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The Waste Landfill Policy in Israel: Economic and Political Perspectives

Erez Cohen

The Department of Middle Eastern Studies and Political Science, Ariel University, Ariel 40700, Israel; erez@ariel.ac.il

Abstract: The consistent and continuous growth in the world's population is creating many challenges for public policymakers in the different life areas, including dealing with the increasing amounts of waste that are generating problems involving air and land pollution and a shortage of land for waste disposal. This study presents the effects of public policy on managing municipal waste, measured as the quantity and rate of waste collected throughout Israel in recent years and disposed of in various landfills. An analysis of the political and economic factors affecting this policy is also conducted. The study combines a quantitative and qualitative approach, where the quantitative study includes the analysis of statistical data based on information from the Central Bureau of Statistics, the Ministry of Environmental Protection, the Ministry of Finance, and others, and the qualitative study relies on reading and analyzing the primary documents of different government ministries on Israel's waste disposal policy and information in the media on this issue. The research findings attest to an increase in the amount of municipal waste dumped in Israel, a merely slight decrease in the rate of landfilling as a proportion of all municipal waste disposal, and a merely slight increase in the rate of municipal waste recycled in recent years. The research conclusions stress the effects of the landfill levy and the Cleanliness Maintenance Fund on one hand and of government instability in the Ministry of Environmental Protection, the positivist policy embraced by decision makers in the Ministry of Environmental Protection, and the power struggles between Israel's different ministries on the other hand, as the respective economic and political factors affecting Israeli policy on municipal waste management. The article contributes to understanding the dynamics of municipal waste management policy in Israel by providing empirical data, analyzing influencing factors, and offering insights into the challenges and opportunities in this area. This study can serve as the basis for future studies that will examine the waste landfill policy in Israel in the context of pressing global challenges such as climate change, the advancement of novel waste treatment technologies, and the potential stabilization of Israel's political system.

Keywords: waste disposal; waste landfill; municipal waste; environmental quality; public policy; recycling

Citation: Cohen, E. The Waste Landfill Policy in Israel: Economic and Political Perspectives. *Sustainability* **2024**, *16*, 2791. https://doi.org/10.3390/su16072791

Academic Editors: Barry D. Solomon and Andreas Angelakis

Received: 1 March 2024
Revised: 20 March 2024
Accepted: 25 March 2024
Published: 27 March 2024

1. Introduction

The consistent and continuous growth in the world's population is creating many challenges for public policymakers in different areas of life, such as housing [1,2], transportation [3], education and higher education [4,5], health [6,7], and others. This reality requires decision makers in different countries to seek out and find technological and regulatory solutions for dealing with its various consequences [8,9]. Israel, too, is coping with the ramifications of its population growth, which is more predominant than in other developed countries [10,11]. The growth in Israel's population stems from a combination of three main elements:

First, the high migration rate of Jews from other countries to Israel, usually for ideological and Zionist reasons [12]. Second, the increase in life expectancy resulting (among other things) from the development of and improvement in healthcare services [13]. Third, the

relatively high marriage, childbirth, and fertility rates for religious, cultural, and traditional reasons [14–17].

These circumstances are challenging Israel's decision makers, who must find solutions for the increasing traffic congestion [18,19], gradually growing shortage of nursing care workers for the elderly population [20], need to create employment sources for new immigrants [21], increasing crowding in hospitals and worsening lack of medical staff [22,23], insufficient supply of residential real estate and the rapid rise in their prices [24,25], and need for solutions to the growing quantities of waste that are creating problems related to air and land pollution and a shortage of landfill sites [26,27].

Waste management is a fairly demanding enterprise in all countries, with significant implications for human health, environmental conservation [28], and issues of sustainability and circular economics (recycling). Though the sanitary landfill method for the final removal of waste has remained the most customary and prevalent method around the world (due to its relatively low cost), landfilling uses a large amount of land and creates pollution, odor nuisances, and greenhouse gases that contribute to the climate crisis [29–31]. As a result, many countries in the developed world are seeking to utilize more advanced solutions for waste removal, such as chemical recycling [32], biogas [33], waste incineration, mechanical–biological waste pre-treatment, and composting [34].

1.1. Public Policy around the World on Utilizing Landfills

The issue of utilizing landfills, with their various benefits, has been on the agenda for many decades [35,36]; with the development of modern systems of waste management, a considerable rise has been observed in the distance that waste is transported for landfilling [37]. Therefore, the issues of generating waste and of its disposal have become the most conspicuous and challenging topics [38] among policymakers in many countries, including European Union countries [39,40], China [41], India [42], the United States [43,44], South Africa [45], and others [46].

Nevertheless, in the last three decades, there is a growing awareness of topics related to environmental issues, including threats to the environment as a result of the growing quantity of waste. The landfill method has many disadvantages, as in "waste burial" sites, the waste remains as is. Thus, there is a danger of ground and water pollution in the vicinity of these sites. Therefore, throughout the Western world, there is a growing trend of transitioning from the landfill method to a policy of waste incineration [47] or chemical recycling [48,49]. Accordingly, in the European Union, for example, the current policy is to avoid burying waste that has not been pre-treated. Furthermore, according to European Union policy, the proportion of buried waste shall not exceed 24% of the total waste in each country.

One customary means for reducing the use of the landfill method is raising levies on the use of landfills [50], with the aim of bringing its cost to a level equaling that of waste recycling, thus encouraging the actors in charge of treating waste to give preference to recycling waste over using landfills. Another advantage of the developing sorting and recycling industry is creating employment opportunities. Hence, a policy of imposing taxes on use of landfills began to emerge around the world (in the late 1980s and during the 1990s), where several countries began to apply a policy that imposes fines for using landfills, with the aim of reducing their use. For instance, in Austria (in 1989), France (in 1992), and Britain (in 1996), laws were introduced imposing a tax on the use of landfills. The main purpose of this legislation is, as stated, to reduce the rate of landfilling and encourage waste recycling or its utilization to produce energy. At the same time, although a report published in 2006 claimed that the tax policy applied in these countries did not lead to any considerable decline in the extent of landfilling, this policy did help to halt the rise in the quantity of buried waste and the relative rate of buried waste within all waste treated.

1.2. Israel's Landfilling Policy

As mentioned, landfilling is the waste treatment method with the lowest priority, due to its various environmental and economic shortcomings [51] and its relatively high environmental cost relative to recycling [52]. Nonetheless, most waste in Israel is still disposed of in landfills [53], unlike the policy applied at present in Western countries which encourages, as stated, a transition to recycling. Israel's waste management policy has, however, progressed a long way since landfills were considered the only solution for waste treatment.

In 1984, the Maintenance of Cleanliness Law was enacted. This law imposes fines for disposing of waste in the public domain and determined that regulated landfills would be opened (until then, waste was disposed of with no supervision). In 1986, the Cleanliness Maintenance Fund was established, and fines were imposed to boost waste treatment. In 1989, a national outline plan was approved, determining the planning procedure necessary to open waste disposal sites, setting high standards for establishing waste treatment infrastructure, and helping close sites that did not meet these standards. In 1993, the Israeli government decided to close all non-regulated landfills in Israel [54] and enacted several amendments to the national outline plan that included setting the location of central landfills and granting financial aid to local authorities for transporting waste to these sites. From 2001 to 2006, five regional masterplans for treating solid waste were embraced, determining landfilling rules and rules for rehabilitating existing landfills [55].

In 2006, a masterplan was approved in Israel for treating solid waste. The plan determined policy for integrated waste treatment (as in other OECD countries) and defined new aims for landfilling and recycling in Israel. In 2007, a landfill levy came into effect. The levy was intended to reflect the real price of landfilling and to allow fair competition for advanced treatment methods such as chemical recycling and producing energy from waste [56]. With the aim of significantly reducing the amount of waste disposed of in landfills, in 2009, the Ministry of Environmental Protection led a recycling revolution that included a plan for separating waste at the source, funding and establishing recycling facilities, and educating the population to use designated waste containers for recycling household waste. In 2012, regional outline plans were publicized for end facilities to process mixed waste. These plans served as a planning tool for the local authorities and for private companies that sought to establish high-grade landfill sites. In 2018, the Strategic Plan for the Treatment of Waste by 2030 was approved. The plan is expected to make the waste market more efficient, reduce landfilling, increase the rate of recycling, and reduce pollution and environmental risks. And, in 2020, the Ministry for Environmental Protection publicized a national strategy paper on sustainable waste.

At present (2023), fourteen regulated landfill sites are operating in Israel, some of which are limited in the volume of daily waste that they can absorb and in the quantity of daily waste. The division is between small sites (up to about 500 tons a day), medium-sized sites (500–1500 tons a day), and large sites (more than 1500 tons a day). In addition, nine of the fourteen regulated landfill sites are also aimed at treating and rehabilitating waste. Most of the landfills are in peripheral areas of the country, namely, in northern or southern Israel.

While previous studies examined Israel's public policy for treating waste and its different challenges [57] or the current and anticipated costs [58], the current study seeks to present the actual results of the municipal waste treatment policy (for household and commercial waste), as manifested in the quantity and rate of waste collected by local authorities in Israel and disposed of in the various landfills in recent years, and to analyze the political and economic factors affecting this policy. These factors create incentives for the continued implementation of the landfill policy, as well as barriers to relinquishing the landfill policy and embracing a waste recycling policy.

2. Methodology

This study will combine two approaches: the quantitative and the qualitative. This combination will allow for the broad observation of the landfilling policy in Israel and

will reduce possible bias when using only one of these research methods. Underlying the idea of combining methods is the desire to benefit from the advantages of each of the methods [59]. This will allow not only learning about the extent of landfilling in Israel but also understanding the different factors influencing the public policy implemented in this area.

The quantitative part of the study will include analyzing statistical data extracted from the data of the Central Bureau of Statistics the Ministry of Environmental Protection (https://www.gov.il/he/departments/guides/landfilling_in_israel) (accessed on 15 December 2023), and the OECD (https://stats.oecd.org/Index.aspx?DataSetCode=SHA#) (accessed on 15 December 2023). These data will help show the extent of landfilling in Israel and the trends of increase or decrease in this regard. On the other hand, they will allow for the analysis of the economic benefits deriving from this reality for different stakeholders in the central government, local authorities, and business environment.

The qualitative part of this study will be based on reading and analyzing primary documents of various government ministries related to the landfill policy in Israel, such as the State Comptroller's report [60] and the Knesset's Research and Information Center. In addition, this part will outline information in the media on this issue)mostly articles from financial newspapers and websites such as "Calcalist").

This article has the aim of reaching a thorough understanding of the economic and political factors that affect the shaping of related public policy and the resultant incentives and barriers to retaining the existing policy or replacing it with another, respectively. These insights will serve as a source of recommendations for focused and effective public policy on the issue of waste treatment, which might lead to a real reduction in the extent of landfilling, on one hand, and to a rise in the extent of waste recycling, on the other hand.

3. Findings

3.1. The Increase in the Amount of Landfill-Disposed Waste in Israel

One of the essential services that all municipalities must provide their residents is waste disposal from public areas and the disposal of household waste, yard waste, and bulky waste from the area under its jurisdiction. Municipal employees or external contractors use designated trucks to remove the waste from garbage containers to a transit point. At the transit point, the waste is sorted, and its volume is reduced. From there, it is taken to landfills or to recycling facilities. One of the consequences of the consistent growth in Israel's population (mentioned above) is the increase in (household and commercial) waste produced throughout Israel annually, as evident from Figure 1 below.

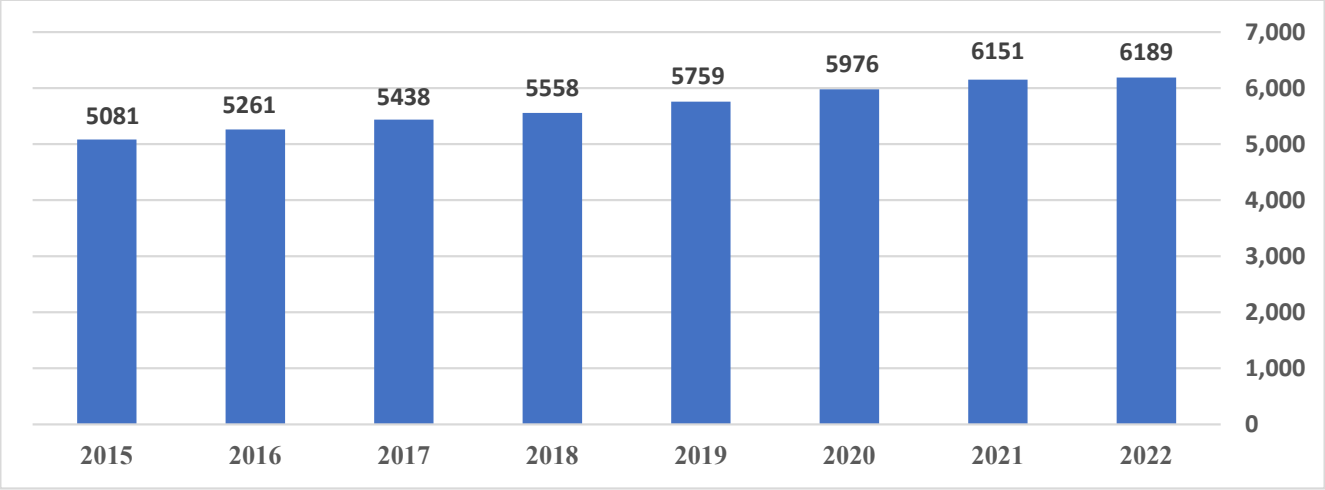

Figure 1. Total waste (household and commercial) collected in Israel in the years 2015–2022 (thousands of tons) Source: Central Bureau of Statistics: Household and Commercial Waste Collected and Transferred to Recycling and Recovery.

Following the increase in the amount of waste produced in Israel, an increase is also evident in the amount of waste sent to the various landfill sites, which rose from a total of more than 4100 tons in 2015 to 4700 tons (approximately) in 2021 and 2022. Moreover, the research findings presented in Figure 2 below indicate a merely moderate drop in the rate of municipal landfilling as a proportion of all waste produced, constituting 75.7% of Israel's total waste in 2021, which was nearly double the average annual rate of landfilling in OECD countries, which was only 42% (Source: https://stats.oecd.org/Index.aspx?DataSetCode=SHA#) (accessed on 15 December 2023). No significant change was evident in this rate from 2018 to 2022, meaning that the amount of waste buried in Israel in these years gradually increased.

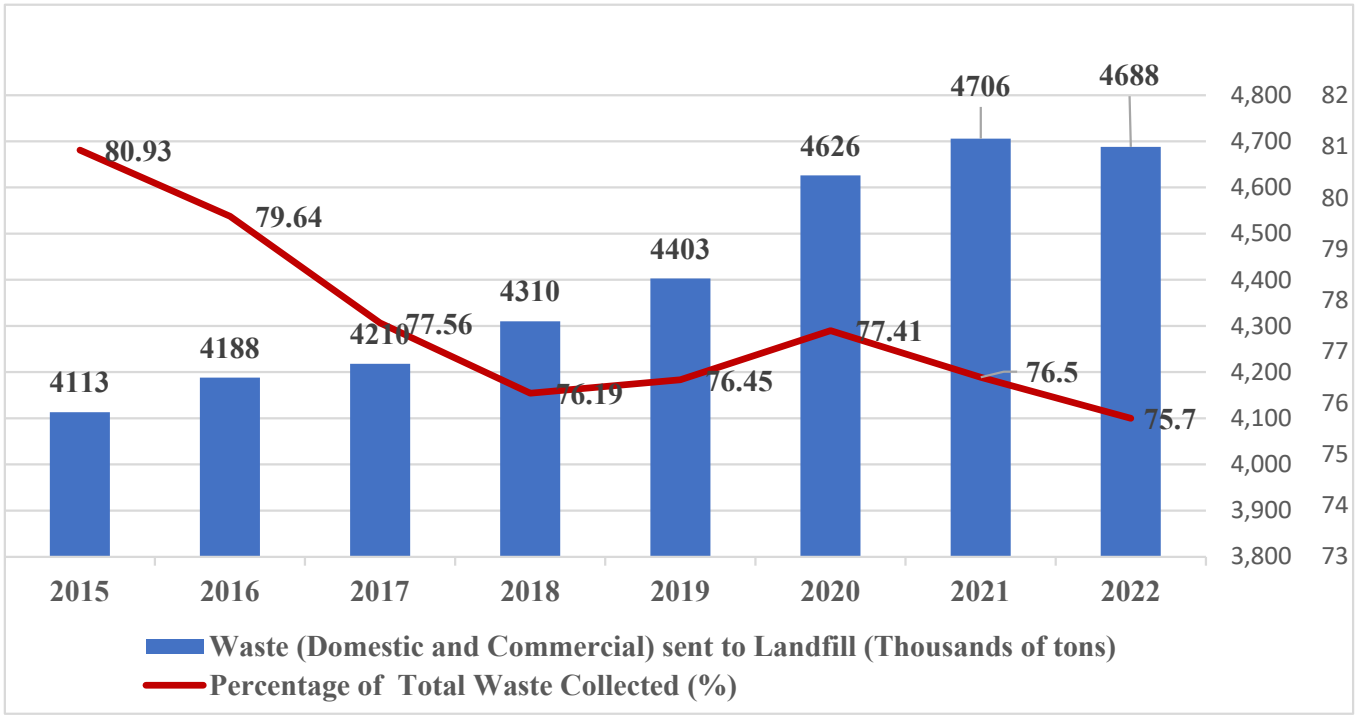

Figure 2. Waste (domestic and commercial) sent to landfills in Israel in the years 2015–2022 (thousands of tons). Source: Central Bureau of Statistics: Household and Commercial Waste Collected and Transferred to Recycling and Recovery.

Considering this state of affairs, Israel is seeking emergency solutions for expanding its landfill sites, which is generating many economic and environmental problems involving allocating land for landfills, the costs of transportation and of air pollution, the pollution of land and water sources, and the emission of greenhouse gasses, which are considerably distancing Israel from its climate goals as determined in its commitments to the UN (as part of its commitments to the UN, Israel made a commitment to reduce its emissions of greenhouse gasses by 27% in 2030 and by 85% in 2050).

3.2. Economic Aspects of the Waste Disposal Policy

Landfilling, as well as recycling, are, by nature, distinct public acts. They are essential for the proper and healthy existence of a civilized society, and they are actions that should be executed irrespective of their economic benefits. Therefore, municipalities are expected to find land that can be used for landfills, similar to other public services for which they are responsible. Since this activity depends at present on the economic viability of private landfill sites, however, this service is considered a market failure (a public product), which the municipality is required to provide to the public at its expense despite the high financial costs involved.

3.2.1. Waste Disposal Costs

The landfilling policy has, as stated, many costs. These include the landfill levy, transportation costs, and entrance fees to the different landfill sites, as follows.

Landfill Levy

The Maintenance of Cleanliness Law states that operators of waste disposal sites shall pay a landfill levy to a designated fund called the Cleanliness Maintenance Fund. The main purpose of the money accumulated in the fund is to pay for processes of developing, establishing, and increasing the efficiency of alternative means that can replace landfilling and are less environmentally harmful than landfills. The purpose of the levy is to reflect the true price of landfilling, including the costs of land, air pollution, groundwater pollution, etc. In this way, the economic viability of this method will be reduced versus environmentally preferable treatment methods, giving a competitive edge to advanced treatment methods such as recycling and waste-to-energy solutions. The levy is paid by the organization responsible for waste disposal and is not supposed to have any direct impact on the behavior of citizens and households. The landfill levy is paid into the Cleanliness Maintenance Fund, which is managed by the Ministry of Environmental Protection. The money is paid by the municipalities to the waste collection sites, and part of it is transferred to the fund by the operators of the waste disposal sites. The collection sites charge the landfill levy and a management fee in a single sum, such that the municipalities pay the landfill levy for 100% of the waste collected, while only the relative amount for the waste buried in practice is transferred to the Cleanliness Maintenance Fund.

The research findings indicate that Israel's landfill levy did not rise considerably from 2015 to 2022, but this tariff did increase gradually at a total rate of more than 1000% from 2007, when the policy of taxing landfilling commenced, to 2022, as shown in Figure 3 below. Nonetheless, the gradual increase in the landfill levy tariff over the years led to a merely moderate decline in the rate of municipal landfilling in Israel, which remained nearly double the average rate across OECD countries, as stated.

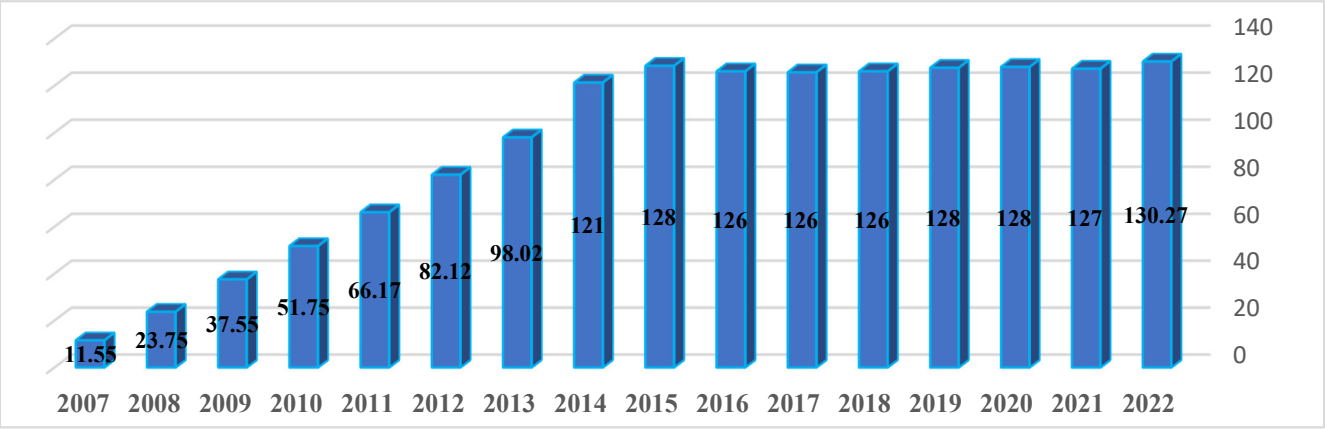

Figure 3. The price of the waste landfill levy imposed on sites for the disposal of mixed waste in the years 2007–2022 (in ILS). Source: Landfill levy price lists for the years 2007–2022, Ministry of Environmental Protection.

Landfill Entrance Fees and Waste Transportation Costs

Landfills in Israel are owned by municipalities, conurbations, and private companies. Some private companies also own subsidiaries that operate other parts of the waste management chain (such as transit points and waste disposal contractors for transporting the waste to areas outside the town). In addition to the landfill levy, landfill operators also charge an entrance fee for operating the sites, for the service, and for the treatment they provide. To reduce costs, municipalities prefer to transport the waste for disposal to the site nearest to them. Municipalities located in the vicinity of landfill sites send their garbage

trucks directly to the site, while those more distant from these sites transport the waste to transit points.

The State Comptroller's report from 2022, which addressed this issue [5], raised several problems with which municipalities must contend in the context of the various landfill sites. These problems include entrance fees that are not uniform for all clients, the refusal of landfill sites to accept waste due to the shortage of land for this purpose, and limitations related to activity hours at the sites. As a result of these limitations, municipalities are compelled to transport their waste to more distant landfills that charge, at times, high entrance fees. In these cases, the municipalities must also compensate their waste disposal contractors for the higher travel expenses and longer work hours required to provide the service to the municipality at the expense of completing additional rounds, which raises the waste disposal costs of the municipalities. This state of affairs is evidence that Israel's landfill industry is highly centralized, as manifested in the limited number of those engaged in this field and the low degree of competition between the different landfills [5]. Accordingly, the State Comptroller report for 2022 includes a proposal for measures against centralization in the industry and enhancing the supervision of landfilling prices.

Hence, it seems that although the landfilling alternative in Israel involves multiple costs for municipalities (high landfill levies and growing transportation costs) and has considerable faults (a centralized market and nonuniform and unsupervised entrance fees to landfill sites), this alternative is still considered cheaper than other waste management methods. Therefore, so long as dumping is relatively cheap and easily available, it will be hard to establish alternative and more advanced waste management facilities in this market.

3.2.2. The Financial Costs Deriving from the Landfilling Policy and the Cleanliness Maintenance Fund

As stated, the landfill levy collected produces money that is accumulated in the Cleanliness Maintenance Fund operated by the Ministry of Environmental Protection. Landfill levy funds are transferred to the landfill levy account at the Cleanliness Maintenance Fund. These funds are utilized first for purposes of development; at the end of each year, the balance (up to 35% of the landfill levy funds received that year) can be utilized for other purposes such as the following: developing, establishing, and increasing the efficiency of alternative means that can replace landfilling, which are less harmful to the environment than landfills, and encouraging their use; rehabilitating waste disposal sites; managing asbestos hazards; developing educational and informative activities aimed at proper environmental management in municipalities classified as belonging to low socioeconomic clusters (1 to 5); treating waste hazards; establishing infrastructure for waste management and regular assistance with waste management; and others. The revenues of the fund from the landfill levy (which is its main source of income) have increased over the years, as detailed in Figure 4 below.

The data in the figure presented above show that from 2008 to 2022, the revenues of the fund from the landfill levy rose by 670%; these data primarily reflect the rise in the landfill levy tariff, side by side with the moderate decline in waste burial rates. Moreover, the figure attests to revenues of more than ILS 500 million annually (from 2017 henceforth) that were transferred to the Cleanliness Maintenance Fund from landfill levy funds collected. As a result, over the years, the fund has amassed billions of ILS that were to be used, as stated, for developing, establishing, and advancing the efficiency of alternative means to replace landfilling.

The research findings (based on the State Comptroller's report for 2022) show that the large amounts accumulated in the account of the Cleanliness Maintenance Fund, of which one of the main goals is to act to reduce landfill rates in Israel and encourage the use of alternative methods of waste management, were utilized only partially (at a rate of only 40% of the fund's total revenues), despite the constant rise in the fund's revenues and the consistent increase in the excess funds amassed over the years.

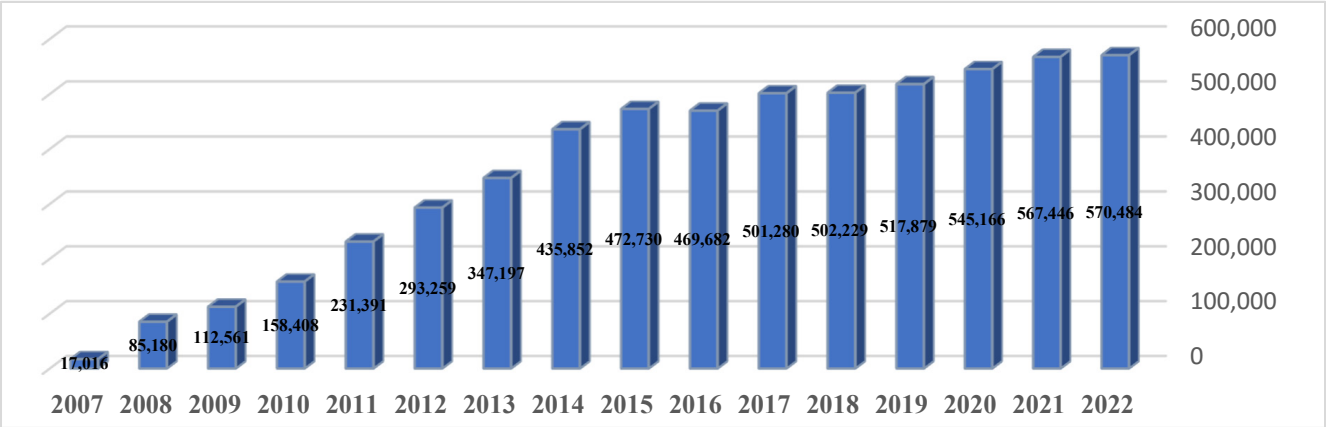

Figure 4. Revenues of the Cleanliness Maintenance Fund from landfill levies in the years 2007–2022 (in thousands of ILS). Source: Audited financial reports of the Cleanliness Fund for the years 2007–2022, Available online: https://www.gov.il/he/departments/publications/reports/maintenance_of_cleanliness_fund_annual_reports (accessed on 15 December 2023).

The large extent of landfilling in Israel and the partial utilization of the fund's money indicates multiple faults in the fund's functioning, manifested in its insufficient activity toward achieving its defined aims, the investment of the money in projects that are ineffective for attaining the goals and are not included in the ministry's strategic plan for municipal waste management (in 2021, a total of ILS 1.6 billion was utilized for goals not included in the strategic plan for management of municipal waste), the failure to remove barriers to executing projects budgeted by the fund, which prevent its effective utilization to realize its goals in this area, as well as the ineffectiveness of the landfill levy mechanism for reducing landfilling.

Moreover, the State Comptroller's report determined that aside from the limited utilization of the fund's money, it also does not monitor the effectiveness of its operations; rather, it seeks short-term solutions manifested in the expansion of existing landfills, which is contributing to a rise in Israel's landfilling rates, in complete contrast to the fund's original aim. Furthermore, the State Comptroller's report shows that money accumulated in the fund from the landfill levy is transferred to the state coffers. From 2016–2021, a total of ILS 1.66 billion from the fund's money were transferred to the State Budget, and in 2021, the management of the fund approved the transfer of another ILS 600 million in 2022. According to the proposed state budget for 2023 and 2024, since the money was not transferred in practice, the validity of this decision will be extended until the end of 2024.

These findings suggest that in practice, the fund serves as another budgetary source for funding government operations, which is inconsistent with its designation and with the Maintenance of Cleanliness Law [5].

In response to the State Comptroller's report, the fund's conduct was strongly criticized also by various environmental organizations and municipal leaders. A conspicuous example is the response of the environmental organization "Adam Teva V'Din", which claimed that the conduct of the Cleanliness Fund over the years, as evident from the State Comptroller's report, amounts to grave negligence. The organization called upon the Ministry of Environmental Protection to complete the process of changing the organizational structure of the fund's management and to present a plan ensuring that the fund's money is allocated in such a way that by 2030, the rate of landfilling in Israel will drop to 20% (as determined in the strategic plan of the Ministry of Environmental Protection). Moreover, there was a demand for the Cleanliness Fund to arrange for the prompt return of the billions of ILS that were loaned to the state treasury together with the appropriate returns, as is customary.

Another example of criticism leveled against the fund is the letter sent by the Federation of Local Authorities in Israel (an organization that encompasses all municipalities

in Israel) to Idit Silman, the Minister of Environmental Protection, in early 2023, claiming that raising the landfill levy is unjustified, as instead of utilizing these funds to build suitable waste management facilities that could indeed lead to a reduction in the amount of buried waste and as a result to a reduction in the levy, they are transferred to the Cleanliness Maintenance Fund and used for "various different purposes", including loans to the state coffers.

Therefore, it seems that the landfill levy imposed on the municipalities and the money accumulated in the Cleanliness Maintenance Fund constitute an economic incentive for the Ministry of Environmental Protection and the Ministry of Finance to retain the landfill policy instead of serving as an efficient budgetary source for promoting and developing alternatives for managing municipal and industrial waste in favor of reducing the rate of landfilling.

3.2.3. The Barriers to Transitioning from a Landfill Policy to an Alternative Policy

As stated, there are many alternatives to landfilling, such as reducing the amount of waste produced, reuse, recycling dry materials (paper, plastic, glass, etc.), producing organic waste, and even producing energy from garbage. All are environmentally preferable to the landfill alternative but also more expensive and require cooperation between multiple elements (developers, households, municipalities, recycling plants, and others). Developers are not eager to establish waste treatment facilities despite the generous grants offered for this purpose, as they are unsure that the municipalities will provide a regular supply of waste. Then again, municipalities are unwilling to make a commitment to send their waste to the prospective facilities, as landfills are still cheaper than the other methods of waste treatment. In addition, many mayors (mainly in central Israel) are doing everything they can to prevent the establishment of waste treatment facilities in their jurisdiction out of concern for residents' reactions (including submitting petitions to the courts and repeat objections to the planning institutions), and it is much easier for them to transport the waste to peripheral areas that have become the "national garbage dump".

Hence, as a result of the mutual dependencies between the various factors involved in the waste treatment chain, the high costs of transition, the political and economic interests of the mayors, and the high degree of uncertainty concerning the future success of innovative waste treatment facilities as a consequence of the volatile demand for recycled materials which makes it hard to make long-term plans [61], a critical barrier has been formed over many years, delaying the transition from landfilling to recycling. This barrier exists, as stated, concurrent with the budgetary incentive deriving from the continued application of the landfilling policy, which generates financial returns for both the Ministry of Environmental Protection and the state coffers (the landfill levy produces about ILS 600 million per year for the Cleanliness Maintenance Fund. Therefore, there is no real incentive to promote the waste recycling alternative in Israel and, as a result, the total amount of municipal waste collected throughout Israel and sent for recycling has not increased significantly over the years, as shown in Figure 5 below.

Despite attempts by the Ministry of Environmental Protection to promote a strategy to treat municipal waste, reduce the rate of landfill use, and increase the rate of recycling, the data in the figure above show that the rate of waste recycling of all municipal waste collected has only slightly increased. Indeed, from 2015 to 2018, there was a gradual increase in the rate of recycling (from 19% in 2015 to 23.8% in 2018), but from that year until 2022, no improvement was evident in this measure, which remained at 24% (approximately). Moreover, it is evident that from 2019 to 2020, there was even a drop in the rate of municipal waste recycling of all waste collected; this may be related to the closure of the Amir transit recycling station in that year.

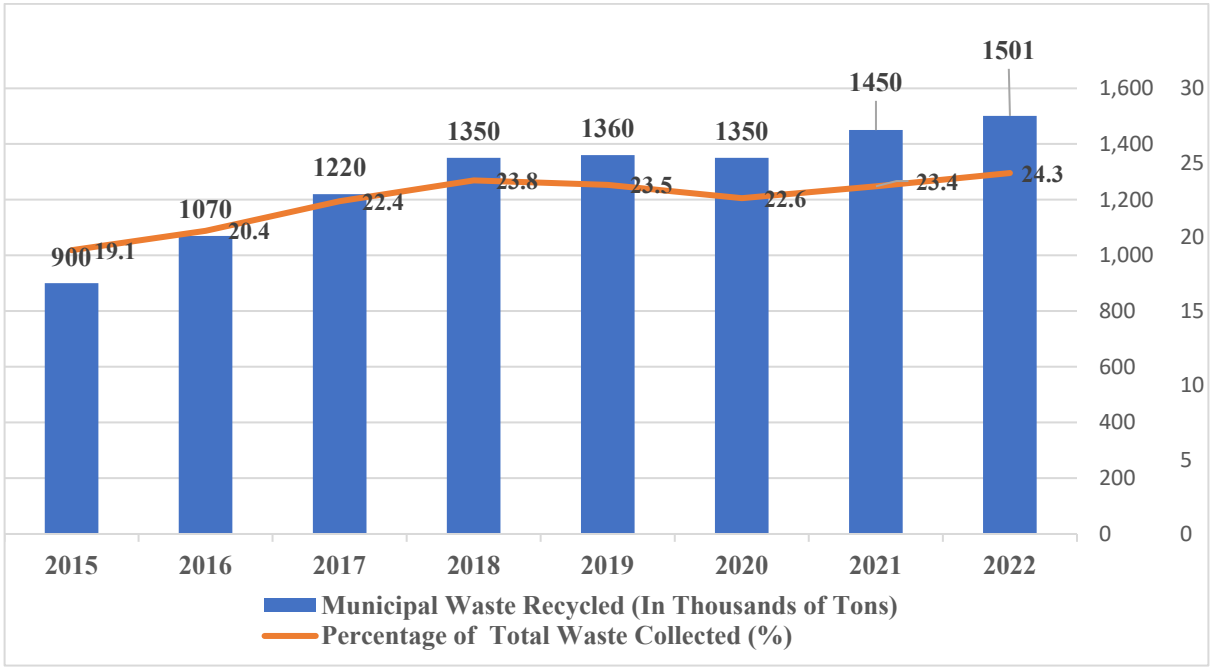

Figure 5. Municipal waste recycling rate in Israel in the years 2015–2022. Source: Israeli Central Bureau of Statistics: Household and Commercial Waste Collected and Transferred to Recycling and Recovery.

3.3. Political Aspects of Israel's Waste Disposal Policy

3.3.1. Deficient Functioning of the Ministry of Environmental Protection

Israel's various environmental laws define the regulator's obligations concerning public transparency. To update the public about the different laws implemented, the Ministry of Environmental Protection must report (usually once a year) to the Knesset's Interior and Environmental Protection Committee on its progress in implementing the laws and on how this benefits the public. In this way, the Interior Committee can supervise the implementation of the laws and find out whether they are effective. Nonetheless, the Ministry of Environmental Protection has been strongly criticized by the Knesset Interior Committee for systematically violating its reporting obligations. In its meeting in February 2022, the committee determined that the Ministry of Environmental Protection has not been fulfilling its duty to report on the implementation of laws legislated by the Knesset or has been doing so at a considerable delay for years. In addition, at the same meeting, it was also claimed that the ministry is not meeting the goals of the strategic plan for waste treatment declared in 2018. This claim is associated with the minimal contribution of the landfill levy to the drop in landfilling.

As stated, the purpose of the landfill levy imposed on the municipalities for landfilling is to create a financial incentive that will encourage the municipalities to promote and develop alternatives to the use of landfills, such as reuse, recycling, and recovery for the purposes of energy, and to provide a funding source to promote these alternatives. Since the policy does not compel the municipalities to reduce their rate of landfilling utilized or to meet any goals (such as reducing the rate of landfilling and increasing the rate of waste recycling), the municipalities have continued to implement the landfilling policy despite its many environmental shortcomings. Furthermore, as stated, the State Comptroller strongly criticized the heads of the Ministry of Environmental Protection concerning the inefficient use of money accumulated in the Cleanliness Maintenance Fund, which includes high budgetary commitments to aims that are not part of the strategic plan.

3.3.2. Government Instability in the Ministry of Environmental Protection

Previous studies have examined the political instability in Israel in recent decades. Most of these focused on examining its impact on various life areas [62–64] while others examined its impact on government performance [65]. These studies indicated that the most prominent negative effect of the political instability in Israel is the resultant impaired management capacity of the government. Indeed, although very large long-term projects have been planned in Israel in various fields (transportation, energy, environmental issues, and others), their actual implementation has encountered considerable problems as a result of bureaucratic faults on one hand and government instability on the other, which are restricting leaders' execution capacity [66].

Accordingly, it can be said that an efficient policy for waste management in general and for the treatment of municipal waste in particular requires planning long-term public policy and collaboration between the various government ministries, between the national government and the local government, between the local government and private developers, as well as information, education, and changing citizens' behavior patterns. All these necessitate time, planning, and cognitive efforts, as well as true intentions by decision makers to promote wide public interests, irrespective of who will receive the credit for the future success of the policy. However, the instability of Israel's central government, with the consequent frequent elections (five consecutive elections were held in Israel in a short span of only three and a half years, from April 2019 to November 2022), has resulted in constant minister turnover in the different government ministries in general and in the Ministry of Environmental Protection in particular. In this Ministry, eight different ministers have held the position from 2013 to 2023, preventing any planning of long-term policy.

3.3.3. Development of a Positivist Worldview in the Government Ministries in General and in the Ministry of Environmental Protection in Particular

Government instability in Israel in general and in the different government ministries in particular might facilitate positivist thinking [67] among decision makers, preventing them from promoting long-term policy out of concern that the products of this policy will be evident only when they are no longer in their current position and they will, therefore, not enjoy the political and electoral gains. These circumstances impress upon Israeli politicians that their time in government is short and limited and, therefore, they must do whatever they can to utilize their temporary position in power to obtain immediate benefits for their constituents, so that they will be able to prove these achievements to them in the next elections. Hence, the state budget in general and the budgets of the different government ministries in particular become a political more than an economic tool, whereby public policy often serves only to provide short-term relief instead of planning long-term strategies for achieving permanent solutions [68]. Therefore, it is no surprise that the money in the Ministry of Environmental Protection's Cleanliness Maintenance Fund has constituted the focus of political struggles between various ministers and government ministries who wished to obtain the funds to promote sectorial interests.

These struggles were evident in a discussion held in a government meeting on 19 February 2023 on a "draft resolution" to transfer the fund to the joint management of the Ministry of Environmental Protection and the Ministry of the Interior, controlled by the sectorial Shas party, further to the coalition agreements with this party. This intention met with the strong objection of the Ministry of Environmental Protection, for concern that it might lead to a budget allocation policy that would not serve the goal of promoting policy for waste management, as well as of the "Adam Tev V'Din" environmental organization, which expressed a concern that it would lead to Israel's transformation into "one big garbage dump". Ultimately, the Ministry of the Interior relinquished the idea of receiving an authoritative position within the management of the Cleanliness Fund and the fund remained under the exclusive authority of the Ministry of Environmental Protection.

Thus, two political aspects can be identified regarding the policy of the Ministry of Environmental Protection concerning municipal waste disposal. One is that the government

instability that results in high minister turnover reduces (or even eliminates) the incentive of the minister to promote long-term policy steps with the aim of achieving a permanent solution to the issue of treating municipal waste. The second is that prioritizing narrow sectorial political returns at the expense of the wide public interest gives the Ministry of Environmental Protection an incentive to accumulate money in the Cleanliness Maintenance Fund and a desire to control it for the purpose of obtaining political power, on one hand, and ways of promoting sectorial policy, on the other. The incentive for accumulating money in the Cleanliness Maintenance Fund is in complete contradiction of the fund's original designation, which, as stated, was not formed with the purpose of enriching the coffers of the Ministry of Environmental Protection but rather to give the municipalities an incentive to reduce the amount of waste sent to landfills. Hence, effective policy would have led to a drop in the amount of money accumulating in the Cleanliness Maintenance Fund, meaning a reduction in the municipal waste sent to landfills.

4. Conclusions

This study presented the public policy present in Israel on treating municipal waste, its various results evident in the waste landfill and recycling rates, and the economic and political aspects that affect the shaping of this policy. The study was based on different documents and reports related to shaping the policy on one hand and on the examination and criticism of the policy on the other hand. Data on landfilling and recycling in recent years was presented, extracted from the websites of the Central Bureau of Statistics and the Ministry of Environmental Protection. The analysis of the information and data presented in the study led to the following detailed conclusions.

4.1. An Increase in the Rate of Municipal Use of Landfilling

The declared goals of the Ministry of Environmental Protection for reducing the rate of landfilling, as presented in 2018 in the strategic plan for the treatment of waste by 2030, have clearly yet to be attained. The rate of municipal landfilling has remained high (more than 75% of all municipal waste annually) and no real reduction is evident over the years despite the landfill levy policy applied in Israel since 2007. Moreover, since the amount of municipal waste collected in Israel is increasing annually (Figure 1), the relatively stable landfilling rates over the years (as a percentage of all municipal waste collected each year) mean that, in fact, an increase has occurred in the total amount of waste dumped, in contrast to the goals of the Ministry of Environmental Protection's strategic plan.

4.2. Low Rate of Waste Recycling as a Proportion of All Municipal Waste

The main alternative to the policy of dumping municipal waste is, as stated, recycling waste. The research findings presented in Figure 5 show that the total amount of municipal waste recycled and the rate of recycling as a proportion of all municipal waste collected in Israel indeed rose slightly from 2015 to 2018 (in 2015, 900 thousand tons were sent for recycling, constituting 19% of all municipal waste collected that year, whereas in 2018, 1.35 million tons were recycled, constituting 24% of the total amount of municipal waste collected that year). At the same time, from that year until 2021, despite the continued increase in the total amount of waste sent for recycling, the relative rate of the waste recycled as a proportion of the total amount of municipal waste collected remained completely stable (at about 24%), indicating that the goals of the strategic plan were not met.

4.3. Economic Factors Affecting the Public Policy for Treating Municipal Waste

The research findings attest to two prominent economic factors influencing the public policy implemented in Israel concerning treating municipal waste, outlined as follows.

4.3.1. The Landfill Levy

The landfill levy, paid by municipalities to waste intake sites and transferred in part to the Cleanliness Maintenance Fund by the operators of the waste disposal sites, constitutes

a conspicuous factor affecting the public policy implemented in the context of treating municipal waste in Israel. The research findings presented in Figure 3 show that the gradual rise in the landfill levy tariff over the years did not lead to a reduction in municipal landfilling. This is because despite the many costs related to the landfill alternative (landfill levy, entrance fees to the landfills, and the cost of transporting the waste), this alternative is still considered cheaper than other waste treatment methods.

Therefore, under circumstances where the central government does not obligate the local government to implement a specific policy that is considered better for wider public interest, municipal leaders will consider the economic consideration added and decisive value in their decisions and will tend to choose the economically preferable alternative, despite the associated social and environmental costs. Namely, despite the great public significance of embracing more advanced treatment methods that are less environmentally harmful, economic considerations have a decisive effect on the judgment of municipal leaders and have the effect of causing them to choose the landfill alternative that is preferable for them. Thus, so long as landfilling is relatively cheap and readily available and so long as the choice of public policy on waste treatment remains up to the local government, it will be very difficult to overcome the many barriers to establishing more advanced alternative facilities for treating municipal waste and to apply the declared policy of the Ministry of Environmental Protection on this issue.

The public policy needed to facilitate meaningful change must provide a response to barriers known to delay the transition from the landfilling policy to a recycling policy, which involve, as stated, the high costs of the transition, the higher operational price, the uncertainty among municipal leaders concerning the success of this step for all participants, as well as providing a response to the necessary coordination mechanisms between all factors involved in the process of waste recycling. Indeed, the State Comptroller's report for 2022 called for opening the landfill market to make it less centralized and even suggested supervising prices in order to reduce the cost of landfilling. However, the goal should be to reduce the costs of the recycling alternative with the purpose of encouraging the authorities to transition from landfilling to recycling.

4.3.2. The Cleanliness Maintenance Fund

The second economic factor concerns the Cleanliness Maintenance Fund, where the money from the landfill levy is collected from the municipalities and intended, as stated, for developing, establishing, and increasing the efficiency of alternative means to replace landfilling that are less damaging to the environment than landfills, as well as encouraging their use, etc. The research findings presented in Figure 4 attest that the fund's revenues from the landfill levy have grown over the years and, as a result, billions of ILS have entered the fund's coffers. The research findings show that despite the constant rise in the fund's revenues and the consistent increase in the excess money accumulated over the years, this money was directed only partially toward achieving the declared goals of the Ministry of Environmental Protection's strategic plan.

Similarly, the State Comptroller's report for 2022 indicated a list of faults in the fund's functioning and the inefficient utilization of the money accumulated in it, as well as the fact that it does not monitor the effectiveness of its operations but rather seeks short-term solutions manifested in the expansion of existing landfills, which contribute to a rise in the rate of landfilling in Israel, in complete contrast to its original goal. Moreover, the report showed that money accumulated in the fund from the landfill levy was transferred to the state coffers, such that the fund served in fact as another budgetary source for covering government operations, unrelated to its designation and not according to the Law on the Maintenance of Cleanliness. Therefore, it seems that the landfill levy imposed on the municipalities and the accumulation of money in the Cleanliness Maintenance Fund constitute an economic incentive for the Ministry of Environmental Protection and the Ministry of Finance to retain the landfill policy instead of an efficient budgetary source for

promoting and developing other alternatives to treating municipal and industrial waste in favor of reducing landfilling.

4.4. Political Factors Affecting Public Policy on Treating Municipal Waste

The research findings attest to several political factors affecting public policy implemented in Israel on treating municipal waste, as follows.

4.4.1. Government Instability in the Ministry of Environmental Protection

The research findings indicate an extremely high turnover of ministers in the Ministry of Environmental Protection, deriving from government instability in Israel in recent years and particularly since 2019. The rapid minister turnover is affecting the ministry's long-term planning and the promotion of reforms that are essential for Israeli society in the context of environmental protection in general and treatment of municipal waste in particular. In light of previous studies conducted regarding the effect of governmental instability in Israel on political decision making and the nature of public policy [65,69], it can be assumed that these circumstances motivate decision makers to shape, promote, and implement short-term policies that involve minimal political conflict, with political returns that they can utilize in the next election campaign. This situation has the potential to foster an inclination toward adopting a positivist policy among decision makers, while also engendering power struggles and control dynamics among various government ministries, as detailed below.

4.4.2. Embracing a Positivist Policy by Decision Makers in the Ministry of Environmental Protection

Embracing a short-term pattern of thinking by decision makers in the Ministry of Environmental Protection, as a result of the government instability, reflects the characteristics of the positivist public policy guided by the position of the decision maker. Therefore, when the different ministers who headed the Ministry of Environmental Protection in recent years refrained from compelling municipal leaders to apply the ministry's policy and to reduce the use of landfills for municipal waste despite being cheaper than the other existing alternatives for treating waste (such as recycling), this involved positivist considerations. These considerations are related to the desire of the ministers to avoid conflict with the municipal leaders, which might have negative electoral consequences for them in the future.

Moreover, the research findings indicate that the Cleanliness Fund, which is based on the landfill levy, constitutes a real barrier to rejecting landfilling, as it allows the accumulation of large sums of money, used cynically by leaders of the Ministry of Environmental Protection to promote political interests instead of the goals for which it was intended to begin with as defined in the ministry's strategic plan and have been recommended for implementation by the State Comptroller.

Here, it is important to mention the functioning separation of powers mechanism implemented in Israel and the significant role of the judicial system, with its activist approach to preventing and canceling unreasonable government decisions on one hand and forcing desirable legislation for the benefit of the public on the other hand. Therefore, it is likely that the political system in Israel will not be able, for a long time, to implement a positivist policy, to avoid long-term planning, and to ignore the implementation of the State Comptroller's recommendations.

4.4.3. Power and Control Struggles between the Different Government Ministries

The research findings show that the money of the Ministry of Environmental Protection's Cleanliness Maintenance Fund constitutes a focus of political struggles between different ministers and government ministries who wish to obtain the money accumulating in the fund to promote sectorial interests. Despite the failure of ministers in the different government ministries to eat away at the fund's money and utilize its budgets for the

ministries under their charge, it seems that in addition to its economic value, the Cleanliness Fund also has considerable political significance for the Minister of Environmental Protection by virtue of its very existence, as it grants the minister strength and control of large budgetary resources. Therefore, it appears that decision makers in the Ministry of Environmental Protection have a fairly low incentive to promote other alternatives for treating municipal waste that will reduce the use of landfills and, thus, decelerate the flow of cash to the Cleanliness Maintenance Fund.

4.5. Summary and Future Studies

The article presents an analysis of public policy regarding municipal waste management in Israel. It explores the quantity and rate of waste collected and disposed of in landfills, as well as the factors influencing this policy. The findings indicate an increase in the amount of municipal waste dumped in Israel, a slight decrease in the rate of landfilling as a proportion of all municipal waste disposal, and a slight increase in the rate of municipal waste recycled in recent years. The article identifies several factors influencing Israeli policy on municipal waste management. These include the impact of the landfill levy and the Cleanliness Maintenance Fund, government instability in the Ministry of Environmental Protection, the positivist policy embraced by decision makers in the Ministry of Environmental Protection, and power struggles between different ministries in Israel. In summary, the article contributes to understanding the dynamics of municipal waste management policy in Israel by providing empirical data, analyzing influencing factors, and offering insights into the challenges and opportunities in this area. This study can serve as the basis for future studies that will examine the waste landfill policy in Israel in the context of pressing global challenges such as climate change, the advancement of novel waste treatment technologies, and the potential stabilization of Israel's political system.

Funding: This research received no external funding.

Data Availability Statement: Data is contained within the article.

Conflicts of Interest: The author declares no conflicts of interest.

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