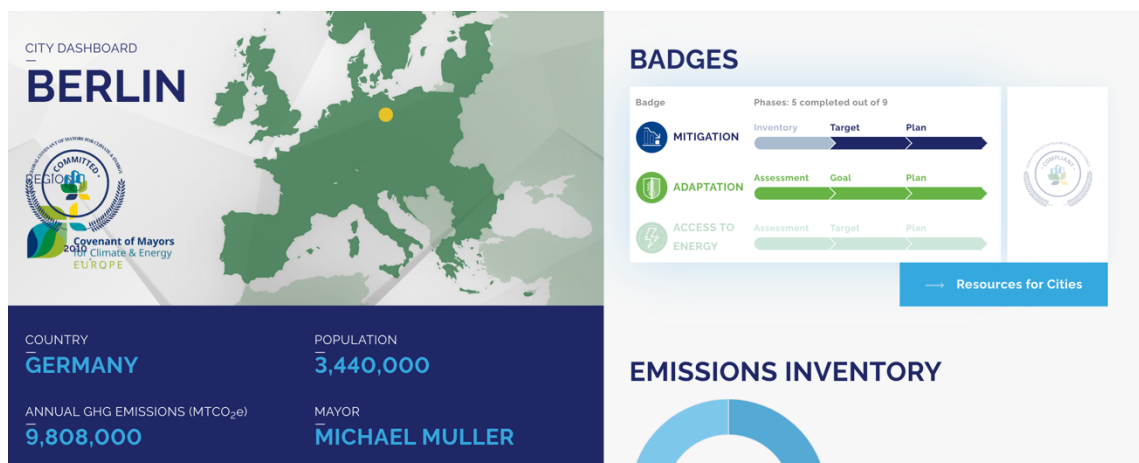


Figure 7 Berlin Dashboard by the Covenant of Mayors for Climate & Energy

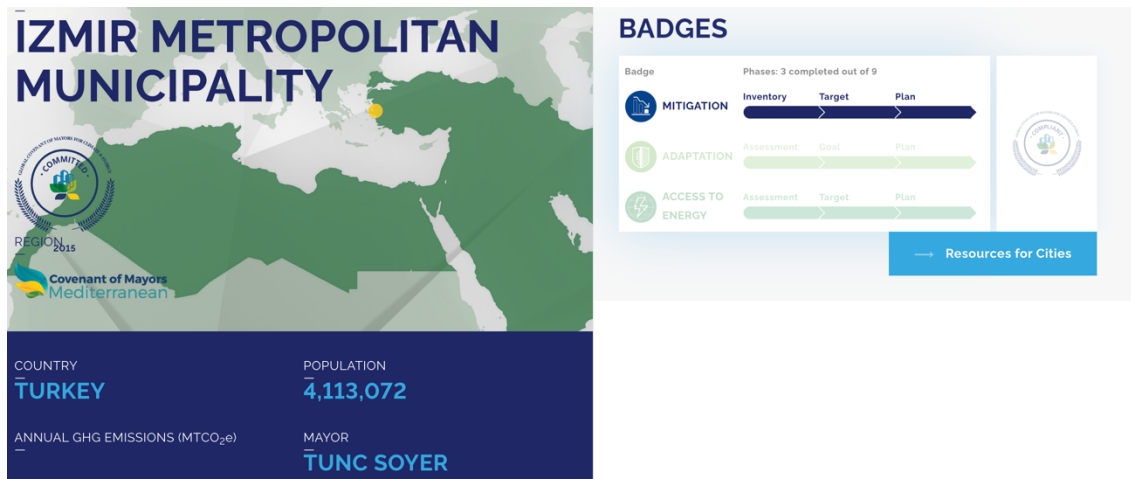


Figure 8 Izmir Dashboard by the Covenant of Mayors for Climate & Energy

With the obstacles and the amount of data from both sides, over the years we can see a decline in the GHG emissions and an increase in the climate change-related actions from both cities. With their new energy plans, new transportation systems, and ongoing projects there are visible outcomes in favor of fighting climate change. Both of the cities have targets to reduce their GHG emissions by at least 40% in the next years. According to international data, and organizations, since Izmir has no adaptation plan, no continuous data and an effective national climate change policy, their progress cannot be examined in a true way. But after looking at the efforts, projects, and regional policies it can be said that Izmir is also one of the cities which successful. On the other hand, Berlin is identified as one of the most developed cities in the world when it comes to climate change policies.

When we look at the rest of the world, scholars like Agris Kamenders, Miranda A. Schreurs and Harriet Bulkeley and more, cites are also important actors when it comes to climate change. “Cities are responsible for over two-thirds of global energy use and more than 70% of global CO₂ emissions (International Energy Agency, 2008). Furthermore, they are potentially vulnerable to events such as higher temperatures, increased sea levels, floods, and heatwaves.” (Gedikli, 2017) For many researchers, cities and regional governments have a high impact on implementing climate change policies. With the help of the Paris Agreement, many more cities and regional governance will contribute to a global crisis which is climate change⁵³. Today, many municipalities and

⁵³ Bahar Gedikli & Osman Balaban, *An evaluation of regional policies and actions that address climate change in Turkish metropolitan cities*, 2018

regional governments are preparing climate action plans and aiming to reduce their GHG emission since 70% of the GHG emissions are caused by cities. The history behind the municipality's actions towards climate change started at the beginning of the 21st century and still developing. There are multiple barriers for the regional governments to tackle on the way and many developing countries' municipalities are trying to pass the obstacles. With the political, financial, and societal obstacles, municipalities are working to increase their effectiveness in the issue. As Bulkeley mentions, "...nation-states will be unable to meet their international commitments for addressing climate change without regional action." (Bulkeley & Betsill, 2003) She continues what Gedikli underlined in the previous paragraph. Regional actions are one of the most effective ways to reduce GHG emissions.⁵⁴ It is fact that most of the world's population lives in the cities, and in addition to the GHG emissions, most of the waste is created in the cities. With regional authorities' experiences on GHG emissions, waste management, urban planning, and transportation, it is possible for the regional governments to find a solution easier.⁵⁵

Regional governments, municipalities can encourage their citizens for energy efficiency, reduction in the use of cars, and solid-waste management programs for the regionals with the support of external actors. The success of the two case studies is not the only example when it comes to effective climate change-related policies in a regional sense. The Newcastle City Council in the UK is one of the examples that we can find. In the last decades, Newcastle played an effective role while planning for climate protection policies in the UK. ⁵⁶ "Despite changes to government guidance and the recognition, both within the Energy and the Urban Environment study and UDP [Urban Development Plan], of the critical role of land-use planning in reducing emissions of greenhouse gases from urban areas, there is little evidence to suggest that the implementation of measures to address the energy consumption of new developments has been widespread in Newcastle" (Bulkeley & Betsill, 2003) In Western Cape, which is a region in South Africa, had also regional government councilors who achieved to change the mindset of the municipality administrations to create a transition to a green and sustainable city.

⁵⁴ Harriet Bulkeley and Michele M. Betsill, *Cities and Climate Change: Urban sustainability and global environmental governance*, 2003

⁵⁵ Bulkeley & Betsill, 2003

⁵⁶ Bulkeley & Betsill, 2003

“These councilors, the deputy mayor, represented a sea change in the culture of the municipality, and their persistence, dedication, and effort led directly to initiatives geared toward sustainable development, in particular around climate change mitigation and adaptation.” (Pasquini & Shearing, 2014). In the USA, California has been a leading regional government to take action on climate change. Back in 1947, Los Angeles County was the first province in the USA to establish an Air Pollution Control District.⁵⁷ In Asia, Tokyo Metropolitan Government was the regional government that pushed the national government to establish pollution control policies.⁵⁸ In another article published in the Journal of Transdisciplinary Environmental Studies, Denmark was taken into consideration when it comes to climate-change policies and regional governments. A Danish Magazine, Mandag Morgen created a series of articles that claim municipalities created a revolution in climate change.⁵⁹ “The main thrust of the articles was that CO₂-reductions and energy savings have become an ‘a municipal mass movement’ and that Danish municipalities were now a leading a ‘green national revolution’.” (Hoff & Strobel, 2013) It was a known fact that the Danish municipalities have worked on different subjects like CO₂ reduction, citizen awareness... and the percentage of their success was undeniable.

Instruments	Municipalities %
Citizen meetings or workshops	58
Collaboration with organizations or associations	56
Events	47
Stakeholder consultations	46
Educational programs for schools	29
Energy audits, etc, targeting businesses	19

Figure 9: Instruments used by municipalities to engage citizens., Hoff & Strobel, 2013

⁵⁷ Miranda A. Schreurs, *From the Bottom Up: Regional and Subnational Climate Change Politics*, 2008

⁵⁸ Schreus, 2008

⁵⁹ Jens Villiam Hoff& Bjarne W. Strobel, *A Municipal ‘Climate Revolution’? The Shaping of Municipal Climate Change Policies*, 2013

	Municipalities with plan including this area %		Plan has specific reduction goals %	
Municipality as geographical unit	77%	(40)*	77%	(40)
Municipality's own activities	83%	(43)	56%	(29)
Specific municipal sectors	23%	(12)	----	**
Citizens	35%	(18)	21%	(11)

*Figures in parenthesis are absolute numbers.

** Missing data.

Figure 10: Coverage of municipal climate change action plans and related CO₂-reduction goals. Percentage of municipalities that have a plan. Hoff & Strobel, 2013

Norway is also another example that we can see on the issue. One of the studies done by Halvor Dannevig, Grete K. Hovelsrud, and Idun A. Husabø, examined the municipalities in Norway and their effectiveness in climate change-related policies. The Norway example is an interesting example because the municipalities started to implement adaptation policies even though there were no clear guidelines from the national government.⁶⁰ Since Norway was defined as a country with minimum vulnerabilities to climate change there were no regulations that were requiring municipalities to plan for adaptation. However, municipalities like Unjarga, Høylandet, Bergen, and Fredrikstad created adaptation plans on top of their mitigation plans.⁶¹

Municipal impact when it comes to implementation of climate policies is now becoming a known fact for academia and the networks of the municipalities among each other are developing every day. We can see regional/regional governments' impact on climate policies in America, Asia, Africa, and Europe. Today there are many international organizations like C40, the Covenant of Mayors, and Cities for Climate Protection to gather municipalities together to find solutions for effective implementation ways to tackle climate change.

⁶⁰ Dannevig et al, *Driving the agenda for climate change adaptation in Norwegian municipalities*, 2013

⁶¹ Dannevig et al, 2013

Conclusion

This research was written to justify the effectiveness of regional and regional governance, especially municipalities, on climate change-related policies. With the case studies, it was shown that even though there are differences between cities about their national government structures, competencies, historical positions or their legislations, cities, and municipalities were more effective on climate policies and their implementation. Even though municipalities do not have strong power to create national legislation to fight climate change, their experience and their knowledge about the region put them in a more advantageous place to achieve success. National policies are defined and created for every city and region but not every city has the same condition or capacity. Every city has different types of vulnerabilities, different amounts of people, and different municipal structures. National policies cannot cover the needs and conditions of every city. However, municipalities can do that. Municipalities can identify the risks and aim for more feasible targets for their citizens. They can manage and establish new projects to fight climate change in a more regional sense and if every municipality starts to work on their own climate policies for their own region, there will be a “municipal mass movement” all around the world.

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